

**CONFERENCE PROCEEDINGS OF**  
**THE 16<sup>th</sup> ANNUAL CONFERENCE OF**  
***INDIAN POLITICAL ECONOMY***  
***ASSOCIATION***

**26-27 OCTOBER, 2012**

ORGANIZED BY

**Department of Humanities & Social Sciences**  
**Indian Institute of Technology Roorkee**  
**Roorkee – 247 667**

## PREFACE

The Indian Political Economy Association is a relatively new non-hierarchical and participative association of the social scientists, activists, creative writers, public intellectual and media persons, etc, meant to provide a forum for shared efforts. Their pursuits are directed towards, committed to and intend to carry forward the growth of a variety of socially responsive intellectual pursuits with direct bearing on and learning from the concerns and movements of the people at large. Of course no such social science , creative cultural works, in-depth investigations and social activism is possible without the intellectual and moral courage and the conviction springing forth from the systematic scientific research and stubborn refusal to be overawed by the dominant socio-political, methodological-epistemological approaches which are nothing but are thinly disguised theories and empirical works to subserve the agenda of those small groups at the top of the social pyramid who are at the root of massive and unjustifiable , indeed inexcusable social exclusion of an overwhelmingly large part of humanity in general and the people of the third world in particular.

Obviously these are stupendous tasks. One can see a great deal of stirring the world over, particularly in the wake of the impasse reached by the global dominant system of our time. The movements, new waves of ideas and theories and policy agendas are creating a widespread awakening. It is in this context that the small beginnings like the one marked by the activities of the IPEA, a small sample of which is in your hands to be presented and discussed by the participants assembled at the Department of Humanities and Social Sciences, IIT Roorkee. Conference devoted to some major themes both contemporary and of long lasting value is meant to be a step in this direction. Even a cursory look at the contents of the volume would show the kind of issues and themes have invited the intellectual energies of the people associated with the IPEA.

It may be stated that these exercises are by and large preliminary ones and are meant to be presented, discussed and debated in order that the collective feedback of the participants becomes available for strengthening and sharpening them, in one word , increasing their relevance .

*Organizing Committee of the 16<sup>th</sup> Annual Conference of the IPEA, IIT Roorkee  
26-27 October, 2012*

## **About the Association**

The Indian Political Economy Association is a Society registered under the Societies Registration Act. A number of social scientists from many Universities, Research Institutes and Colleges, Journalists and Public-men, after a long process of deliberations, decided to set up this Association. The Association came into formal existence in October 1989.

It was felt that there is a need for an organization which brings together people who are trying to understand the social processes in their organic unity without excessive influence of the individual discipline they are formally trained in. This is because in real life the issues and problems respect no such artificial boundaries as have come up partly for pedagogic reasons and partly under the impact of the forces governing non-material production. Especially in a country like India which is facing such immense challenges, the social scientists can hope to respond to the challenges only through a comprehensive understanding of social processes and collective efforts.

We are aware that there are a number of academic associations which are doing very useful work in their respective areas. However, it was felt that it is essential to rise above the narrow boundaries and attempt to evolve an integrated understanding in a historical context. It was also felt that unfortunately there have emerged certain hierarchical practices leading to some kind of polarization and uncalled for stratification among the members of many of these Associations. In our view, a fully democratic, participative and non-hierarchical academic culture is a basic pre-requisite for development of meaningful social science committed to the processes of social transformation. The Indian Political Economy Association seeks to work in these directions and with an approach which is in keeping with the perspective outlined above.

Its Memorandum of Association spells out the following to be its objectives:

“(1) The objective of the society is to provide a forum of mutual interaction and support to those engaged in theoretical and empirical studies with a view to evolve scientific and socially-responsive political economy with reference to both India and the world. The society will in particular endeavor to encourage inter-disciplinary studies and will not restrict itself to the conventional boundaries of individual disciplines. (2) It is also an objective of the society to popularize a scientific understanding of social problems among the people and to contribute to the process of social transformation”.

Sixteen Annual Conferences of the Association have been organized so far in various parts of the country.

	<b>Date</b>	<b>Venue</b>	<b>Theme</b>
I	1-2 January 1991	Gyanchand Institute of Social Sciences, Patna	The Political Economy of Transition from Traditional Agriculture: the Process of Regional Disparities in Indian Agriculture
II	8-10 January 1993	Kakatiya University, Warangal	India During the Twentieth Century: Political Economy of the Colonial and the Post Independence Period
III	9-11 April 1994	Sarrayya Village, District Balia, UP	Crises in India; Post Cold War and the Third World
IV	20-22 January 1995	Central University of Hyderabad	Political Economy of Gender: The Indian Concerns
V	29-30 August 1998	M.D. University, Rohtak	Natural Resource Use, Traditional Technology and Development”;
VI	20-21 December 1999	Institute of Development Studies, Jaipur	“Governance, WTO and India on the Eve of the Next Millennium”;
VII	17-19 November 2000	ST. Joseph College, Darjeeling	“India’s Development Experience”; “Regional Autonomy”
VIII	27-29 July 2002	Andhra University P.G. Centre, Srikakulam	Ten Years of Structural Adjustment: State, Market and Civil Society; The International Political Economy
IX	11-12 June 2004	G.B. Pant Social Science Institute, Jhusi, Allahabad	Globalization, State and the Weaker Sections
X	11-12 August, 2006	MS University, Udaipur	Political Economy of Disparities
XI	2-3 November, 2007	Guru Nanak Dev University, Amritsar	Re-examining development debates – Concepts, Strategies and Processes
XII	15-16 November, 2008	National Institute of Technology, Kurukshetra.	Inclusive Development and Shifting Power Balance
XIII	6-7 November, 2009	Punjabi University, Patiala	The global Economic Crisis and its Impact on India; Electoral Democracy and Identity Politics; Discontent and Struggles in South Asia
XIV	10-12 December, 2010	A. N. Sinha Institute of Social Studies, Patna	Political Economy of Regional Disparities in Development and Federalism; Future of Capitalism and Sustainable Alternatives; Political Ecology: Conflicts over Water, Forests, Energy, GM Food, and Climate-Change Negotiations; Social, Political and Economic Impacts of Two Decades of Liberalization



XV	29-30 October, 2011	Chaudhury Devi Lal University, Sirsa	The Political Economy of Corruption; Dispossession of People – The question of land, forest, water and other natural resources; Issues in Social Development, Environmental Sustainability, Right to Food Debate, and Democracy and Dissent Discourse; Two Decades of Liberalization and Globalization: Emerging Trends in India and Elsewhere
XVI	26-27 October, 2012	Indian Institute of Technology Roorkee, Roorkee	Radical and Reformist Approaches to Ecologically Sustainable Development; India and the Globalized World in Short-term and Long term: Political Economy Perspectives; Re-examining India's Decades with Neo- liberalism: Empirical and Theoretical Issues; Watershed Management Programme in India: Methodological Issues, Impact Assessment and Governance; Concerns and Methodologies of Political Economy, especially in the Context of Indian Social Development

The Association jointly with the National Committee for Celebration of Birth Centenary of Prof. D. R. Gadgil organized a National Seminar on “Costs and Distribution Benefits of Planning in India: A Review and Search for Alternatives”, at Garh Basai, Alwar, Rajasthan in February 2005.

The Association has been very active in bringing out publications relating to contemporary socio-economic issues. A very important activity of the Association has been publication of Alternative Economic Survey (AES) annually since 1992. The AES looks at the entire Indian economic structure policy wise and sector wise to present a critical appraisal from the people’s perspective. The last AES, 17th in the series, was published in January, 2012. The Association has also brought out Conference Proceedings of the 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup>, 15<sup>th</sup> and 16<sup>th</sup> annual IPEA conferences. The details of other volumes of IPEA are as follows:

<b>Title of the Book</b>	<b>Year of Publication</b>	<b>Name of the Publisher</b>
Crisis in India	1995	Khama Publishers, New Delhi
Political Economy of WTO Regime	2002	Rainbow Publishers, Noida
Bhartiya Arthvyavastha	2004	Prakashan Sansthan, New Delhi
From Statism to Neo-liberalism – The Development Process in India	2009	Daanish Books, New Delhi

The Global Economic Crisis – A People’s Perspective: Fiasco of Neo-liberalism	2009	Daanish Books, New Delhi
Vaikalpik Arthik Varshiki, Bharat 2008-09	2009	Daanish Books, New Delhi
Vaikalpik Arthik Varshiki, Bharat 2009-10	2010	Daanish Books, New Delhi
Recent Development Debates: Economic Crisis and Identity Politics	2011	Punjabi University, Patiala
Bharat Mein Arthik Vriddhi Aivam Vikas: Gahrata Antarvirodh 1991-2011	2011	Yuva Samvad Prakashan, New Delhi
Emerging Issues in the Political Economy of Globalisation, Development and Corruption in India	2012	

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## **THEME I**

**RADICAL AND REFORMIST  
APPROACHES TO ECOLOGICALLY  
SUSTAINABLE DEVELOPMENT**



## **Economic Growth and Environment Sustainability: A Study of Indian States under the Neo-Liberal Regime**

Stuti Saksena\*

### **Abstract**

In the present era of growing emphasis on achieving double digit growth figures, one of the key challenges faced by the Indian economy is whether it will be able to bounce back and sustain economic growth without running into resource constraints. Even though the services sector comprises the largest fraction of India's Gross Domestic Product, it depends hugely on the quality and quantity of infrastructure along with the supply of skilled labour force. Among other things, quality of our surrounding environment is one of the key factors contributing to the quality of life led by human beings. They not only draw on a number of resources such as food and water from nature for their sustenance but also depend on the surrounding air for their supply of oxygen in order to fuel their body metabolism. Thus, the maintaining the quality of environment is a key input for sustaining higher levels of economic activity and human welfare. Over the years, there has been an increase in the pressure on the resource base of India. There are two lines of argument regarding the relationship between economic growth and the quality of environment in economic literature. On one hand, it is believed that rapid growth requires larger inputs of energy and material which put a strain on our ecology by generating larger quantities of waste byproducts and degrading our existing resource base. On the other hand, it is argued that with growing per capita income, greater importance is laid on the quality of life which implies greater emphasis being laid on adoption of eco-friendly methods of production and consumption. In order to examine the validity of the two arguments, this paper looks at the relationship between economic growth and environmental quality for the Indian States for the period post adoption of the neo-liberal regime.

### **Introduction**

Human activities are changing the face of the planet at an unprecedented pace. They are responsible for both the preservation and degradation of every element of nature. On the positive front where innovations in technology have led to the discovery and adoption of eco-friendly methods of production on a limited scale, much damage has been done in the form of extinction of several species by destroying their natural habitat, continuous increase in the concentration of green house gases, depletion of the ozone layer, breakdown of natural cycles and deforestation due to advances made by science in order to make human life more comfortable. Today the policy makers around the world find themselves confronted with the target of achieving sustainable development. Questions such as 'are we hitting

the carrying capacity of our planet', 'what is the future of mankind given the present rate of resource depletion and environmental degradation' have been the subject matter for several rounds of World Trade Organization conferences and other global deliberations. There seems to be a general consensus about the need to do 'something' about it, however, what exactly needs to be done remains unanswered or at least unimplemented most of the time. As pointed out by Giddens (2011), the politics of climate change has to cope up with "Giddens paradox" where policy makers sit on their hands and do nothing about the dangers of global warming since these dangers are neither tangible nor are they immediate or visible in day-to-day life.

Sustainable development means such a form of economic development in which intergenerational well-being does not decline.<sup>1</sup> While trying to achieve the above goal, one needs to ensure that the productive base of the economy is sustained over time. The conventional characterization of 'comprehensive wealth' of a country has been broadened to include not only reproducible capital goods, human capital and natural capital but also population, public knowledge and formal and informal institutions that determine the allocation of resources.

The shift from emphasis on achieving just economic growth to that of achieving sustainable development in India comes almost after two decades of economic reforms. Concerns expressed over the declining ecological system in international policy making circles and the voice of several environmental research organizations has caught the attention of one and all. The race to the top among the Third World countries has resulted in a race to the bottom along several parameters such as labour and environmental standards. This has in turn caused irreparable damage to the environment and deterioration of human welfare, particularly for those at the bottom of the ladder. India is no exception to this tragic outcome. The nature of economic growth has resulted in widespread displacement of labour, sometimes for the better and sometimes for the worse. Those who find themselves equipped with marketable skills have seen their standard of living rising whereas the poor and the illiterate have suffered, being pushed into the darkness by the ruling elite. It is the latter group which has turned towards nature in order to derive their living. In an attempt to reduce their cost of living, for example, the poor engage in cutting down forests, sometimes illegally, in order to sell forest wood to the giant logging companies for meager prices. The other channel through which growth affects nature is through the resource demands of the present economic system. Rapid growth of townships and industries has resulted in an ever increasing demand for infrastructure facilities, power and fuel. Put together they have the potential to strain the ecosystem beyond repair and therefore this forces us think whether our

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<sup>1</sup> Kenneth J. Arrow, Partha Dasgupta, Lawrence H. Goulder, Kevin J. Mumford and Kirsten Oleson (2010), Sustainability and the Measurement of Wealth, p 2.

demands are within the permissible limits or are we crossing the tipping point.

While there is no dearth of research to assess the linkages between economic growth and the pressure on nature, most of the empirical studies use cross-sectional or panel data for a sub-sample of developed and developing countries. The results so obtained try to predict the path of environmental degradation and revival of the present day developing countries. However, such forecasts might be misleading since these studies tend to juxtapose the positive relationship between pollution and income in developing countries with an essentially negative one for developed countries. In addition, it is inappropriate to approximate the dynamic interaction between environment and income in a single country from a static relationship estimated at a point in time. A more meaningful approach, as pointed out by Stern et al. (1996), is to analyze the historical experience of individual countries. This study uses panel data for 19 Indian States for the period 2000-2010 in order to examine the sustainability of the present growth experience. The need to examine such a relation is important for prescribing correct policy measures for sustaining the present growth momentum from an ecological point of view.

Income generation in the Indian States depends on their natural endowments, infrastructure facilities, protection of property rights, quality of human capital and inflow of investment, both domestic and foreign. It has often been found that in an attempt to gain a competitive edge over another State, the State governments engage in practices which are not conducive for maintaining a healthy environment. For example, the Gujarat State government granted permission to construct the Mundra Port and Special Economic Zone by the Adani Group in the Kutch district at the cost of destruction of the common property resources such as the mangroves, creeks and grazing lands which has not only taken away the source of livelihood for local communities but also disturbed the ecological balance.

In this paper, I begin by discussing the change in policy regime in the country and its impact on the environment. Subsequently, after describing the data used and the methodology employed, we come to the empirical analysis. For the purposes of empirical estimation, I have used a panel data set which tracks three harmful emissions-carbon dioxide, sulphur dioxide and Respirable Suspended Particulate Matter (RSPM) in the Indian States for the period 2000-2010. The States included in the sample are diverse, in that we employ data on both fast and slow growing States. This helps us to conduct a comprehensive analysis of the environmental impact of economic growth in India.

### **Change in the Policy Regime and Environmental Degradation**

Any attempt to understand what went wrong during India's post independence growth experience requires us to go through the changes in policy formulated by the government over the years. In the first two decades post achieving

Independence, failure of the land reforms to give 'land to the tiller' and increasing monopoly power in the manufacturing sector resulted in growing income inequality within the country. In order to widen the demand base of the Indian economy and therefore the necessary growth stimulus, the government promoted import substitution strategy along with the provision of infrastructural facilities to grease the wheels of the market economy. This process soon reached its limit and the growth impasse of the 1960s and the 70s laid way for a series of economic reforms which marked the transition from a heavily government regulated economic system to a more market oriented system of functioning.

Subsequent to the balance of payments crisis of 1991, India adopted a package of economic policies that harped on the common theme of supremacy of free markets over government regulation. Promotion of economic liberalization and globalization became the chief agenda of the policy makers who were guided by the advice received from the IMF and the World Bank in return for international loans in order to cover up for the fiscal crunch. From increased privatization of the public sector to the deregulation of controls on international financial flows to giving a range of direct and indirect tax concessions as incentives to the corporate sector, the country's policy landscape has changed beyond recognition. The reforms were expected to boost India's economic growth through various channels. Doing away with the 'license raj' resulted in simplification of the procedures to start a new enterprise and was expected to positively affect economic activity in the manufacturing sector. Trade liberalization would expose domestic industries to international competition standards and also allow a continuous inflow of critical inputs and raw materials from abroad. By reducing the role of the government in various realms of economic activities, it was expected to help us get rid of several vices such as burgeoning size of the bureaucracy, over manning and soft budget constraints that invariably resulted in overshooting of the cost of any project.

Whether these expectations have been realized in practice is a different question. The harsh criticism of the current government at stance by the left wing politicians and Marxian economists has not gone unnoticed and unsubstantiated by the experience of the common man. Snail paced realization of the benefits of economic growth by those who are at the bottom of the pyramid has resulted in growing unrest among various factions of the nation. With growing emphasis on reducing the size of the fiscal deficit as a proportion of Gross Domestic Product to the sacrosanct figure of 4%, the social sector has witnessed cuts in government spending. The cost of crucial health and education services has therefore gone up several folds thereby making such services inaccessible to the middle and low income groups.

With markets reigning supreme there has been a tremendous increase in the resource requirements of our economy with little incentive to restore or replenish the

existing natural resource base. Due to the public good nature of environmental services, the tendency to free ride becomes a widespread problem. In addition, growing population pressure, poverty and urbanization has resulted in people passing on some of their costs of living to the society by exploiting natural resources. There have been several instances where forests have been cleared for stretching the limits of agricultural land beyond existing boundaries in order to meet the growing food demands or for the construction of dams and manufacturing units. The rapacious attitude towards the use of natural resources is unchecked by the government, since they want to promote private enterprises at all costs. A natural concomitant of the growing private sector activity are budding townships and higher pollution levels which not only put greater strain on the stocks of existing resources but also negatively affect their quality. According to a report by the Ministry of Commerce and Forests (2009), out of the total number of premature deaths due to high levels of indoor and outdoor pollution in the world, the highest numbers are recorded in India.

Thus, it can be expected that changes in policy stance is associated with change in attitude of the government towards issues like protection of environment since the tendency to pass on the tasks at hand to private players runs us into the risk of blatant violation of environmental norms without effective enforcement of punitive measures.

### **Review of Economic Literature**

In the literature, the question of how economic activity affects environment has been looked at from several angles by employing different methodologies and datasets. Yet, there is no single conclusions arrived at from various kinds of analysis due to the measurement problem associated with aggregating the impact of economic growth on various dimensions of nature. Several indexes such as IPAT (Impact (I) of population (P), affluence (A) and technology (T) on environment), ImPACT, STIRPAT, etc. have been constructed to measure the effect of growth on environment. Some prefer the use of particular environmental indicators such as carbon dioxide, sulphur dioxide emissions (Cole & Neumayer 2004 and Boulatoff & Jenkins 2010), urban air quality (Esty and Porter 2005) and quality of water (Barua & Hubacek 2009). However, each suffers from certain limitations and till date there is no consensus regarding a precise measure of environmental consequences of the growth process.

Any discussion regarding the relationship between environment and economic growth begins with referring to the famous 'Environmental Kuznets Curve' (EKC) put forward by Grossman and Krueger in 1995 according to which there exists an inverted-U relation between the level of per capita GDP and the quality of environment. The logic behind this argument is that citizens of a poor country give greater importance to material well-being over natural environment since they do not possess the economic

resources to adopt environment friendly methods of production and consumption. Nevertheless, as the country progresses and achieves a sufficiently high standard of living, they start caring more about the natural environment and adopt various measures such as environmental legislation and creation of new institutions to protect the environment. This line of reasoning has been formalized by Panayotou (2000) into three effects, namely-

- a) *Scale effect*: According to this effect, rising economic activity results in increased environmental damage due to the growing demand for resources, both natural and financial.
- b) *Composition effect*: According to this effect, as a country moves along its development trajectory, the economy experiences a structural change whereby we witness a transition from agriculture to manufacture to services being the dominating sector. It is expected that the shift from heavy manufacture economy to more service-oriented one will be associated with lower levels of pollution and environmental damage.
- c) *Abatement effect*: According to this effect, economic development is likely to be associated with greater public awareness and consciousness regarding the kind of technology being put to use. Technological innovations would be significantly directed towards bringing in less polluting technologies. Thus, we would expect the quality of our environment to improve even further.

Economists like K.J. Arrow and P. Dasgupta find the hypothesis flawed along several dimensions. Arrow et al (1995) pointed out that if the degradation of natural capital was irreversible, economic growth itself could be at risk, since what is lost can not be restored back through human efforts. In addition, Dasgupta (2011) has argued that most of the empirical work concerning the 'Environmental Kuznets Curve' has tested the hypothesis for pollutants involving local, short-term damages such as sulphur particulates and not for the pollutants involving long-term and more dispersed costs such as carbon dioxide, which have been found to increase continuously with GDP. Also, the narrow spatial outlook of the inverted-U overlooks system-wide implications of emissions since it does not take into account the negative externalities imposed by the polluting country on its neighbouring countries. Özler and Obach (2009) have questioned the generalizability of the EKC hypothesis since environmental degradation in rich countries could be reduced by outsourcing a significant part of their production processes to poor countries.

Several empirical studies have been carried out to test the relationship between economic growth and environment. Shafik and Bandyopadhyay (1992) have analyzed the relationship between economic growth and environment quality by using eight indicators of environment quality for 149 countries for the period 1960-90 which were at different levels of income. They found

that as incomes rise initially, most environmental indicators deteriorate except for access to clean water and urban sanitization. As they approach middle income level, there is an improvement in other indicators too due to adoption of eco-friendly technology and enactment of environmental policies. Chousa, Tamazian & Vadlamannati (2008) have shown through their analysis of panel data for BRIC economies (Brazil, India, Russia and China) that high energy consumption level promoted by rapid economic growth has resulted in high carbon dioxide emissions which has an adverse impact on the quality of environment. Barua & Hubacek (2009) used a panel data set for 16 Indian States for the period 1981-2001 to examine whether EKC hypothesis holds good for water quality indicators. They found that the decline in water pollution during the process of economic growth is temporary and tends to worsen subsequently. Asici (2011) has examined the sustainability of the growth process for 213 countries for the period 1970-2008 from the point of view of environment. By using Adjusted Net Savings data, obtained from World Bank Reports, as a comprehensive measure of pressure on nature, he has shown that there is a positive relation between per capita income and pressure on nature, the impact being the strongest for middle income countries compared to low and high income ones.

The empirical evidence on the relationship between income and pressure on nature can therefore, be best described as mixed. With this background in mind I seek to examine the relationship between the air quality and per capita income in India.

### Methodology, Variables and Data Sources

In the analysis below, we estimate the following simple econometric models:

#### 1. Basic regression:

First, we regress the pressure on air quality (measured by emissions of carbon dioxide, sulphur dioxide and Respirable Suspended Particulate Matter) on the lagged value of per capita Gross State Domestic Product for 19 Indian States for the period 2000-2010.

$$\text{ems}_{it} = \beta_0 + \beta_1. \text{sgdp}_{it-1} + \varepsilon_{it} \dots\dots\dots (1)$$

The regression coefficient,  $\beta_1$ , obtained from the above equation will overestimate the effect of economic growth on the quality of environment since it suffers from the problems of omitted variable bias and potential endogeneity. Certain structural and institutional covariates such as public awareness and enforcement of law and order in a given State determine the extent to which environmental laws are enforced and therefore affect the pressure on nature. Thus, we augment the above basic model by adding on the following explanatory variables in order to control for the above effects across Indian States.

#### 2. Augmented regression:

$$\text{ems}_{it} = \beta_0 + \beta_1. \text{sgdp}_{it-1} + \beta_2. \text{law}_{it} + \beta_3. \text{pd}_{it} + \beta_4. \text{sger}_{it} + \beta_5. \text{inv}_{it} + \beta_6. \text{trade}_{it} + \varepsilon_{it} \dots\dots(2)$$

where

- $\text{ems}_{it}$  is the log of pressure on nature in State i for period t
- $\text{sgdp}_{it-1}$  is the lagged value of log of per capita State Gross Domestic Product
- $\text{law}_{it}$  is a measure of the condition of law and order prevalent in State i in period t
- $\text{pd}_{it}$  is population density in State i in period t
- $\text{sger}_{it}$  is a measure of the education standard achieved in State i in period t
- $\text{inv}_{it}$  is a measure of the level of investment in State i in period t
- $\text{trade}_{it}$  is a measure of participation in international trade by State i for period t
- $\varepsilon_{it}$  is the error term of the regression

The construction of these variables is detailed below, following an elucidation of the dependent variable:

#### I) Dependent Variable:

Emission of gases such as sulphur dioxide, nitrous oxide and Respirable Suspended Particulate Matter has become a major threat for our environment. Due to data limitations, I have used the sum total of these emissions as a proxy for the pressure on nature because of human activity. The data on this variable is obtained from the Central Pollution Control Board and National Ambient Air Quality Monitoring programme.

#### II) Independent Variables:

a)  $\text{sgdp}_{it-1}$ : On one hand, it can be argued that high levels of economic activity is associated with increased extraction of natural resources, accumulation of waste products and greater emission of pollutants that result in the degradation of the quality of the environment. This is because higher per capita income is usually associated with higher consumption and production needs. During the process of transition from being an agricultural economy to a predominantly industrial one, the energy needs increase significantly due to the emergence of transportation networks, power plants, dams and other infrastructural facilities. Thus, the per capita income is positively related with the pressure on nature. On the other hand, higher level of income is associated with greater awareness and concerns about our ecology. Therefore, we make conscious efforts, for example through scientific research, to improve the quality of our environment. Hence, the overall impact of per capita income on the quality of air is ambiguous. The data on per capita State Gross Domestic Product is reported by the Planning Commission of India on an annual basis.

b)  $\text{law}_{it}$ : The relationship between the enforcement of the regulatory framework and the quality of environment is a positive one. The lack of clearly defined property rights and lax environmental standards are one of the major reasons

that result in a decline in the quality of environment. The inability of the government to enforce ownership or accountability in the management of natural resources or proper disposal of industrial waste has encouraged free rider behaviour on the part of market players. Since the analysis is carried out at the inter-state level, I have used Incidence of Cognizable Crimes under the Indian Penal Code for a given State for each year as a proxy for political stability and efficiency in the enforcement of law. The data on incidence of crime is reported on an annual basis by the National Crime Records Bureau, Ministry of Home Affairs (India).

c) **pd<sub>it</sub>** : Population density is another factor that affects income-environment relationship. There are two opposing effects at work. On the one hand, more people per square kilometer implies higher pollution due to the use of coal and non-commercial fuels such as wood in cooking and heating, over and above the emissions resulting from formal economic activity. On the other hand, densely populated States are likely to be more concerned than less populated ones about reducing hazardous emissions at every level of income and consequently ensure a stricter enforcement of environment protection laws. Hence, the overall relationship between population density and the pressure on nature is ambiguous. The data on population density is reported by the Economic Intelligence Service, Centre for Monitoring Indian Economy and the Census of India (2001).

d) **sger<sub>it</sub>**: Another important factor determining the quality of environment is the average level of education in the society. Education not only creates awareness about the impending dangers of harming nature but also instills in them a sense of responsibility towards making their contribution in sustaining our natural resources. Thus, we expect a negative relationship between the average level of educational attainment of a State and the pressure on nature since more educated societies are more likely to demand a cleaner environment. The empirical analyses in this paper uses school enrollment ratio at the secondary level, defined as the ratio of the number of individuals who are enrolled in schools in the grade level VIII-XII to the number of children who are of the corresponding school enrollment age (age 12-17), as a proxy for educational attainments of a society. The data is obtained from the Statistics of School Education, various issues, published by the Ministry of Human Resource Development, Government of India.

e) **inv<sub>it</sub>**: According to the dissenters of financial liberalization, in an attempt to attract more foreign investment to their State, the State governments try to gain a competitive edge over one another by lowering environmental standards. This results in a race-to-the-bottom which has an adverse effect on the quality of environment. This line of argument is also applicable for domestic investors as well. Thus, we expect a positive relation between pressure on nature and volume of investment undertaken in a given State. I have used State-wise break up of Investment Intentions for the industrial sector, measured in terms of Industrial Entrepreneur

Memoranda filed for de-licensed sector, Letters of Intent issued and Direct Industrial Licenses granted/ issued in India which are reported by the Ministry of Commerce & Industry, Government of India, as a proxy for the level of total investment undertaken in a given State for a given year.

f) **trade<sub>it</sub>** : When it comes to the interaction between the trade and pressure on nature, there are two competing hypothesis which generate ambiguity regarding the overall effect of this variable. There is a propensity among rich countries to spin-off pollution-intensive products to developing countries with lower environmental standards, either through trade or direct investment in these countries<sup>2</sup>. The counter argument put forward by proponents of free trade is that these foreign firms bring with them more eco-friendly technology which helps in reducing the pressure on nature. Thus, the overall impact of trade on environment is ambiguous. I have used the ratio of total exports and imports to State Gross Domestic Product as a measure of participation in international trade at the State level. The data on exports and imports is reported by the Database on Indian Economy, RBI's Data Warehouse.

#### *Dealing with Omitted Variables:*

It is important to note that the error term of our empirical model may contain some unobservable factors which may simultaneously affect both the quality of environment and explanatory variables such as per capita State Gross Domestic Product used in the model. For example, the size of black economy in each state which is a measure of the degree of illegality prevalent in any State negatively affects the level of productive investment undertaken in any State and enforcement of laws. Consequently, this will create a bias in our results due to exclusion of variables which are correlated with the explanatory variables specified in the empirical model.

In order to get around with the above problem, we exploit the panel structure of our data. We can use either a fixed effects or a random effects model depending on the kind of assumptions we are willing to make. If we assume that the model is applicable only to States that are included in the sample then fixed-effects estimation is appropriate. It is used to control for time invariant omitted variables that differ across States. However, if we assume that the model is applicable to a random sample drawn from a larger population, then level effects could be captured through a random-effects estimator. Since both types of estimators have their own advantages and disadvantages, we will estimate the empirical model using both fixed-effects and random-effects and compare the two results using a Hausman specification test. In this test, the null hypothesis is that we can use both fixed or random effects and the alternative being fixed effects.

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<sup>2</sup> Theodore Panayotou (2000), Economic Growth and the Environment, CID Working Paper No. 56, Environment and Development Paper No. 4, p 16

Note: In all regressions we estimate robust standard errors that are clustered by state to account for correlation of error terms within a state.

### Results

We present in this section the regression coefficients derived from the fixed-effects and random-effects implementations of equations (1) and (2). These results are listed in the table below:

**Table 1: Basic regression**

Variables	Fixed Effects (1)	Random Effects (2)
Log of Per Capita State Gross Domestic Product	0.0525643 ** (2.79)	.0247639 ** (4.00)
Constant	4.428127 ** (34.25)	4.70609 ** (28.12)
Observations/ Groups	190/ 19	190/ 19
Overall R <sup>2</sup>	0.1473	0.1829
Hausman Test	$\chi^2_{(1)} = 1.47$ Prob > $\chi^2 = 0.2254$	

The dependent variable is the total emission of three harmful gases- SO<sub>2</sub>, NO<sub>2</sub> and RSPM at the State level. The figures marked by \*\* are significant at the 95% level of confidence. The t-statistics associated with each estimate are displayed in parenthesis.

The above table shows us that the emission of harmful gases is positively correlated with the level of per capita income in any State. However, the coefficient on the per capita income underestimates this effect due to several omitted variables. We, therefore, add more explanatory variables as stated in the previous section.

A preliminary analysis of the results stated in Table 2 (in Annexure) reveals that most of the estimated coefficients are significant at 5% level of significance. As far as the signs are concerned, we can see that after controlling for other variables, the relation between income and volume of emissions turns negative-this implies that for the period 2000-2010 time related effects which reduce environmental impacts of human activity with growing income dominate over the scale effect in the Indian States. Looking at column (1) and (2), we can see that the coefficient on per capita State Gross Domestic Product has gone up compared to the basic regression. This supports the fact that there were certain explanatory variables omitted from the basic regression analysis that were correlated with

the per capita income in a given State and we were reporting a cumulative effect of all these variables.

As far as the effect of trade on the quality of environment is concerned, the negative effect of outsourcing pollution intensive products to India outweighs the positive effect of eco-friendly technology brought in by the foreign firms. Population pressure has a negative impact on the quality of surrounding air i.e. the presence of harmful gases such as sulphur dioxide and nitrous oxide increases with the increase in population density. Educational attainment, measured by the gross enrolment ratio at the secondary level has a positive impact on reducing the pressure on nature- greater awareness about the importance of a healthy and clean environment resulting from education contributes towards adoption of eco-friendly measures of production and consumption along with pressure on the government to enact and enforce laws which help in protecting nature. The reduction in the pressure on nature is strengthened by the credibility of the State government to enforce law and order, especially those related to environment.

To account for the panel characteristics of our data set, we have used both fixed effects and random effects to estimate the model with robust standard errors. The null hypothesis that 'the coefficients from both fixed and random effects can be used' is rejected by the Hausman test, therefore, we rely on fixed effects as being the better of the two methods. The variables having a significant impact on the quality of air in any State in order of their magnitude of impact are secondary gross enrolment ratio, level of investment and population density and per capita SGDP.

A limitation of the results stated in columns (1) and (2) is that it suffers from the problem of endogeneity of the explanatory variables, particularly per capita SGDP. In order to get around this problem, we have used two-period lagged value of per capita SGDP as an instrument variable (IV). The absence of serial correlation in the residuals of the augmented regression, tested by Wooldridge test (2002)<sup>3</sup>, suggests that the lagged value would be good instruments for our empirical analysis. Using two-stage GLS, for both fixed effects and random effects, we have arrived at the regression estimates as stated in column (3) and (4). On comparing regression coefficient for per capita SGDP in column (3) and (4) with (1) and (2), we can see the IV estimates have gone down. Again using the Hausman test, we reject the null hypothesis and prefer the use of the fixed effects model. The signs of the remaining explanatory variables remain unchanged compared to the augmented regression without IV and the coefficients are similar. In this case, the variables having a significant impact on the quality of air in any State in order of their magnitude of impact are secondary gross enrolment ratio, level of

<sup>3</sup> David M. Drukker, Testing for serial correlation in linear panel-data Models, The Stata Journal (2003), Number 2, pp. 168-177

investment, population density, enforcement of law and per capita SGDP.

### Limitations

Due to data limitations, the analysis had to rely on proxies for several variables like pressure on nature, the level of educational attainment of the society, investment undertaken at the State level, etc. For want of a more comprehensive index, we had to use the data on quality of air as a measure of pressure on nature. Even while looking at the impact of human activity on the quality of air we breathe in, data is reported only for very few pollutants at the State level.

A better measure of the level of investment is the Gross Fixed Capital Formation in the industrial sector. Again, such data is reported only by a few States and therefore necessitated the use of investment proposals as a proxy for investment. Data on some variables like per capita State Gross Domestic Product (SGDP) is not reported accurately by the State governments due to the presence of black economy and poor data collection techniques. Thus, measurement error can result in downward bias in our results. Despite these shortcomings, the empirical analysis carried out gives an insight into the relationship between income and the pressure on nature.

### Conclusion

Growth is a dynamic process which not only requires enriching our existing resources to sustain it but also their efficient utilization- be it be natural, social or financial. It is important to study the factors that not only affect the quality of our environment in general but also account for differences in the performance of the States when it comes to maintaining their natural resource base. This helps us to extract lessons about what helps in maintaining growth without degrading our environment and other natural resources. It is important to formulate guided environmental policy for different States since they vary in their economic and resource base.

The aim of this paper has been to examine the relationship between the quality of air, as measured by the emissions of sulphur dioxide, nitrous oxide and RSPM, and the per capita income for the Indian States. Using a panel data, I have shown that the growth experience within the last decade is associated with declining presence of these harmful gases in the air. However, this does not mean that India does not need to worry about the possibility of sliding back to high pollution levels in its cities and villages. On 25<sup>th</sup> January 2012 *The Economic Times* reported that as per the Environmental Performance Index which is prepared by the World Economic Forum, India has been placed at the 125<sup>th</sup> position for the year 2012 which is even below China. Therefore, much needs to be done to tackle pollution and achieve efficient natural resource management.

Continued and conscious efforts need to be made on the part of both the Central and State governments in terms of enactment and enforcement of strict environmental

standards. They need to resist the temptation of attracting more and more foreign investment at the cost of sacrificing their environment and labour laws since the key objective of economic development should be enhancement of human welfare.

At the moment, the permission to set up Special Economic Zones in several parts of the country is one of the moves which shows us that India is also falling a prey to the strategy of creating investment enclaves that have economic laws which are more liberal compared to the country's typical economic laws pertaining to labour market regulations, industrial practices conforming to environmental standards, etc. Since the deleterious impact of such investment activity can already be seen in much of Asia, it is only with the passage of time that we will begin to pay the price of such economic growth.

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**Annexure**

**Table 2: Augmented regression**

<b>Variables</b>	<b>Fixed Effects (1)</b>	<b>Random Effects (2)</b>	<b>Fixed Effects with IV (3)</b>	<b>Random Effects with IV (4)</b>
Log of per capita State Gross Domestic Product	-0.077407 ** (-2.25)	-0.059405 ** (-2.29)	-0.063654 ** (-2.18)	-0.033482 ** (-2.25)
Law	-0.351749 (-1.06)	-0.199628 (-1.53)	-0.407804 ** (-2.42)	-0.202103 ** (-2.88)
Investment	0.630667 ** (2.19)	0.553034 ** (3.01)	0.606059 ** (2.04)	0.471344** (2.11)
Gross Enrollment Ratio at secondary level	-0.652558 ** (-3.68)	-0.204151 ** (-3.19)	-0.99392** (-2.66)	-0.299838 ** (-4.01)
Population Density	0.220416 ** (2.67)	0.675878 ** (2.32)	0.251728 ** (2.12)	0.773168 ** (2.41)
Trade Ratio	0.025736 (0.74)	0.237752 (1.11)	0.047133 (0.63)	0.331832 (1.02)
Constant	4.968495 ** (4.65)	5.787851** (6.31)	4.713275 ** (4.93)	4.223210 ** (5.64)
Observation/ Groups	190/ 19	190/ 19	171/ 19	171/ 19
Overall R <sup>2</sup>	0.2855	0.2521	0.2593	0.3052
Hausman Test	$\chi^2_{(6)} = 25.81$ Prob > $\chi^2 = 0.0002$		$\chi^2_{(6)} = 23.35$ Prob > $\chi^2 = 0.0007$	

The dependent variable is the total emission of three harmful gases- SO<sub>2</sub>, NO<sub>2</sub> and RSPM at the State level. The figures marked by \*\* are significant at the 95% level of confidence. The t-statistics associated with each estimate are displayed in parenthesis.

## A Study of Tribal Land, Forest and Identity Issues in Jharkhand and Orissa

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### Concept of Globalization

Globalization is characterized as new stage of capitalism. The two central features of the current phase of globalization is free trade and free capital flows; these were also characteristic feature of the earlier phase of capitalism which is equated with colonization. Today's world economy is characterized by a *higher level of an integrated worldwide financial system* and a greater role for international organizations in coordinating and regulating economic policies. *Domination is expressed today mainly in economic terms.* A central feature of today's globalized world economy is the *unprecedented degree of global inequity in income and wealth.* *The dominant discourse about globalization, emphasize that the state is withering away and is being re-placed by a unified global economy. For the first time in history a global civil society has emerged – "globalization from below". Tensions between social stability and globalization are real today.*

The context of agrarian reform today is dominated by the ideology of globalization, the weakening of State power (Mc Michael, Philip, 1997). The problem of land distribution remains as serious as ever. New agrarian and peasant social movements are emerging that involve not just the landless but the excluded, the marginalized and the indigenous people for whom both land and forest are integral part of their identity.

Agrarian political economy offers an understanding of the process surrounding and subsuming land transfers that are predicated on the socially embedded character of such transfers, especially through the concept of enclosure. (AKRAM-LODHI, 2007). *Neoliberal enclosure uses market-based imperatives* in which emergent export-oriented capitalist farming governed by the market imperatives exists side-by-side with a 'classic' peasant subsistence-oriented agricultural sub-sector that is not as strictly governed by the market. The tribal agrarian economy today can also be characterized as peasant economy super imposed by globalization and market led agrarian reforms.

The global resurgence of peasant and indigenous people's movements for land and forest, is not solely based upon the role of land in constructing a livelihood. Instead for many people an understanding of land and forest issues are located within a determinate set of social, political, economic,

ecological and cultural relations; *as a consequence land is woven into the construction of identity.*

*Land is the principal agrarian means of production, and is thus a key determinant of social, political, economic, ecological and cultural relationships.* Resistance to MLAR has come from various movements of peasants, tribals and the landless, (Borras & Mckinley, 2006) Source: S Borras & T. Mckinley (2006). "The Unresolved Land Reforms Debate: Beyond State-led or Market-led Models", United Nations Development Programme, International Poverty Centre, Policy Research, Brief No.2.

In the discourses of agrarian crisis, the issues of nomadic pastoralists, fishers communities as well as forest dependent *adivasis* are hardly addressed. *The present challenges is not just limited to securing land for the land less but also to prevent the alienation of tribal land and protecting the forest rights of the indigenous people.* The liberalization and privatization policies have brought in competing demands on resources such as land, water, forest and mineral resources between the people who use them for their bona-fide livelihoods and the corporate who intend to use them for generating wealth and profits for themselves.

### Impact of Globalization on Tribal Society and Economy in India

Globalization and ruthless operation of unbridled market forces are the key formations of new paradigm of development. The specific impact of globalization on tribal society in India can be specified as follows:

- The tribal areas came to occupy the central place due to their rich natural resource endowment.
- The exploiters consisting of the industrialists, the contractors, the middlemen and host of outsiders have descended in the tribal areas in search of new opportunities.
- The tribal people have been reduced to a minority status due to the new migrant population.
- Globalization would prove to be the anti-thesis of the existence of a functioning 'Gaonsabha' with full control over the habitat and the community and also to the provisions of fifth schedule of the constitution.
- The over-riding importance of individual rights in total disregard of the community rights, had placed the tribal people in predicament about their basic rights over land, water and forest resource; this makes the position of tribals most vulnerable to crafty manipulations of vested interest.
- Land Acquisition Act of 1894 is being indiscriminately used to alienate and acquire the tribal lands at throw away price.
- With the increase of industrial and mining activity, the scarce water resources of the tribal areas are being exploited by the industrialists and multinationals. This has happened on a large scale in the State of

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Chhatisgarh and is also now taking place in Orissa (Sharma, B.D., 1995).

- The Central and Eastern India are becoming the theatre of the vulnerability of the Adivasis and they are placed in a predicament to face the violence perpetrated by the Corporate Groups, State and the Maoist.
- Globalization, privatization and free market have been forced on the tribals in collusion with the national ruling elite to violate the community rights of the tribals.
- The State has taken recourse to repression in the face of the resistance by the tribals against the imposition of forceful industrialization; the police administration has not been viewed by the tribals as their protector but as an ally of the non tribal groups. (Sharma, B.D., (1995), 'Globalization; The Tribal Encounter', Har-Anand Publication, New Delhi.

#### ***Few dimensions of the subject***

- The most important aspect of social injustice caused to the tribals by actions of state agencies in the era of globalization is the failure to effectively implement laws which protect their interests such as those preventing Alienation of Tribal Land, PESA Act 1996, Forest Rights Act 2006 and forcible acquisition of tribal lands and other developmental policies which are favorable to the tribals.
- Mining is the largest component of extractive growth which has attracted large foreign investment and providing impetus to land acquisition of the tribals.
- Land Reforms, the classical plank of Maoists for peasant mobilization is not the prime issue today for which the tribals are agitated but much greater salience is to be placed to the question of land, forest and cultural identity.
- Movements are rooted in resistance against land and forest rights during colonial period which also continues during present globalization era.
- Nature and variety of present tribal mobilization for enforcement of their rights ranges from autonomous tribal movement, civil society initiatives and the Maoist movement.
- The spread of militant left radicalism in Central Indian States of Jharkhand, Orissa and Chhattisgarh are not a sudden eruption. It is also not a primarily law and order problem. It is a political movement which needs to be contextualized in the objective overall current situation of the people involving land, forest and water rights in particular.

#### **Areas of Enquiry on Study of Jharkhand**

- The State Policy with respect to Land and Forest would be examined in the Colonial and Post Colonial period in the states of Jharkhand and Orissa.

- The inextricable linkage between Land, Forest and Jharkhand Identity, during the Colonial and Post-Colonial period would be examined in a comparative frame with respect to Jharkhand and Orissa.
- To examine the adverse impact of development induced displacement among the tribals in Jharkhand and Orissa during the colonial period and also in the globalization era in the context of New Industrialization Policy.
- The role of Social Movements led by tribals, civil society groups and by the Left Extremist Organizations on agrarian issues and corporate land grab would be subjected to detailed analysis.

#### ***Proposition to be examined in the context of Jharkhand Identity***

- Non-tribal immigrants are changing the demographic profile of the states in the scheduled area reducing them to a minority in the very territory where they are concentrated. As a result, the tribal identity and the protection that goes with it is also jeopardized.
- The roots of alienation of the tribals from the existing policy are much deeper which relate to dispossessing them from their lands, restricting access to forest resources which destroy their culture and identity.
- The resistance to the adverse impact of globalization is more severe in Jharkhand than in Orissa; this may be due to stronger Jharkhandi Identity and relatively weaker pan-tribal identity in Orissa.

#### **Formulations of Research Questions for the Study of Jharkhand**

##### ***Thrust of the Study in Jharkhand***

This Section conceptually analyses the ingredients of Jharkhandi Identity; the discussion of the left extremist movement in Jharkhand follows this; subsequently the objectives, hypothesis and methodology of the study is elaborated.

##### ***Factors contributing to the growth of Jharkhandi Identity***

The factors contributing to Jharkhandi Identity includes the following:

- Land as the essential ingredient of identity
- Concept of DIKU
- Forest as an important Ingredient
- Development induced displacement – internal colonialism
- Inclusiveness of Identity
- Traditional Institutions as a basis of Identity

##### ***Land as the essential ingredient of identity***

The identity of the Adivasis is closely linked to the natural resources and the environment amidst which they live. They have the total right on that part of the 'Mother Earth' as they call her bequeathed to them by

their ancestors. The land (zamin), water (jal) and forests (jungal) that their habitat contain belong to them. They have developed various norms, values, beliefs and practices which regulate the use of the natural resources around them in such a way that nature always remained bountiful to them. The Adivasis have a special relationship to the land they hold. To them land is not simply a factor of production but a source of spirituality as well. The land provides assurance for their continued survival. It is the land, more than anything else that gives life and meaning to their whole being; for it is in their land that their history and identity are contained. The traditional land base holds important symbolic and emotional meaning for them as the repository of ancestral remains (sasans), clan origin sites, and other sacred features important to their religious system. *Ownership of land for the tribals of Jharkhand, is vested in the community. No individual has the right to permanently alienate the land from the community. The community is the trustee of the land it occupies. The community includes not only the living members but also the ancestors and future generations.* Jharkhandi Identity has been the basis of the Jharkhand political movement from time to time. (Mullick, Bose, S, 2002). The outsiders who migrated to this region also sharpened the tribal identity; *it is the self definition that matters first, the perception by others does lend credence to it and make it further pronounced.* The British introduced the Permanent Settlement in 1793 thereby imposing private property right of ownership of land in the tribal areas of Jharkhand which had earlier communal ownership of property. The tribals of Jharkhand strongly resisted this imposition of private property right in land and launched militant tribal movements, notable among them being *Kol Rebellion of 1832-33, Santal Hul of 1855-56 and Birsa Munda Uprising of 1895-1900.* These movements were led by the leaders of different tribal ethnic groups mainly belonging to Ho, Munda, Santal, Oraon and Kharwar. Hence, the simultaneous spread of the movement within a span of 70 years among the major tribal ethnic community became the real basis of the formation of Jharkhand identity i.e. *Pan Tribal Identity.* Such a strong resistance by different tribal groups of Jharkhand even compelled the British subsequently to recognize the indigenous system of land tenure and governance which was promulgated as Chotanagpur Tenancy Act 1908, Santal Pragana Tenancy Act 1949 and Wilkinson Rule 1833. The recognition of the indigenous system of land tenure strengthened the foundation of Jharkhandi Identity in the administrative and political parlance. It would be apt to quote Mullick here “The colonial rule thus prepared the ground for a territorial identity of the region in accordance with the demand of their political autonomy. The leaders of the Adivasi Mahasabha may be subsequently credited for having picked up the cultural name of Jharkhand to identify the region

politically and giving it an institutional form by forming the Jharkhand party in 1950 (Munda and Mullick, 2003).

### **Concept of DIKU**

One of the important indigenous cultural epithet “DIKU” was ingrained with emotion, sentiment and vengeance which signified essentially ‘exploiters’ who alienated the tribal land and forest rights during the British period and continued to do so during post-independence period as well. The British generated new class of exploiters in the form of landlords, moneylenders, police, state bureaucracy, liquor contractors and their ilk. The vengeance with which the tribals confronted them in the 19<sup>th</sup> century is a testimony to the strong tribal ethos of identity and militant movement. (Arceparampil, Mathew 2002, p.161). The process of land alienation by upper caste - class combine during the post-independence period was also responsible to keep the phenomenon of DIKU alive which was noticed in its most intense form in the agrarian struggle led by *Jharkhand Mukti Morcha* during the period 1974-77 (Singh, K.S., 2002, pp 96-97). The Jharkhandi identity had the inclusive connotation of all the Jharkhandis who are exploited either by the landlords or capitalist cum industrialist or moneylenders – liquor contractors-cum-bureaucrats. The alienation of Jharkhandis lands were done not only by the upper class but also by the class of industrialists who acquired the tribal land for the mining and industrial purposes. This also included the immigrants from Bihar, North Bihar and other parts of India who not only constituted the land lord and the category of capitalists but were also lumpen category who squeezed the developmental benefits of Jharkhand. The mafia of the mines is drawn from the notorious ABC – Arrah, Ballia, Chapra districts of Bihar, where cultural backwardness matches junker brashness. The aggression of these immigrants is unleashed on tribal workers and peasants. (Das, Arvind N, “Jharkhand’s Roots: Tribal Identities in Indian History” published in P.C. Chatterji (ed.) *Self Images Identity and Nationality*, Indian Institute of Advanced Studies, Shimla, 1989). The process of internal colonialism of the tribals and sadans continued during the post independence period and the liberalization era. It needs to be specially mentioned here that the gradual penetration of migrants into the tribal areas of Jharkhand gradually reduced the position of the tribals to a minority and today they are only 27% of the total population. This has weakened the process of Jharkhandi Identity and also a transformation of Jharkhand identity from *ethnicity to regionalism* (Singh, K.S: Alloysius, 2003). The Jharkhand movement also acquired greater degree of radicalism because of leftist leadership and ideology. In fact A.K. Roy termed Jharkhand Identity as *Lal Khandi* (Roy, A.K.,1981).

*The concept of DIKU became an emotionally and sentimentally surcharged concept which has been intrinsically motivating the Jharkhandis to resist their land and forest.*

### ***Forest as an important Ingredient of Identity***

The tribals in the Jharkhand area considered land and forest as twin plinth of their economy which is also important source of their identity. *The British had made forest as the property of the state thereby seriously violating the forest rights of the tribals.* This has also promoted discontent and conflict among the tribals. The forest are also associated with the concept of *sacred grove* which are important landmarks of historical and religious symbols for the tribal which they strongly identify and any destruction of the sacred place also enrages the tribals with the feelings of vengeance. (Areeparampil, S.J. 2002, pp 6-8). The Tribals also waged militant struggles on *Forest Issue* in Singhbhum district of Jharkhand during 1978-85 known as *Jungle Kato Andolan* (Areeparampil, Mathew, 1992 in Narayan S (ed), 'Jharkhand Movement: Origin and Evolution' Inter – India publications, New Delhi, pp 144-189). One of the major reason for launching such movement was also converting the khuntkatti villages into Reserve Forest. The andolan took the form of felling of trees in these forests by the adivasis as a symbolic protest against the threat to their livelihood and identity. The State's reaction against this movement was one of increased repression. (Areeparampil, Mathew, 1992 in Narayan S.(ed), 'Jharkhand Movement : Origin and Evolution, Inter-India Publication, New Delhi, pp 144-189). This Forest Andolan launched by the tribals in Jharkhand will constitute an important part of this study. *The hypothesis proposed here is that the violation of forest rights would kindle the emotion and identity of the tribals and would precipitate militant movement. This hypothesis would be tested through a case study.*

### ***Development Induced Displacement – Internal Colonialism***

*The British also violated the tribal land rights by promulgating the colonial land legislation known as the Land Acquisition Act of 1894 which gave unrestricted power to the British colonialists (eminent domain) to acquire tribal lands which were containing mines and other natural resources. The British acquired huge areas of tribal lands covered with minerals like Coal, Iron, Manganese which were mostly located in tribal lands of Chotanagpur. Even during the colonial period, the tribals were displaced from these lands without adequate compensation and rehabilitation. The land acquisition thus became a distinct marker of tribal discontent and cumulative resistance (Ekka and Asif, 2000). The state possesses 37% of the total minerals of*

India. Among these came up huge number of establishments on Damodar River basin and the famous Jharia Coalfield in Dhanbad district, one of the richest treasure house of India's metallurgical coal. Damodar river basin is very important because of the coal mining industry; 46% of the total reserves of coal in India lie in this region. The Singhbhum – Orissa border known as Iron Ore series and Kolhan series constitute one of the richest iron belts in the world. Copper is another very important mineral. Total reserves of this area, as estimated is about 153 million tonnes with 2.5 per cent copper content. Similarly, the area is also rich in copper, bauxite, mica, limestone and Kyanite too. The Uranium Corporation of India Ltd, a public sector undertaking has its main mining centres in Jadugora, Bhatin, Narwapahar, Turamdih and other areas in Singhbhum. Hydro-power, Thermal power projects and Dams are the other big reasons for displacement. These hydel-power projects, as roughly estimated has a total of 5,07,952 acres of land occupation in the State. It has displaced as many as 232968 persons. An additional 6026.87 acres of land has gone against setting up of thermal power stations.

The Development of industries during the British period has been rooted in the capitalist production system which has also been continuing during the post independence period culminating in the liberalization era in the form of *market led capitalism*. The studies on *development induced displacement* have been conducted by several scholars (Fernandis and Asif, 1997), Jharkhand (Ekka and Asif, 2000) who have shown that mining industries, dams, reservoirs, power plants etc. have led to large scale displacement in Jharkhand estimated to be 1.5 million people of whom 41.27% are Adivasi, 14.16% dalits and the rest 44.57% from other communities. Between 1951 and 1995, 155 lakh acres have been alienated to various schemes. Involuntary displacement has become a human right issue. Impoverishment leads to landlessness, houselessness and marginalization

There was strong resistance to land acquisition for various developmental projects in Jharkhand. There were several violent movements against the construction of the big dams like Koel-Karo, Subarnarekha Project and Kutku, involving the large scale alienation (both legal and illegal) of tribal lands. On 4<sup>th</sup> April, 1982, Gangaram Kalundia, a retired Army person died in the police firing as he was leading the resistance to the Dam being built over the river Kharkai as a part of Subornekha Multipurpose Project (Report of the Delhi Unit of PUCL, March, 1979). The above resistances against past land acquisition is very much fresh in the minds of the Jharkhandis and they are sensitive to further land acquisition. It would be necessary to mention here that Jharkhand Government has signed well over 100 MOUs with corporate sectors during the globalization era (Sansristi, 2009, p5).

Notable among them are Corporate giants, namely, Arcelor Mittals, Jindal, Essar, Tata, Hindal, Abhijit Group etc. Among the MOUs signed by the State Government 74 are for setting up steel plants and 24 for power plants with the estimated investment of Rs 4,67,240 crores requiring approximately 2 lakh acres of land (Sansristi, 2009, p 25). There was turmoil against displacement in the state on October 1, 2008; the villagers attacked the Kohinoor Steel Plant near Jamshedpur, seized 70 trucks and stopped the work. The Jindal Steel, Essar, and CESE were forced to leave the areas; as a result, the Government is not able to execute even a single MoU at the grassroots (Sansristi, pp 26-27). The strong resistance by the tribals in the liberalization era has made land acquisition difficult. The Jharkhandis are very sensitive to forcible acquisition of land for mining and developmental purpose.

*Due to the liberalization policy foreign companies have been allowed 100% participation in mining projects. (Ekka, Alex 2003). The strong roots of tribal identity in Jharkhand are facilitating them to resist land acquisition for mining and industrial purpose in the liberalization era. This hypothesis of resistance to Internal colonization will be tested in the districts of Saraikela, East and West Singhbhum of Jharkhand where the corporate sector is trying to acquire land with the help of state administration but the tribals are strongly resisting such land acquisition. The hypothesis emerging from this is as follows: The land acquisition by the state and corporate agencies in the era of globalization would be met with stiff resistance in areas imbued with strong Jharkhandi Identity.*

### ***Inclusiveness of Identity***

The electoral politics has also placed the tribals in the open fray politics with *Sadans* and other non tribal groups. In Jharkhand apart from the scheduled tribes, there are various other indigenous groups who have been sharing similar culture and language with the tribals. These are scheduled castes, backward class communities which includes Kurmis, Koeris, Gwala, momins etc. These communities are grouped under the generic category of *Sadans* and have been actively participating in the political process of the state and identify themselves as Jharkhandis specially during the post independence period (Kesri, VP,1992). Hence, in the process of identity formation of Jharkhand, the Jharkhand identity consist of the following:

- Scheduled Tribes known locally as adivasis (the **Autochthon**)
- *Sadans* also called in local parlance as **Mul Niwasis**, co-terminus with the indigenous people of Jharkhand

- Exploited classes of peasants, working class and other deprived and discriminated communities (Sengupta, Nirmal, 2003, pp 338-339).

Jharkhandi Identity is thus inclusive which not only subsumes Adivasi and indigenous groups but incorporates those who are also exploited people. Apparently the category of **Dikus** are excluded from the category of Jharkhandi Identity which has a special connotation within the Jharkhandi culture and lingua franca.

### ***Traditional Institutions as a basis of Identity***

The British realized the ingenuity of the traditional land system of the Jharkhandi tribals and accordingly they introduced the Chota Nagpur Tenancy Act – 1908, Wilkinson Rule of 1833 in Kolhan Area, the recognition of Manjhi system of the Santhals in the Santhal Pragana Settlement (Amendment) Regulations of 1908. These legislations not only provided legitimacy to the tribal land tenure system but also recognized the communal land ownership system like the Mundari Khuntkatti Dari system (Areeparampil, 2002, p 39) which are still preserved in the districts of Khunti, Saraikela along with the traditional Munda Manki system among the Ho and Munda community, Parha system among the Oraon and the Manjhi system among the Santhals. These have become the symbols of the tribal and Jharkhandi identity and are the strength for the continuing militant resistance against the exploiters whom they term as *Dikus*.

### **Objectives and Hypothesis of the Study for Jharkhand**

#### ***Objectives of the Study in Jharkhand***

- To examine the violation of land rights and forest rights of the Tribals during the Colonial period in Jharkhand and precipitating the Tribal Movements leading to Jharkhand Identity Formation
- To analyze the significance of:
  - The Traditional Tribal Institutions (e.g. Munda-Manki System, Parha System and Manjhi System),
  - Wilkinson's Rule 1833 and Khuntkatti System
  - Role of Chotanagpur Tenancy Act 1908, and Santhal Pragana Tenancy Act 1949 in strengthening Jharkhandi Identity.
- To examine the inclusive character of Jharkhandi identity from *ethnicity to regionalism*.
- The adverse impact of Land Acquisition:
  - During the Colonial period and the liberalization era in the form of internal colonialism
  - The role of Jharkhandis in launching militant movement to resist the process of land acquisition in the globalization era.

- The effectiveness of Rehabilitation Policy of Jharkhand Government.
- The consequences of the alienation of Forest Rights of the Tribals in Jharkhand during the Colonial period and implementation of Indian Forest Rights Act – 2006 during the liberalization era.
- The resilience of the Jharkhand Movement and its interface with the Left Extremists Movement.

### ***Hypothesis to be tested in the context of Jharkhand Study***

- The conflict on the land issue has the potential of strengthening Jharkhandi Identity and precipitating in militant movements.
- The Violation of the Forest Rights by the State would promote resistance and militant movement.
- *Internal colonization stemming from development induced policy* would result in strong tribal resistance against the State and the Corporate Mining Groups.
- The Jharkhandi Identity has the potential of transforming itself from ethnicity to regionalism (inclusive concept of Sadan).
- Tribals engage in Sustained Democratic Struggles, but denial of Civil Rights by the State is not conducive to the growth of Maoist Movement.
- The escalation of Militant Left Radicalism (popularly called Naxalism) coincides with the Globalization Era. There is a Positive association between the State Policies in the Globalization Era escalation of Militant left Radicalism.

➤ *The tribal movements have the potentiality of asserting their autonomous character more in Jharkhand than in Orissa.*

➤ *The ongoing violence of the state and Maoist are likely to reduce the democratic space of the civil society organizations to minimize the role of violence.*

### **Methodology of Study in Jharkhand**

#### ***Method of Data Collection***

- The exploitation of the tribals based on land, forest and land acquisition during the colonial period would be primarily understood through Historical Method, Case Study techniques and Secondary published literature.
- The exploitation of the tribals on land, forest and land acquisition during the globalization era would be studied both through the secondary materials and primary method of data collection.
- The issues of Jharkhand Identity pertaining to their traditional social institution, including Jharkhandi Identity and the operation of Wilkinson's Rule will be basically examined through qualitative techniques like non – directive interview, focused group interview, participant and non participant observation method.

- The issues pertaining to the impact of Globalization on Land Acquisition, Forest Rights and the Distorted Development Model would be examined mainly through quantitative techniques like Structured Interview Schedule supplemented by the qualitative interview technique e.g. Focused Group Interview, Case Studies and Secondary Sources like published statistics, secondary literature etc.
- The study of Tribal Agrarian Movements during the Colonial period and during the Globalization era would be mainly analyzed through qualitative techniques like Non-directive interview, Focused Group Interview, Case Study Method and through Secondary Literature.

### ***Universe and Sample for the Quantitative Study of Land, Forest and Land Acquisition Issues in Jharkhand***

#### *Universe*

➤ *Study of Forest Issues, Traditional Tribal Institutions, Wilkinson Rule and PESA*

The sample districts under study are Khunti, Saraikela – Kharsawan, West Singhbhum and Dumka District. These districts represent the three distinct regions of Jharkhand; Khunti District has majority Munda population; Saraikela Kharsawan – West Singhbhum districts are predominantly populated by Ho Tribals, Gumla has numerically large population of Oraon tribals and Dumka district has very large population of Santhal Tribals.

#### *Sample Districts*

▪ *Khunti District* – The total area of Khunti District 2610.97 sq km. It has a total population of 5.30 lac as per 2001 census. It has six blocks namely Rania, Murhu, Torpa, Kharra, Khunti and Ark. The total number of Panchayat is 86 and 757 villages. It was formed into a separate district on 12<sup>th</sup> September, 2007. It is located at a distance of 40 Kms from the state capital i.e. Ranchi. Village Ulihatu is the birth place of Birsu Munda who is called as Bhagwan Birsu Munda by the Jharkhandis. This district has substantial population of tribals. The area under forest cover is 276.106 sq. kms. Khunti Block has 159 villages.

#### ▪ *Seraikalla – Kharsawan District*

This district has nine blocks, 136 panchayats and 254 villages. The total population of this district as per 2001 census is 713497 of which the population of Scheduled Tribe is 286997, Scheduled Caste is 35552, OBC is 307961 and General is 82987. The district of Saraikala - Kharsawan has nine blocks, namely: Ichagarh, Kukru, Nimdih, Chandil, Kuchai, Kharsawan, Serikellka, Gamharia and Rajnagar. The blocks of Saraikela, Kharsawan and Kuchai will be included

under the sample study The total number of panchayats in Kharsawan is 13, Sariakela has 14 panchayats and Kuchai has 10 panchayats. The specific population of Kharsawan Block is 69888, Sariakela Block is 63484, and Kuchai Block is 50938. It is necessary to mention here that the Kuchai Block has 39 Khuntkhatti villages; 8 of them are located in Dalbhanga panchayat, 7 in Rogudih panchayat, 10 in Gomeyadh panchayat and 14 in Roolahatu panchayat.

▪ *West Singhbhum District*

In West Singhbhum district there are three Sub Divisions, namely: Jagannathpur, Chakradharpur and Sadar Chaibasa; there are eight blocks in the districts. The Chakradharpur Sub Division is the sampled area in the district. It has four blocks, namely: Goelkera, Manoharpur, Sonua and Bandhgaon. The sampled blocks are Goelkera and Sonua. This district has large area under forest. This is also traditionally known as Kolhan Area. Mundas and Hos primarily reside here. The traditional tribal institutions of Munda Manki system is prevalent here. This Sub division has also been the epi-centre of Forest Based movement.

▪ Lohardaga – This district is pre-dominantly populated by Oraon Tribals. The traditional tribal institution of Parha system is widespread here.

▪ In Dumka district of Santhal Praganas Region the Santhal Tribal Institutions of Manjhi Haram and Baisi system are strongly institutionalized and practised by Santhal Community. These two institutions will be studied in Dumka district.

➤ *Universe and Sample - Mapping of Mining Complex in Jharkhand:*

The State of Jharkhand occupies 30% of total *Coal Reserve* in the country with 738897.83 million tones of deposits which are located in Dhanbad, Bokaro, Ramgarh Hazaribagh, Pakur, Deoghar, Godda, Giridih, Ranchi, Palamau, Chatra, and Latehar Districts. The State has 28% of iron ore reserves of the country. West Singhbhum, East Singhbhum, Latehar and Palamau districts have largest iron ore deposits of Asia. The state has 117.54 million tones of bauxite in the districts of Gumla, Latehar and Lohardaga districts. Uranium is produced in Jadugora and surrounding area are main source of fuel for the various nuclear power plants in the country. The copper deposit is available mainly in East Singhbhum district. The state also has substantial Limestone deposit.

The Coal Mining and Human Rights Issues will be mainly studied in *Damodar River Valley Basin* which would form the *Universe*. The river Damodar passes through the district of Latehar, Ranchi, Hazaribagh, Chatra, Giridih and Santhal Praganas of Jharkhand and four districts in West Bengal, namely

Bankura, Bardwan, Hooghly and Howrah; 73.7% of the river basin is in Jharkhand and 23.6% is in West Bengal. In the Damodar River Basin, the coal fields of South Karanpura and North Karanpura would be part of the sub universe of the present study.

➤ *Universe and Sample - Land Alienation, Land Acquisition and Rehabilitation:*

The Universe of the study would include the districts of East Singhbhum, Saraikala – Kharsawan, West Singhbhum and East Karanpura Coal Mines in Damodar Valley Basin.

❖ This involves Forest Land, Raiyati land and Khuntkhaatti lands. They are also violating Chotanagpur Tenancy Act, 1908. Adivasi Mulvasi Astitat, Raksha Manch (AMARM) is strongly resisting and launching militant movement to stop land acquisition.

**Thrust of Research Study on Orissa: Development Induced Displacement**

*Focus of Study in Orissa*

The main focus of the Research Study on Orissa is to examine the adverse impact of globalization on account of Development Induced Displacement. The study on Orissa mainly covers the impact of globalization on the industrialization in Kalinganagar and POSCO at Jagatsinghpur. It is also attempting a comparative study of the resistance of the Tribals in Kalinganagar and the non-tribals at Jagatsinghpur District. The study later on also undertakes the comparison of the identity issue of tribals in Jharkhand and Orissa. The content of this research formulation includes the following:

- New Economic Policy of Government of Orissa
- Objectives of the Study
- Hypothesis
- Time Line of Kalinganagar Episode
- Time Line of POSCO Episode
- Methodology of the study of Kalinganagar
- Methodology of the study of POSCO

**New Economic Policy of Government of Orissa**

This State of Orissa has almost 60% of India's known bauxite reserve, 25% of coal, 98% of chromites, 28% of iron ore, 92% of nickel ore, 28% of manganese etc. enough to make profiteering private companies salivate. This had the implication of acquiring the lands of the vulnerable sections of Orissa and displacing them, if needed be through forceful measures. Over the years people of Orissa have come to view the 'development' plans of the government with suspicion; they feel they are being given the short shrift. Suspicion leads to resentment and resentment leads to resistance. The police firing at Maikanch in Raigada District that led to the loss of three tribal lives



in December 2000 were still fresh in the public memory. The incident at Kalinganagar in 2006 in which 14 tribals were killed, can be seen as the latest in a series of ongoing conflict between the two sides - the one favoring 'industrialization', led by the Government and the vulnerable section opposed to it.

*The Phenomenon of Displacement* has been highlighted by Padel, Felix and Das, Samarendra, in their article "Orissa's Highland Clearances: The Reality Gap in R&R" ("Social Change, Volume 38, No.4, December 2008, (pp 576-608) by emphasizing the essential ingredients of Development induced Displacement scenario in Orissa; it also provides important theoretical insight which have major research implications.

➤ *Displacement arises out of a clash of ideologies.* On one side, the *ideology of value systems of traditional cultures*, where relationships with land and community are more important and on the other, an *ideology of industrialization as development*, in which market forces and swift financial profit override other values, are antithetical to each other. This divide and rule legacy of British colonialism is bearing fruit now in *internal colonialism* being carried out through large-scale privatization of resources and alienation of huge tracts of cultivated land, by mining and construction companies, in Orissa and neighboring states.

➤ *Mining bauxite from these mountain tops is also an assault on their religion* - Kond religion recognizes mountains as prime sacred entities and sources of life; the aluminum companies are entering the Kond region of Western Orissa being attracted due to the bauxite deposits, which are located on the summits of the high mountains; they erode the water bearing capacity of the mountains, and thereby threaten the local Konds cultivation of millet, maize, turmeric, ginger, orange, pineapple and dozens of other food crops; the base rock of these bauxite-capped mountains are designated as Khondalite.

➤ *Imposition of the post colonial developmental model in the globalization era and resistance by the tribals* - In the industrial and mining areas of Orissa, the tribals in particular and non tribals in general have shown remarkable resistance against the imposition of the forceful land acquisition policy and developed the tribal identity formation in Orissa. *It can be hypothesized in the context of Orissa that land acquisition process would be met with strong tribal resistance and would facilitate the formation of pan tribal identity similar to Jharkhand.*

➤ *One set of issues involves cultural genocide* – It is the least recognized but perhaps most painful aspect of the drastic drop in the quality of life of people who are

displaced (Padel and Das 2008). It means: people die inside a soul death. The deaths at Maikanch in Raigada district and at Kalinganagar in Jajpur district are taken as symbolic of a collective death. Physical genocide – meaning the extermination of all members of a tribe often went alongside cultural genocide: the killing of cultures. *It can be hypothesized in the context of Orissa that cultural genocide has been thrust on the tribals of Kalinganagar and the non-tribals of POSCO.*

➤ *Gender Mainstreaming in Resettlement and Rehabilitation of Development Induced Displacement* Women's position is often badly affected due to the displacement; education, health centres and self help groups are not provided for oustees. Lack of landownership and property rights denies women equal access to compensation. The exclusion of women from consultation and decision making process prior to displacement and from compensation and rehabilitation packages is a matter of serious concern. In the post displacement scenario, there is complete collapse of community and societal networks on which women have traditionally depended. This increases the vulnerabilities of women. Cases of desertion, divorce, etc. have been traced to new situations created by displacement. Women of old age, disabled, widows, women with HIV AIDs etc. are more vulnerable.

➤ *Emergence of left extremism in Orissa*, If it is true that Maoists appeal is on the rise, village people's despair of getting justice at the courts should be counted as a significant factor. The call to armed struggle appears as radical and progressive empowerment for oppressed people who lack legal redress for their grievances. Over 500 arrests were made against anti-mining villagers in Kashipur upto 1999 alone (Mahapatra 1999) and villagers attending the court every few weeks for their cases say they have to pay fees for bribes to a large range of lawyers and court officials. *In this context, it is hypothesized that injustice (social cultural and economic) accentuates left extremism.*

### **Objectives of the Study in Orissa**

➤ The adverse impact of Land Acquisition and Development Induced Displacement in Kalinganagar Industrial Complex and by POSCO in Jagatsinghpur District would form a major objective of the study.

➤ The strong resistance to the POSCO Project in Jagatsinghpur District and by the Tribals in Kalinganagar would be studied in comparative perspective to highlight the strength of the local peasant mobilization against the combined nexus of state, corporate sector and other lumpen elements.

- In the context of Social Movements, the interface between the grassroots peasant movements, civil society organizations and the left extremist groups would also be examined both with respect to POSCO and Kalinganagar.
- The emergence of pan tribal identity in Orissa will be juxtaposed with the Jharkhandi Identity in a comparative perspective.
- The impact of Rehabilitation Policy will be examined in the context of the New Rehabilitation Policy 2006 of Govt. of Orissa with respect to Kalinganagar and POSCO. The gender mainstreaming in re-settlement and rehabilitation of development induced displacement would form an important perspective of the present study.

### Hypothesis

The specific hypothesis to be tested in the context of Kalinganagar, and Jagat Singhpur districts (POSCO Project) in Orissa are the following:

- *Land acquisition process would be met with strong tribal resistance and would facilitate the formation of pan tribal identity similar to Jharkhand.*
- The concept of *development* will be examined with respect to “Development Induced Displacement” in the context of the tribal resistance in Kalinga Nagar, and POSCO.
- The hypothesis of ‘cultural genocide’ will be examined in the context of Kalinga Nagar and POSCO.
- *It is hypothesized that injustice (social cultural and economic) accentuates left extremism.*

### Time line of Kalinganagar Episode

1992-94 – Land Acquisition by IDCO. People **initially** accepted the land compensation rate without a murmur; they continued cultivating the acquired land till 1997. People displaced were rehabilitated in the colony of Trijanga and Gobarghati.

1994 – Compensation **was** limited to only Patta holding of villagers @ Rs 33000/- per acre. Central Government, **on the other hand, had fixed the criteria for acquisition @ Rs 3.50 lacs per acre.** Patta was not given to families cultivating Government land in spite of Supreme Court Directive of 1st January, 2006. IDCO had acquired 15000 acres of private land, of **which** 6900 acres were government land and 8100 acres were private lands. No patta was given for displaced families for homestead land in 1997.

June 2004 – Displaced persons wrote to Chief Minister, Orissa conveying six demands including stopping further construction in agriculture land.

7<sup>th</sup> October, 2005 - Tatas initiated Bhoomi Puja which was protested by affected people – on 25<sup>th</sup> October, 2005. Rabindra Jarika of Visthapan Virodhi Jan Manch **was arrested on 17<sup>th</sup> November, 2005;** Police arrested 60 people -

2<sup>nd</sup> January, 2006 - Police fired on protesting tribals at Champakala village **in which** 12 persons died immediately **and** 37 persons injured.

3<sup>rd</sup> January, 2006 – 9<sup>th</sup> March, 2007 - Road Blocks at Madhuban Chakka on the NH 200 by families **enlisted** to be displaced from **their** households **located in the villages** of Sukinda and Danagadi blocks. **New Rehabilitation Policy 2006 – the number of total displaced families during 1996 was 679, which increased to 1400 by 2007.** New Rehabilitation Policy of Orissa Government 2006 **has been acclaimed as more broad based** to attract the discontent of displaced persons. This **would form an important objective for studying the** phase of Transition from Agitation to Rehabilitation. Tatas **promised to adopt** Humanitarian Approach **for resettling the displaced families.**

### Time Line about POSCO Project in Jagatsinghpur District

- The Government of Orissa and Pohang Steel Company (POSCO) signed a MoU on June 22, 2005 for setting up an Integrated Steel Plant with the total capacity of 12 million tones per annum ( with 4 million tones in the first phase) at Paradeep in Jagatsinghpur district. The integrated plant includes a Captive Power Plant and a Captive Minor Port.
- The entire Project Complex requires about 1621 hectares of lands of which about 1253 hectares is forest land.
- Clearances for the POSCO Project:
  - The Environmental Clearance for the Captive Minor Port was granted on May 15, 2007.
  - The Environmental Clearance for the Captive Power-cum-Steel Plant was granted on July 19, 2007.
  - The Government of India issued final clearance for Acquisition of Land for POSCO project vide letter No. 8-63/2007FC dated 4.5.2011.
  - Yet another ‘conditional’ final clearance was granted on 31 January 2011.
  - On 29 April, 2011, the Orissa Government deemed the Gram Sabhas ‘illegal’ and the resolutions ‘fake’.
  - On 2 May, 2011 MOEF gave ‘final approval’ for land diversion to Govt. of Orissa
- Process of Land Acquisition
  - The details of Land to be Acquired for POSCO Project is 4004.24 acres covering 3566.56 acres of Government Land (including acre 2958.82 of forest land) and 437.68 acres of private land.

- Acquisition work in the POSCO project area was resumed with effect from 18.5.2011 from forest lands of Nuagaon and Dinkia villages located at Jagatsinghpur district (Down to Earth, June 1-15, 2011, p.18).
  - In the process 631 betel vines owners surrendered Ac.86.991 of land and received Rs. 9,12,76,054/- towards Compensation and Ex-gratia of Rs. 11,50,000/-.
- Livelihoods in Jagatsinghpur:
- Betel vine is the central crop of the local economy in the 9 villages earmarked for displacement by the POSCO project. Beyond betel vine, other crops in the area included cashew, coconut, kewra and rice. A minimum area of 3 decimals and a maximum of 17 decimals (100 decimals = 1 acre) allocated to betel vine production.
  - Further, a large part of the community also used fishing as part of their subsistence economy. There is also a small but significant community of fisher folk local to the area. A part of this population is involved in fishing as a livelihood and a second segment has invested heavily in pisciculture covering a population of 20,000 to 25,000.
  - The total number of individuals from the three gram panchayats that will be directly displaced because of the plant and port is estimated to be 22,000. The total project-affected individuals will be in excess of 50,000.
  - 471 families in 8 villages was to be carried out as per the R&R Policy, 2006 of the Government of Orissa and as per the relevant orders of the Supreme Court.

### People's Resistance

Several "people's groups" made up of residents in the affected areas had formed around the POSCO issue. Some of these groups include the POSCO Pratirodh Sangram Samiti (PPSS, Anti-POSCO Mobilization Committee), the Nav Nirman Samiti (New Development Committee), Rashtriya Yuva Sangathan (National Youth Collective), United Action Committee (UAC), groups of a much older national movement, Sarvodaya, the Orissa Bachao Andolan (Save Orissa

Campaign) and some smaller groups. The peoples resistance started from 2006 and continues still today unabated. *The peoples resistance* in POSCO Project would form an important objective of study for which historical, secondary material, observational method and empirical method will be used.

### ➤ Rehabilitation and Resettlement Package in Jagatsinghpur

(The RPDAC Jagatsinghpur in its meeting dated 8.7.2010 sanctioned package for Government Land as well as Private Land in POSCO project area). The Salient Features of the package is as follows:

1. Rs. 17, 00, 000/- per Ac. including solatium & interest for private land anywhere of the POSCO project area regardless of their classification and location.
2. Rs. 11,50, 000/- per Ac. of the betel vine in government/forest land.
3. 20% of the compensation amount payable to betel vine owners is to be paid to the betel vine labourers.
4. Unemployment allowance of Rs. 2250/- per month to each labourer upto one year or till he is engaged by the company through contractors in the ancillary project.
5. Rs. 2,00,000/- per Ac. for prawn ponds.
6. Rs. 1,00,000/- per acre for encroachers of agricultural land.
7. 0.10 Ac. to each displaced family either from government land or private land.
8. A three roomed house with Verandah, kitchen, bathroom & toilet (743 sq. ft) and cattle shed (203 sq.ft) only to the Nuclear families.
9. Rs. 5,000/- towards transport allowance
10. Rs. 2,300/- for 12 months towards maintenance allowance.
11. Cash in lieu of job.
12. Training for Self employment and assistance for setting up shops and service units.
13. Employment to 100% land losers in preferential orders.

### Annexure (Tables 1-4)

**Table-1 Deposits of Minerals in different districts of Jharkhand**

Mineral	District	Reserve Million Tones
Lime Stone	East Singhbhum`	37.71
Iron ore	West Singhbhum	487.90

Graphite	Palamau	3,505
Pyroxenite	Saraikela Kharsawan	88.28
Chromite	West Singhbhum	—
Bauxite	Lohardaga, Gumla Latehaar	—
Precious Stone	Koderma, Ranchi, Devghar, Dumka, Hazaribagh, Jamtara, Simdega etc	30.00

**Table-2**  
**Universe and Sample of the Study on Land Acquisition and Rehabilitation**

Sr No	District	Block	Village	Respondents	Corporate Groups to be Studied	Remarks
1	East Singhbhum	Potka*	5	50	*M/s Bhushan Power and Steel Company  **M/s Jindal Steel and Power Ltd. New Delhi  ***M/s Tata Steel Ltd. (Expansion)	3400 acres is being acquired by Jharkhand Govt. and some lands are being directly purchased by the corporate groups. Coal blocks and iron ore mines are allocated to them.
2	Saraikala Kharsawan	KUCHAI* Saraikela**  Khaarsawan***	5	50	*M/s Abhijit Group  **M/s Sun Flag and Steel Company  **M/s AML Steel, Chennai  ***M/s Essel Mining, Kolkata  ***M/s Sesa Goa	❖ The corporate group are acquiring land through Jharkhand Govt. and also purchasing lands directly from the local villages.
Sr No	District	Block	Village	Respondents	Corporate Groups to be Studied	Remarks
3.	West	ASAN BONTI*	5	50	*M/s Arceler	The Bisthapit

	Singhbhum	(Adjacent to Jamshedpur)			Mittal Steel Project *M/s Bhushan Power and Steel Limited  M/s ESSAR Steel Jharkhand Limited	Virodhi Ekta Manch and other prominent organizations are resisting against displacement in these areas. Some of the corporate groups like M/s Jindal Steel, Essar Steel and CESE were forced to leave the proposed area.
4.	Hazaribagh	Hazaribagh, Bhurkunda and Adjacent Blocks of South and North Karanpura Coal Field	5	50	NTPC, Pakri Barwadi  Abhijit Infrastructure Private Limited  Jharkhand Ispat Private Limited  Bhushan Power and Steel Ltd.	The Jharkhand Govt. has signed 36 MOUs with different companies which have been awarded 167.21 sq.km and public sector companies have been given only 31.17 sq.kms

**Table-3**  
**Universe and Sample for the Study of Forest Issues in Jharkhand**

Sr. No.	District	Block	Village	Respondents	Remarks
1	Saraikela – Kharsawan	Kuchai, Saraikela and Khersawan	5	50	The epi – centre of the struggle on forest rights is village Dalbhanga.
2	East Singhbhum (Chakradharpur) Sub Diviion	Blocks Sonua  Porahat Goelkhera	5  5	50  50	The universe consist of the total claimants and those given land rights under Forest Act 2006. Epi – Centre of militant Jungle Kato Andolan during 1979-80
3	Khunti	Khunti Block Adki Block	5 5	50 50	Khunti is having 55 Khutkatti Forest villages and 103 mixed villages.

**Table-4**  
**Universe and Sample - Study of Traditional Institutions**

Sr. No.	District (Universe)	Block (Sample)	Village (Sample)	Respondents (Sample)	Remarks
1.	East Singhbhum	Sonua and Porahat	5	50	Mundamanki system and Wilkinson's Rule would be studied here.
2.	Dumka	Dumka	5	50	Study of Manjhi headman system and <i>baisi</i> .
3.	Lohardaga	Lohardaga	5	50	Parha system
4	East Singhbhum (Kolhan Area)	Goelkera Sonua	5	50	Wilkinson's Rule, Munda-Manki system and PESA

**Methodology for the Study in Kalinganagar and POSCO**

*Methodology for the Study of Kalinganagar*

The major features relating to *Universe of the Study*, like MOUs signed with the corporate sector for Kalinganagar Industrial Complex, Lands Acquired, Families Displaced, Families Re-located are being described in the form of Tables.

**Table-5**  
**Land Acquisition at Plant Site**

Sr No	Revenue Village	Area (In Acres)		
		Private Land	Government Land	Total Land
1	Gobaraghathi	731.600	61.940	793.540
2	Chandia	1083.810	263.345	1347.155
3	Nuagaon	90.70	15.82	106.52
4	Gadapur	388.49	135.749	524.239
5	Khurunti	128.006	0.540	128.546
6	Baragadia	236.78	123.63	360.41

<b>Total</b>	<b>2659.386</b>	<b>601.024</b>	<b>3260.410</b>
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**Table-6**  
**Universe of Families Displaced from different villages in Kalinganagar**

<b>Village</b>	<b>Hamlet</b>	<b>Displaced Families as per enumeration of 2005 (Universe)</b>	<b>Sample 25%</b>
Chandia	Sanachandia	27	7
	Baiduburi	54	13
	Champakoila	06	2
	Kalamatia	92	23
	Chandia	227	57
	Baligotha	160	40
Gobaraghati	Gobaraghati	120	30
	Bamiagotha	42	10
	Champakoila	47	12
	Ambagadia	08	2
	Sasagotha sahi	105	24
Gadapur	Gadapur	265	66
	Bandargadia	42	10
<b>Total</b>		<b>1195</b>	<b>296</b>

**Table-7**  
**Universe and Sample of Families relocated\***

<b>Colony</b>	<b>Universe of Persons resettled in the colony</b>	<b>25% Sample</b>
Trijanga-1	40	10
Trijanga-11	114	28
Gobaraghati-1	303	76
Gobaraghati-11	34	8
Sansailo	86	21
<b>Total</b>	<b>577</b>	<b>143</b>

\*The rest others are staying in transit camp or in rented accommodation provided by the company.

**Table-8**  
**Revised Rehabilitation Package for Kalinganagar**

Description of the component	Rate as per R&R policy 2006 in(Rs)	Rate revised as per Resolution No.36358 dt.21.08.2008 (in Rs)	Revised rate at present as per Resolution No.51633 dt.15.12.2010(in Rs)
Assistance for self relocation	50,000/-	56,000/-	—
House Building Assistance	1,50,000/-	1,66,000/-	—
One time Cash Assistance in lieu of employment (families coming under:- Category-1 Category-11 Category-111 Category-1V & V	5,00,000/- 3,00,000/- 2,00,000/- 1,00,000/-	5,52,000/- 3,31,000/- 2,21,000/- 1,11,000/-	6,21,000/- 3,73,000/- 2,49,000/- 1,25,000/-
Maintenance Allowance	2,000/-	2,300/-	2,500/-
Assistance for Temporary shed	10,000/-	11,100/-	12,500/-
Transportation Allowance	2,000/-	2,300/-	2,500/-

**Table-9**  
**Sampling for the study of Kalinganagar Industrial Complex**

The sample to be included for the study from Kalinga Nagar Industrial Complex consist of the following number of families from whom lands have been acquired and displaced:

Sr. No.	Universe/Sub Universe			Percentage to total Universe	The total number to be sampled (25%)
	Unit of Enquiry	Name of the Village	No. of Families		
1	Families from whom lands acquired and displaced	Chandia	110	29.89	28



		Gobaraghati	62	16.85	16
		Baligothu	90	24.46	23
		Gadapur	106	28.80	27
		<b>Total</b>	<b>368*</b>	<b>100.00</b>	<b>94</b>
2	Families rehabilitated and re-located in the rehabilitation colonies	Trijanga I&II	154	26.69	39
		Gobaraghati I&II	337	58.41	84
		Sansailo	86	14.90	22
		<b>Total</b>	<b>577</b>	<b>100.00</b>	<b>145</b>
<b>Grand Total:</b>			<b>945</b>	<b>200.00</b>	<b>239</b>

\*The total number of families from whom lands to be acquired and displaced are 562 as per the enumeration done in 1996. The data for the study would be based on the historical, secondary and other published sources. Besides this, empirical investigation of specific phenomenon will be undertaken based on Case Study, Focused Group Interview, and other qualitative methods.

**Table-10\*List of Persons Died In Kalinganagar, Distt. Jajpur on 2<sup>nd</sup> January 2006\***

<b>Sr. No.</b>	<b>Name</b>	<b>Father's/Husband's Name</b>	<b>Villages in P.S. Kalinganagar</b>
1	Rama Gagarai	S/o Bisa Gagarai	Gadapur
2	Ati Jamuda	S/o Uppan Jamuda	Chandia
3	Landu Jarika	S/o Bagam Jarika	Gobarghati
4	Bhagban Soy	S/o Badan Singh Soy	Gobarhati
5	Mukuta Bankira	W/o Udaya Bankira	Candía
6.	Bana Badra @ Jagat Badra	S/o Routa Badara	Gadapur

7	Jurga Jarita	W/o Surendra Jarita	Gobarghati
8	Dagi Tiria	W/o Sarita Tiria	Champaakoila
9	Gobinda Laguri	S/o Sitaram Laguri	Gobarghati
10	Subam Barla	S/o Sada Charan Barla	Gobarghati
11	Ramgalal Mundela	S/o Chandra Mundela	Baligarh
12.	Rama Chandra Jamuda	S/o Gpramga Jamada	Gobarghati
13	Shyam Jambira	S/o Jambira	Baligarh
14	Kiran Bandibuli (died on 2-4-2007)	S/o Sikur	Candía

\*Case studies will be conducted from the surviving kins of the 14 families who died due to the police firing.

### Methodology for the Study of POSCO Industrial Project in Jagatsinghpur District

**Table No.11**  
**The Displaced Family, Area under Betel Vine, Trees and Prawn Ponds**  
**(Universe of the study)**

Name of the village	Displaced Family			Betel vine		Total Trees	Prawn ponds	
	Original Family	Extended Family	Total	No	Area in (Acres)		No	Area in Acres
1	2	3	4	5	6	7	8	9
Gobindpur	100	69	169	689	93.11	55796		
Nuagaon	12	6	18	432	82.63	17813	1	0.29
Nolisahi	164	76	240	4	1.38	10560	—	—
Polang	54	23	77	278	56.98	18164	—	—
Bhuyanpal	12	—	12	17	2.79	843	3	15.27
Bayanal Kandha	—	—	—	83	16.31	1948	—	—
Jatadhar	—	—	—	—	—	—	27	254.40
Dhinkia	124	78	202	374	50.87	—	—	—
<b>Total</b>	<b>466</b>	<b>252</b>	<b>718</b>	<b>1877</b>	<b>304.27</b>	<b>105124</b>	<b>31</b>	<b>269.96</b>

Source: Government of Orissa, Department of Revenue.

**Table-12**  
**Different Categories of Government Land and Private Land being acquired for POSCO Project (Land in Acres) (To form Universe for studying Land Acquisition Issue)**

Name of the Village	Forest Land	Gochar Land	Communal Land	Leasable Land	Total Govt. Land	Private Land	Grand Total
Dhinkia	803.88	2.05	2.70	129.23	937.56	284.97	1222.53
Gobindpur	854.55	10.58	2.09	24.30	891.52	73.24	964.76
Polanga	325.08	2.54	0.49	0.30	328.41	53.85	382.26
Nuagaon	666.55	0.00	0.00	69.56	736.11	3.42	739.53
Bayanal Kandha	52.03	0.00	0.00	0.00	52.03	2.41	54.44
Bhuyanpal	29.79	9.31	5.14	5.31	49.55	2.02	51.57
Noliasahi	37.70-	2.90	1.57	9.62	51.79	17.75	69.54
Jatadhar	189.24	0.00	322.55	7.50	519.29	-	519.29
<b>Total</b>	<b>2958.82</b>	<b>27.38</b>	<b>334.54</b>	<b>245.82</b>	<b>3566.56</b>	<b>437.68</b>	<b>4004.24</b>

**Sampling for the study of POSCO Project**

The sampling frame for the research study of POSCO Industry would be in the context of the specific objectives formulated and the universe of the study as reflected in Tables 7,8&9.

**Table-13**  
**Area of Forest Land, Government Land and Private Land acquired for POSCO Industry**  
 (Area in Acres)

S N o	Forest Land			Govt. Land			Private Land			Total Land (Universe and Sample of Study)*		
	Universe	% of Sample	Sample Area	Universe	% of Sample	Sample Area	Universe	% of Sample	Sample Area	Universe*	% of Sample	Sample Area
	<b>1300.39</b>	<b>20%</b>	<b>325.09</b>	<b>436.79</b>	<b>20%</b>	<b>21.84</b>	<b>79.45</b>	<b>20%</b>	<b>19.86</b>	<b>1816.63</b>	<b>20%</b>	<b>366.79</b>

\*The figures for the universe refers to **Table-9** excluding those of Dhinkia and Gobindpur as the villagers are resisting the land acquisition in these two villages. However, the process of resistance and implications of non acquisition of this area for the project will be studied as a case study and through qualitative method like focus group interview.

**Table-14**  
**Sample size of Displaced Families and Area of Betel Vines Demolished**

Sr. No.	No. of Displaced Families ( Extended)			Area of Betel Vine Demolished (Area in Acres)		
	Universe	% of Families Sampled	No. of Families Sampled	Universe*	% of Sample	Sampled Area
1	347	20	69	128.33	20	25.67

\*The figures for the universe refers to the figures at Table-4 excluding those of Dhinkia and Gobindpur as the villagers are resisting the land acquisition in these two villages.

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## Management of Similipal Biosphere Reserve Forest: Issues and Challenges

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### Abstract

The conservation of biodiversity has been a contentious and complex issue over the years. Protected areas [PAs] that are created to preserve biodiversity are in critical condition due to excessive anthropogenic pressure. The Similipal biosphere reserve [SBR] in the Odisha state of India is the sixth largest biosphere reserve in the country and forms a major part of the World Network of Biosphere Reserves. SBR is the home for diverse flora and fauna and most of them are endemic in nature. Besides the rich floral and faunal biodiversity, SBR is also the abode of many tribes living in and around the biosphere reserve and critically depend on the reserve for livelihoods. Designing appropriate and effective local institutions that fosters biodiversity conservation and livelihoods is widely considered as a panacea for this problem. The paper describes the current issues and challenges faced by the SBR; analyzes how the local institutions are functioning and demonstrates how management interventions can be effectively and equitably prioritized towards the members of a community who are mostly dependent on forest resources in order to promote sustainable local livelihoods and biodiversity conservation. Lessons learned include the capacity building training activities to raise the skill and capabilities of the stakeholders through joint government-community collaboration; sharing of benefits in equitable way among the shareholders; empowerment of local people through better participatory programmes; and provision of well-defined livelihood enhancement opportunities through promotion of eco-tourism which is highly neglected in SBR.

**Keywords-** Forest; Management; Biodiversity Conservation; Institutions; Livelihoods; Odisha; India

### 1. Introduction

The continued loss of biodiversity has forced researchers and policy makers across the globe to rethink on the existing natural resource management practices and explore alternative approaches that are effective in preventing further ecosystem degradation and species extinctions and at the same time promote sustainable resource use [1]. In recent years, many scientific reports have pointed out that the loss of biodiversity (in terms of the extinction of species) has increased dramatically due to increasing human intervention in the natural environment [2, 3]. Species are estimated to be disappearing at a rate more than a

thousand times faster than is known historically [4]. This loss of species threatens the availability of essential ecosystem services that are vital for the survival of human communities. In an attempt to address this situation, governments across the world have adopted conservation policies by creating natural habitats such as Protected Areas (PAs) in the form of biosphere reserves, wildlife sanctuaries, and national parks, for conserving biodiversity that is threatened or critically endangered. The importance and relevance of these PAs lies in the conservation of key biological resources along with the scope for sustainable development initiatives that will strengthen local livelihoods. However, currently the PAs are facing numerous challenges and are in critical and threatened condition.

Across the PAs a variety of issues has surfaced over the last few years, including conflicts between local people and forest department officials, between local people and commercial forces, and between conservationists and commercial forces [5]. The establishment of PAs in developing countries has placed heavy burden on local communities and this has proved to be a severe barrier to effective conservation [2, 3]. It has been seen that any attempt at Wildlife conservation has to accept the harsh reality of rapidly increasing human population living below the poverty line for whom basic need satisfaction is a biggest challenge [5, 6].

The main issue is the exercising of the customary rights of local people to use land and park resources; this raises basic questions about the survival of local communities and achieving park objectives [7, 5]. This has put a direct impact on their survival and livelihood base and refrain them even from the basic inputs like NTFPs, cooking energy and fodder for livestock [8, 9]. Again, eviction of local traditional communities is often regarded as an extreme social outcome of biodiversity conservation which has the unintended consequence of displacing people and cutting them off from their principal source of economic livelihood [9, 6, 10, 11, and 12]. Ref. [13]<sup>1</sup> has pointed out that in most of the cases the consequences of displacement and exclusion results in various environmental problems and socio-economic conflicts. Besides, the strict conservation rules many times results in an increase in the population of some species like elephant, tiger, lions, leopards etc. in some areas which has a spill-over effect of animals not finding adequate food and space to roam freely [5].

However, many times the legal status, rather than the conservation priorities put challenges and

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<sup>1</sup> Ref. [13] points out that negative environmental change leads to various types of conflict in the many developing countries and explains that resource scarcity, made worse by environmental degradation, the inequitable distribution of resources and population growth, leads to poverty, inter-group tensions, institutional collapse and human displacement. These, in turn, lead to instability and conflict.

creates conflicts in many PAs. Study finds that even from a scientific point of view, the creation of national parks and sanctuaries in many developing countries has been highly irrational [5]. Although some areas in these countries have large wildlife value but they have not been assigned the PA status, whereas, a number of PAs having limited ecological value and largely degraded ecosystems are enjoying the status by depriving benefits to the large human population residing inside these areas [ibid]. Besides, many times the PA status are taken not only ignoring the human factors, but also scientifically unsound<sup>2</sup>.

Since the park-people relationship is always two-way, conflicts are inevitable because of the presence of multiple stakeholders with differing perceptions and values [Kothari, 1995]. All these factors many times results in human-wildlife conflicts in the form of livestock lifting, crop raiding, poaching of wild animals by the hostile people and propels naxalite activities inside the PAs.

Hence, it has been argued that the social, physical and economic well-being of PA dependent peoples should be realized within a holistic conservation effort [14, 15, 16]. Participatory studies have repeatedly shown that local people's support is critical to the successful management of PAs [17, 18, 19, 20, 21]. Local support, embedded in the local acceptance of holistic conservation actions, can be positively influenced through socio-economically beneficial activities such as tourism, alternative employment opportunities, cultural preservation and democratic participation, i.e. making local people essential shareholders in net conservation benefits [22, 23]. Such participative approaches may encourage consensus among academicians and policy makers on effectively managing PAs and enhancing the lives of the millions of people dependent on PAs.

India is one of the mega-biodiversity countries in the world with a heavy reliance on its natural resources for its economic growth. A large part of India's rural and tribal population also directly depends on these natural resources for their subsistence. The official statistics of the government of India indicate that 4.8% of the country's land area is protected for the specific purpose of wildlife conservation [24]. There are currently 661 PAs in the country, which are legally recognized under the Wildlife Protection Act [WLPA 1972, amended 2002] [24].

Most of the PAs in India support various forms of land use, such as agriculture, livestock grazing, collection of fuelwood and other non-timber forest products [NTFPs]. However, the extent of support varies depending upon the type of PAs. A study

by [25] showed that more than 20% of the 222 PAs in India were the centre point of physical confrontation and clashes between the local people and the park managers over resource use, at the time. In recent years policy prescriptions have largely been ineffective in achieving genuine participation of people living inside the PAs [25, 26]. As a result many flagship species are getting extinct. However, in some cases wildlife crisis has been witnessed even there is support from the localites, due to ineffective management of the PAs<sup>3</sup>.

Therefore, with an attempt to analyse the current issues and challenges faced by the PAs towards the effective functioning of participatory management and the avoidance of escalatory conflicts, the present study focuses on the complex interactions of local communities within PAs keeping the geographical scale of the study as the Similipal biosphere reserve [henceforth SBR] in Odisha. The study is based on secondary information collected from SBR, review of literatures published on SBR, and our interactions with both SBR officials as well as local people living in and around SBR during the field visit in July, 2012.

The paper describes the richness of biodiversity, current status, threats and the mode of conservation of the SBR. The paper is divided into five sections. Section 2 presents a brief description of the background on the SBR, its importance and current status. A discussion on the institutional dynamics and management of SBR is presented in section 3. Section 4 presents the analysis of the effectiveness of current management practices in SBR. Section 5 concludes.

## **2. Description of the Study area, Importance and Current Status**

The SBR has been selected as the study region owing to its significance within the biodiversity map of India and in Odisha state. The forests constitute 22% of the geographical area out of which 5% of its area falls under PA network [27]. The SBR (20° 17' - 22° 34' N and 85° 40' - 87° 10' E) covers an area of 5569 sq km and is situated in the heart of Mayurbhanj district of Odisha state in India [Figure 1]. Similipal contributes 38% of the total area of the PA network in Odisha [27]. It is the sixth largest biosphere reserve, one of the oldest tiger reserves in the country and a major biodiversity hotspot in Eastern India. Besides, the reserve is included as a part of the World Network of Biosphere Reserves by UNESCO in 2009. It encompasses the Proposed National park [declared in two phases during 1980/1986] and the Wildlife sanctuary (declared in 1979).

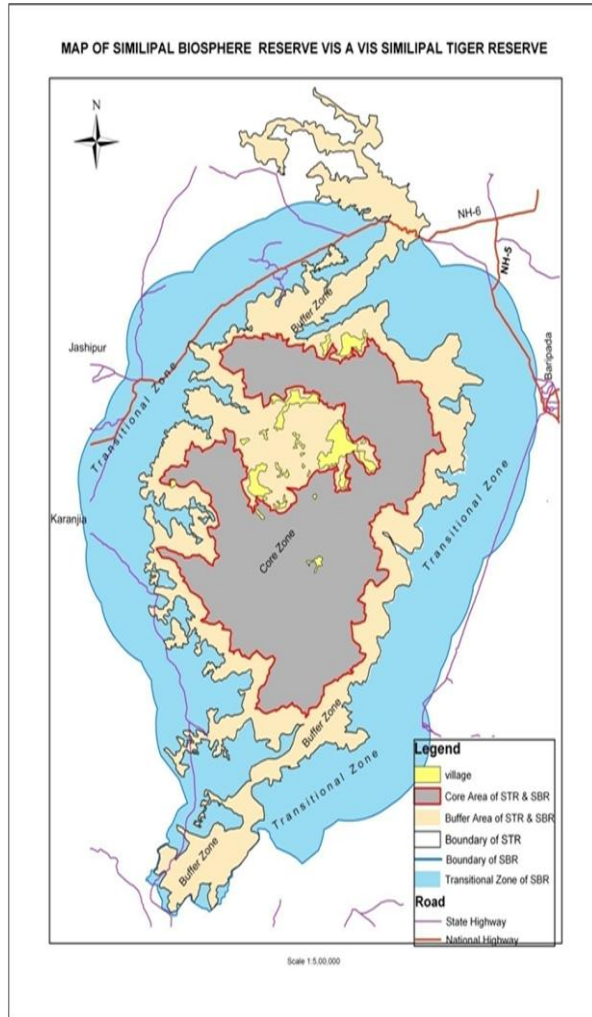
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<sup>2</sup> The Wild Life Protection Act bans grazing inside national parks assuming that it will damage the ecosystem, but a study conducted by Bombay Natural History Society revealed that buffalo grazing is an integral part of the ecosystem which help to counter the tendency of wetland to turn into grassland [5].

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<sup>3</sup> In 2005, tigers went totally extinct from Sariska Tiger Reserve even though the reserve had been cited as an example of a tiger reserve where there was successful local participation in the conservation of the tiger, and its habitat.

**Fig 1 Map of Similipal Biosphere Reserve**



An assemblage of ecosystems ranging into the Forests, Grasslands and Wetlands, the composite 'Similipal ecosystem' is the abode of 1076 species of vascular plants representing 170 families of which 64 species are cultivated plants and 96 are orchids [28]. These include 2 species of orchids which are endemic, 8 plants species which are endangered, 8 plants species whose status is vulnerable and 34 other rare species of plant. Among 41 species of medicinal plants of Odisha prioritized for conservation action [28], 30 are known to occur in Similipal. SBR is also the abode of the black and melanistic tiger which is rare. The identified species of fauna include 20 species of amphibians, 62 species of reptiles, 304 species of birds and 55 species of mammals, all of which collectively highlight the biodiversity richness of SBR. As a major tiger habitat, it is estimated to have 99 Royal Bengal Tigers and 432 wild elephants [27]. So, SBR contains over 50% of the tiger population and about 25% of elephant population

of entire Odisha state [27]. Besides, SBR is an important tourism destination for both the domestic and foreign visitors. Although, Similipal is a rare expression of nature's bounty, many scientific facets are believed to be still unexplored.

Besides the rich floral and faunal biodiversity, SBR is also the abode of many tribes like *Khadia*, *Bhatudi*, *Kolha*, *Bhumija*, *Munda*, which have a rich culture and totally depend on forests for their livelihoods. The entire Similipal forest area falls under one of the Scheduled V category [tribal sub plan area] of the state as majority of inhabitants are tribal. The tribal population constitutes 73.44% of the total population of the area, while the scheduled castes constitute 5.21% and other backward castes constitute 21.35% respectively [28]. Out of 1265 villages, 65 villages are situated inside the Sanctuary area of which 61 villages are in the buffer area and remaining 3 villages are in core area. The communities inhabiting the SBR majorly supplement their consumption and income by extracting plants and about 50% of them earn a part of or the complete livelihood from Similipal. The intimate association and dependence of the tribal communities on the natural resources have enriched them with invaluable knowledge on the bio-resource utilization [27].

However, since the resident local human population has a strong level of dependence on SBR's resources, the local resource use activities poses a number of challenges to biodiversity conservation in SBR. The specific challenges are: the loss of diversity due to collection of small timber and fire-wood; the loss of diversity due to forest fire and the loss of diversity due to shikar (illegal Hunting of wildlife). 'Akhand Shikar' is considered to be one singular custom that results in large-scale killing of wild animals. Moreover, the frequent attacks from Maoist militias and increasing human-wildlife conflicts in the form of crop damage and livestock losses increase the life risks and conservation challenges faced by the conservation institutions. However, the key threats to biodiversity in the SBR is summed up in the below table.

**Table 1: Key Threats to Biodiversity in Sbr Due to Anthropogenic Factors**

Key Threats to Biodiversity	Current Status
Population increase	Total population of SBR has increased two time more than census 1991 that impels more extaction of forest resources
Extraction of forest produce	Forest produce constitute more than 50% of the local household income and fuelwood constitute 100% energy source in SBR (Bhatnagar and Rao, 1997; Vasundhara, 2001).



Livestock grazing	Though grazing is prohibited in the core area of Similipal Sanctuary, around 50,000 livestock graze inside the Reserve daily (Singh, 2000). Even, cattle from up to a distance of 5-7 km from the Reserve boundary also graze inside the reserve (ibid) which exert pressure on the SBR.
Livestock population	Livestock population of the core area has increase two times within the last ten years (Rout, 2008). Many times the domestic cattle stray into the tiger habitat for grazing, thus causing the major cases of cattle lifting. s Between the year 1990-2000 the total number of cattle killed in such cases was 219 (Singh, 2000).
Wildlife poaching	Poaching of wild animals as a cultural practice, in the name of 'Akhand Shikar' is common
Human-wildlife conflict	Crop raiding by the elephants is a common event inside the reserve (Rout, 2008) which many times prove the local people to kill the wild animals. Most of the cases of tiger attack happened between 1973 and 1990 when more than six deaths were reported and, a few persons have been injured or killed by elephant attack (Singh, 2000).
Forest fire	The causes of fire are purely biotic mainly by NTFP collectors, smugglers, poachers and grazers. Between the years 1991–2000, around 100 sq km of forest was burnt due to forest fire (Rout, 2008) and is a major cause of soil erosion and death of ground flora and fauna.
Encroachment of forest land	Around 20% of forest land within the biosphere reserve has been encroached upon by local people for agriculture activities since 1995 (Rout, 2008)

In addition to the threat posed to biodiversity, the local livelihood in Similipal is also under pressure. Since, human habitation in and around the protected areas lives in subsistence economy with little or no access to market, education, health and other sanitation services, which generally results in low human development indicators such as high infant mortality, below average longevity, etc. As a consequence of this people try to

improve their living standards by extracting more resources from the PAs that again results in serious implications on conservation of biodiversity and natural habitats. The common livelihood issues faced by the local communities inside the SBR are summed up as follows:

**Table 2: Socio-Economic and Human Development Status of People in and Around Sbr**

Issues	Current Status
Socio-economic Profile	<ul style="list-style-type: none"> <li>➤ More than 90% households are coming under BPL category</li> <li>➤ 60% households have monthly income of Rs. 500, whereas 32% earn Rs. 250 to secure just about two square meals a day</li> <li>➤ more than 60% households are marginal farmers</li> </ul>
Livelihoods	<ul style="list-style-type: none"> <li>➤ 50% of annual household income comes from forest (NTFPs), 20% from agriculture and rest 30% from wage labor</li> </ul>
Food Security	<ul style="list-style-type: none"> <li>➤ Around 50% households get less than one square meal/day</li> <li>➤ The staple diet throughout the year is rice and salt</li> <li>➤ Lack of purchase capacity is a major reason behind malnutrition and dying due to starvation and hunger</li> </ul>
Health	<ul style="list-style-type: none"> <li>➤ Death due to cerebral malaria is quite rampant. During 2006, 21 death of children below 5 years which went up to 37 in 2007 only in the core area</li> <li>➤ Health centers inside SBR are very less in number and are in a very poor condition</li> <li>➤ Unavailability of medicine is a frequent case</li> <li>➤ District health service has provided only two ambulances which charge Rs 5/km to carry the patients to either Jashipur and Baripada (nearest towns) located around an average distance of 40-50 kms</li> </ul>
Sanitation	<ul style="list-style-type: none"> <li>➤ Unhygienic an polluted drinking water leads to various diseases</li> </ul>

	(particularly water related vector borne diseases) like diarrhea and jaundice ➤ Very few villages have wells and tube wells. Streams and water channels are majorly used both for household chores and drinking purpose
Communication	➤ Poor road connectivity to many villages ➤ No telephone or mobile phone access inside the reserve
Employment	➤ Employment opportunities are very poor as the local people are provided with only 15-30 days of work per year at a nominal wage ➤ About 67% of the population engaged in casual labour while less than 20% cultivate land for subsistence
Others	➤ Inaccessibility to various institutions e.g. bank, post office, schools, and police stations cause maximum hindrance to development ➤ Total literacy rate is less than 50% ➤ Ponds have been constructed in many villages, but are yet to be completed ➤ Solar lights have been provided at certain places which are in defunct state
<i>Source: Vasundhara, 2006</i>	

The above tables clearly depict that SBR is a backward performing tribal region in terms of many development and welfare indicators. Therefore, effective management of the SBR towards biodiversity conservation as well as livelihood improvement has become imperative, both by the federal/state government and local institution.

### 3. Institutional Dynamics and Management of SBR

The agreement on what constitutes an effective and sustainable forest management is still a debatable issue. However, effective conservation of biodiversity in any PA is incomplete without proper management initiatives [8, 31]. The components of management include creating new livelihood opportunity for the forest-dependent people, empowering local people, ensuring representation and equity, strengthening resource security or providing property rights and broad-based participation in decision making [1].

The responses from both Federal and the state governments to the threats of the depletion of biodiversity especially to the wildlife, has led to the completion of many projects for conservation of wildlife in SBR. ‘Project Tiger’, a major conservation initiative of the government of India, was launched in 1973 to save the Indian tiger from extinction. Similipal tiger reserve was one of the nine such reserves chosen in the country for launching the Project Tiger. The Indian Wildlife (Protection) Act, 1972 was promulgated in the state in August 1974, and a separate wildlife wing within the state forest department was created in June 1976. Again, the ‘Project Elephant’ as a conservation strategy for elephant and its habitat was launched in 1992 and over 7000 sq.km of Similipal area was added to it. Besides, the Mugger Crocodile Project was introduced in Ramtirtha area of Similipal to give protection to the endangered Crocodiles. Besides, towards local livelihood improvement, all the households in and around SBR are registered for getting employment for 100 days in a year under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme.

Odisha is known for effective community forest management. A variety of local institutions are found in and around SBR that are designed to promote conservation of biodiversity and local livelihoods (Table 1). The Government of Odisha, through its Joint Forest Management (JFM) Resolution (2008), has adopted eco-development as a strategy for securing support from local communities in PA management. Eco-development Committees (EDCs) along the lines of Vana Surakhya Samiti (VSS) provide a strong linkage between conservation and development; and they may include ecotourism and off-farm activities, as well as providing specific alternatives to local biomass dependence. The following village level institutions (both formal and informal) are found in and around the SBR having the overall objective of biodiversity conservation and community development.

**Table 3: Village Level Institutions Functioning In and Around SBR**

<b>Nature of Institutions</b>	<b>Name of Institutions</b>	<b>Number</b>	<b>Functioning / Role</b>
Formal Institutions	Eco-development Committees ( <i>EDCs</i> )	343	Work for village eco-development (provider of community welfare and alternative income generation activities)
	Vana Surakhya Samiti ( <i>VSS-Forest Protection Committees</i> )	681	Protection of forest and wildlife management, control against illegal cutting of trees and forest fires
	Sabuja Vahini ( <i>Green Brigade</i> )	57 (496 members)	Protection of forest and wildlife, detect forest offences, control against 'Akhand Shikar', illegal cutting of trees and forest fires
	Fire Groups		Control against frequent forest fires
	Protected Area ( <i>PA</i> ) Managers		Local units of forest department- Protection of forest and wildlife
	Tiger Protection Camps	94	Protect tigers
Informal Institutions	Vaidya Sangha ( <i>Committee of Traditional Healers</i> )	3 (65+)	Promote local health traditions and conservation of medicinal plants
	Village Forest Committee ( <i>VFC</i> )		Protect surrounding forest of the village from illicit felling of trees, control against timber smuggling
	Self Help Groups ( <i>SHGs</i> )	273	Provide alternative employment opportunity and conduct community welfare programmes
	Aganwadi		In-charge of mid-day meal at schools, organize child welfare and health programs
	Asha Karmi		Health workers appointed in villages (take care of women at the time of pregnancy)
<i>Source: Office of the Regional Chief Conservator of Forests and Field Director, Similipal Tiger Reserve, Baripada, Mayurbhanj</i>			

However, there is a local committee chaired by the Director, SBR and comprising of district level officers of various related departments and also two NGOs of Mayurbhanj district, which deliberate from time to time to formulate suitable action programmes. Besides, many protection strategies have been implemented and funds have been invested towards the protection of SBR during 2009-11. The major investment has been in construction of 36 numbers of water harvesting structures and improvement of irrigation channels to fields. *Sabai rope* making units and *Sal-leaf plate* making units have been supplied to the villagers. Health camps, anti-malaria campaign, immunization of people and cattle have been carried out. The facility of revolving fund for micro-credit has been extended to selected community groups. Training in sericulture, *Sabai* rope making, improved agricultural technique, bee keeping, and orchid growing and in the job of eco-guide, etc. have been imparted to 112 persons. Some other important activities includes: joint patrolling conducted by the staff of Similipal Tiger Reserve (henceforth ST) and Territorial divisions, the deployment of captive elephants in protection duty, the deployment of Sabuja Vahini (Green Brigade) in the sensitive pockets of the Tiger Reserve, and developing an intelligence network in the villages inside the reserve to tap information regarding the movement of poachers or timber smugglers in the STR. Some efforts are being directed toward wildlife education, awareness, research and training of the common people by the different government organizations and NGOs.

Although some changes have been noticed<sup>4</sup>, the role and efficacy of these local institutions towards biodiversity conservation and local livelihood improvement in and around the SBR has been found to be ineffective and inadequate.

#### 4. Current Management Issues and Challenges

It is often assumed that all the members of a community must be equally benefited, if the community is to develop effective resource management institutions [27]. Despite the provision of benefit sharing<sup>5</sup>, the sharing provisions are questioned on various counts. Again, the benefits derived from the establishment of local village level committees are doubtful in terms of its sustainability in the long term [32].

One of the major constraints with the Village Forest Committee (VFC) is their limited relationship

with State Forest Department, since it has not got the legal and statutory status. Due to their limited recognition, VFC finds difficulty to manage resources in long-term forest development perspective.

The Sabuja Vahini is still in a primitive stage of their activities and a formal institutionalization is yet to be done. However, they are covered under the JFM scheme since the authorities believe that a new institution created outside the JMF arrangement would increase difficulties. At the same time, there is almost no scope for benefit sharing. Further, the issue that in the JFM, the poor protect the natural resources, and there is no scope to develop a sense of ownership on it appears to be very critical. A study by [33] indicate that in the JFM model of management, the forest-dependent poor only protects the natural resources and there is no scope to develop a sense of ownership over the resource. Most of the EDCs are defunct due to the lack of funds, awareness, knowledge and dissemination of information. Since there is only one Aganwadi Centre for every 1000 population and the number of staffs are few, during the rainy season the Aganwadi workers face a lot of problem for immunization, taking care of antenatal women, attending emergency cases, supplying Aganwadi food, monitoring weight of kids.

Again, gender sensitization is one of the major concerns in the management of forest resources concerning women's participation, equalization and their involvement in various community and economic activities. Women and girl children particularly from low caste/poor tribal families collect firewood, fodder, small timber, various NTFPs etc. from the forest. But, they are least empowered, neglected and increasingly alienated<sup>6</sup> from participation in decision-making forums. Therefore, lack of participatory of process still remains in the planning, implementation, monitoring and evaluation of management programmes in the SBR.

Besides, many times the destruction of natural resources and the resultant biodiversity loss inside the PAs is strongly attributed to a lack of a well defined and secure system of property rights<sup>7</sup> [34, 35, 8]. Therefore, the concept of co-management or collective action by local institutions where both the state and local communities have some rights and responsibilities over the resources, have been widely accepted [18, 19]. However, the local communities inside SBR are mostly unaware about property rights over the forest resources that many times results in loss of biodiversity as well as

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<sup>4</sup> During the year 2005-06, the mass hunting rate (*Akhand Shikar*) was quite low because of a protection force comprising of ex-army personals and *Sabuja Vahini* volunteers. Illegal cutting of trees and cases of forest fires has been reduced because of the involvement of VSS, EDCs and the Green Brigades volunteers. During 2007-08, out of total offences recorded in the core area, 79% were detected by the *Sabuja Vahini* volunteers alone.

<sup>5</sup> Under the 1993 Resolution there should be 50% sharing of the produce/income from a 'major' or 'final' harvest of timber between the FD and members of VSSs.

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<sup>6</sup> Under some EDCs, women are engaged in firewood head loading, primary processing of NTFPs at the household level such as leaf plate making, *beedi* rolling, broom/mat making etc. but, the number is very less.

<sup>7</sup> Property rights are defined as the legal expression of the guarantee of access to a benefit stream in the context of a given legal, political and social order [36].

livelihoods<sup>8</sup>. The local institutions functioning inside SBR

Again, though eco-tourism in Similipal has the potential to generate substantial revenue, required to finance conservation related projects as well as enhance local livelihood opportunity, the same has not been adequately explored. However, the three and a half decades of conservation efforts under Project Tiger suffered a major setback due to a series of attacks carried out by suspected left wing extremists between 28th March 2009 and 15th April 2009. These attacks resulted in a complete breakdown of extensive damage to vital reserve management infrastructure including range and beat offices, anti poaching camps, communication networks, and also, to the morale of reserve staff and property. Since then most staff positions inside the SBR has been remain vacant.

**Table 4: Current Details of Staff and Vacancy of Posts In SBR**

Area	Sanctioned Strength	Staff in Position	Vacant	% Vacant
Core	145	90	55	38
Buffer	104	94	10	10
Total	249	184	65	25

*Source: Evaluation reports of Tiger Reserves in India, Project Tiger Directorate, Ministry of Environment and Forests, Government of India*

On an average one Forest Guard looks after 20 km<sup>2</sup> of the forest area which is quite large. Because of large scale vacancies in the level of Forest Guard and Forester, a Forest Guard remains in charge of two to three beats (approximately an area of over 50km<sup>2</sup>). The savage Maoist attack has also not only poses a threat to biodiversity but also affects the government revenue earned from wildlife tourism<sup>9</sup>. It shows that the Forest Department of SBR is severely short to protect the rich biodiversity in Similipal.

All these issues have severely hampered effective management of the reserve and pose a serious challenge towards biodiversity conservation as well as maintaining pace with the local communities.

## 5. Conclusion

In this study we have made an attempt to understand the complex issues and management challenges faced by the SBR. It is found that the rich resource-full SBR is under serious threat. Both the government policies and local village level institutions have failed in a large

way to conserve biodiversity as well as promote local livelihoods. Eco-tourism, which is highly neglected inside Similipal, should be promoted and get utmost attention because it may serve as a panacea to curb local livelihood problems. Filling up of staff vacancies is very crucial towards conservation of biodiversity inside SBR. There is an urgent need for a lot of capacity building training activities to raise the skill and capabilities of these stakeholders. Organization of nature and wildlife awareness camps, campaigning against 'Akhand Shikar' and various orientation programmes on ecotourism activities by the local institutions are necessitated. Though the process of empowerment is a long and backbreaking task, it is suggested that the implementation of better participatory programmes through these institutions will not only strengthen empowerment process but also redesign these grass root institutions more people-centred. But, whether the strategies taken by these grass root level institutions are adequately directed to promote the livelihood interests of the primary gatherers and to preserve rich biodiversity is a moot point.

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<sup>8</sup>Lack of knowledge on ownership, use of land and application of modern technology result in low productivity of agriculture in SBR.

<sup>9</sup> Tourist inflow into SBR had nosedived from 20,743 in 2008-09 to 9,712 in 2010-11 which had its impact on tourism revenue; from a record of Rs.26, 98,952 in 2008-09 to Rs 6, 84,020 during 2010-11.

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## Relationship between Economic Growth and Environmental Quality: An Empirical Analysis

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### Abstract

The objective of this study is to examine the nature and extent of relationship between economic growth and environmental quality. The study used annual total freshwater withdrawals (billion cubic meters), organic water pollutant (BOD) emissions (kg per day), forest area (% of land area), animal species threatened, bird species threatened, plant species (higher) threatened, CO<sub>2</sub> emissions (metric tons per capita), methane emissions (kt of CO<sub>2</sub> equivalent), nitrous oxide emissions (thousand metric tons of CO<sub>2</sub> equivalent) and Other green house gas (GHGs) emissions - HFC, PFC and SF<sub>6</sub> (thousand metric tons of CO<sub>2</sub> equivalent) as environmental variables and GDP per capita as proxy for economic development. The linear and non-linear (quadratic) regression models are applied to test the various possible relationships between the indicators of environment and income per capita. In case of fresh water withdrawals, water pollution (BOD) and GHGs emissions, positive and significant linear relationship were found. The linear relationship turned out to be negative and significant in case of methane emissions and nitrous oxide emissions. Only two variables plant species (higher) threatened and CO<sub>2</sub> emissions have non linear (quadratic) relationship – an inverted U-shaped (Environmental Kuznets Curve) type of relationship with estimated turning points of per capita income \$1215.474 and \$86173.57 respectively. The regression result for forest area (% of land area), animal species threatened and bird species threatened variables were insignificant.

**Keywords:** Economic Growth, Environmental Kuznets Curve, Environmental Quality, GDP per capita.

### Introduction

According to the World Commission on Environment and Development (the Brundland Commission), Sustainable development means “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Although the desirability of development is universally recognized, recent years have witnessed rising concern about whether environmental constraints will limit development and whether development will cause serious environmental damage - in term of impairing the quality of life of

present and future generations (World Development Report, 1992).

Sustainable development requires that the loss of the limited resources is balanced by the creation of new reproducible capital. Development increases human welfare, only if damage due to development does not cause more losses than gains. Then environment and development will be seen as complements to one another, instead of as adversaries. (Dutta *et al.*, 2005)

Development that is socially, economically and environmentally sustainable is a challenge. Economic growth is needed, but growth alone is not enough if it does not reduce poverty. And failing to safeguard the environment eventually threatens economic and social achievements. (World Development Report, 2010)

Though there is considerable dispute concerning the environmental costs associated with various economic activities, consensus is growing among development economists that environmental considerations should form an integral part of policy initiatives. The exclusion of environmental costs from calculation of GNP is largely responsible for the historical absence of environmental considerations from development economics. It is thus very important that the long term implications of environmental quality be considered in economic analysis (Todaro and Smith, 2007).

In this context a widely discussed concept is that of the Environmental Kuznets Curve (EKC), which shows that as per capita income increases, environmental quality initially worsens, but with continued increases in income, environmental quality starts improving, giving rise to an inverted U shaped curve. Many reasons have been suggested for this. One, at low levels of economic development, environmental degradation is limited to the effects of subsistence economic activity. As industrialization takes place, pollution increases, and as the economy develops further and moves into the service sectors, environmental quality improves again (Panayotou, 1993). Another reason is that as economic development progresses, there tends to be a parallel progression in environmental regulation from little or no regulation at low levels of development, to strong environmental regulation at high levels of development. (Yandle *et al.*, 2004).

### Previous Studies

Shafik and Bandgopadhyay's (1992) estimated EKC for different indicators using three different functional forms. Lack of clean water and lack of urban sanitation were found to decline uniformly with increasing income. Deforest regression showed no relation between income and deforestation. River quality tended to worsen with increasing income. Local air pollutant concentrations, however confirmed to the EKC' hypothesis with turning points between income of \$3000 and \$4000.

Seldom and Song (1994) estimated EKCs for four emissions series SO<sub>2</sub>, NO<sub>x</sub>, SPM and CO<sub>2</sub> using longitudinal data. The data were primarily from

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developed countries. The study showed that the turning point for emissions was likely to be higher than that for ambient concentrations. It was reported that in the initial stage of economic development urban and industrial development tended to become more concentrated in a smaller number of cities, which also had rising population densities with the reverse happening in the later stages of development. So it was possible for peak ambient pollution concentrations to fall as income rises even if total national emissions were rising.

Grossman and Krueger (1995) examined the reduced-form relationship between national GDP and various indicators of local environmental conditions using panel data from the Global Environmental Monitoring System (GEMS). The study covered four types of indicators: urban air pollution, the state of the oxygen regime in river basins, fecal contamination of river basins, and contamination of river basins by heavy metals. The study found no evidence that economic growth does unavoidable harm to the natural habitat. Although the study revealed that while increases in GDP may be associated with worsening environmental conditions in very poor countries, however, air and water quality appeared to benefit from economic growth once some critical level of income has been reached. The turning points in these inverted u-shaped relationships vary for the different pollutants but in almost every case they occur at an income of less than \$ 8000 (1985 dollars).

Dhanda *et al.* (2005) presented a mathematical framework for linkage between GDP and CO<sub>2</sub> emissions for a particular nation or a group of nations. The study used the methodology which took into account the residual autocorrelation and heteroscedasticity problems across various countries and estimated the model using linear and log-linear functional forms. The study found out the positive relationship between GDP and emissions. Considering the Human Development Index, the paper reported that at low stages of development, growth was accompanied by high rate of emissions while at higher stages, the emissions initially stabilized and were lowest for the nations at highest levels of development which indicated consistency with EKC.

Paul *et al.* (2009) explored the relationship between economic growth and carbon dioxide emissions for India using time series data on CO<sub>2</sub> emissions for the period 1950-2002. The study used time series econometric models - co integration and error-correction model. The study found that per capita CO<sub>2</sub> emission and GDP were not co-integrated and also the relation between the two variables was not linear. On the other hand, a quadratic functional form (with income squared) supports statistically significant positive linear and quadratic income coefficients which also satisfies co integration test. Thus the results of the study strongly support the EKC hypothesis.

Choi *et al.* (2010) in their study investigated the existence of the Environmental Kuznets Curve

(EKC) for Carbon Dioxide (CO<sub>2</sub>) emissions and its causal relationships with economic growth and openness by using time series data (1971-2006) from China (an emerging market), Korea (a newly industrialized country), and a Japan (a developed country). China showed an N-shaped curve while Japan had a U-shaped curve. Such dissimilarities were also found in the relationship between CO<sub>2</sub> emissions and openness. In the case of Korea and Japan it represented an inverted U-shaped curve, while China showed a U-shaped curve.

The present study is an attempt to understand the relation between growth and environment. The primary focus of the study is to examine the nature and extent of relationship between economic growth and environmental quality.

### Data Base and Methodology

In this study we use a cross section database for a wide range of developed and developing countries. The environmental indicators used in this study are annual total freshwater withdrawals (billion cubic meters) (2002), organic water pollutant (BOD) emissions (kg per day) (2000), forest area (% of land area) (2005), animal species threatened (2007), bird species threatened (2004), plant species (higher) threatened (2007), CO<sub>2</sub> emissions (metric tons per capita) (2004), methane emissions (kt of CO<sub>2</sub> equivalent) (2005), nitrous oxide emissions (thousand metric tons of CO<sub>2</sub> equivalent) (2005) and other greenhouse gas emissions - HFC, PFC and SF6 (thousand metric tons of CO<sub>2</sub> equivalent) (2005). Latest year for which data are available is mentioned in the bracket. On the economic side, GDP per capita of a country expressed in constant 2000 US Dollars (2000 US\$) for the corresponding years of environmental variable has been used as proxy for economic development. The data for all the variables are taken from World Development Indicators, published by the World Bank.

The environmental indicators are taken as dependent variable and GDP per capita as independent variable in OLS regressions, using cross section data. There are various techniques for estimating the curve, but in order to test the EKC model, the regression must take a quadratic form. The following linear and non-linear regression equations are used to test the various possible relationships between the indicators of environment and income per capita:

$$\text{Log } Y_i = \beta_0 + \beta_1 \log X_i + e_i \quad \dots\dots\dots (1)$$

$$\text{Log } Y_i = \beta_0 + \beta_1 \log X_i + \beta_2 (\log X_i)^2 + e_i \quad \dots\dots\dots (2)$$

$$\text{Log } Y_i = \beta_0 + \beta_1 \log X_i + \beta_2 (\log X_i)^2 + \beta_3 (\log X_i)^3 + e_i \quad \dots\dots\dots (3)$$

Where log Y is the dependent variable, for i<sup>th</sup> country (in this case log Y represents the log of the value of environmental indicators); X is the explanatory variable: log of GDP per capita for i<sup>th</sup> country and e<sub>i</sub> is the error term.



The turning point for quadratic equation (equation 2) is obtained as:

$$X = -\beta_{1/2}\beta_2$$

### Results and Discussions

This section reports estimated results of the relationship between GDP per capita and the different environmental variables used in this study. Table 1 shows the Descriptive statistics of the environmental variables. Results for the cross-country regression analysis are presented in table 2. The relationship between environmental variables and income are also shown graphically by estimating linear and non linear curves that fits best to the particular environmental variable.

Table 1 provides summary statistics of the sample data for the environmental variables used in the estimation of equations (1) and (2). As shown in table 1, the range of forest area, bird species

threatened and CO<sub>2</sub> emissions is dispersed. The range of water pollution (BOD), methane emissions, nitrous oxide emissions and GHGs emissions was quite wide. The range of BOD was from 310.89906 to 6229910, while the average was 288130. Methane emissions ranged from 100 to 995760. Nitrous oxide emissions value ranged from a minimum of 50 to a maximum of 566680. The value of GHGs emissions ranged from 0 to 119720. The result of cross-sectional regression analysis for the relationship between environmental variables and GDP per capita in log form are shown in table 2. Only significant results of the regression analysis are reported in the table. The regression coefficients of the variables, forest area (% of land area), animal species threatened, and bird species threatened were found to be non significant, thus are not reported in the table 2.

**Table 1: Definition and descriptive statistics of the variables**

Environmental Variables	Definition	Minimum	Maximum	Mean	Std. Deviation	N
Water	Annual freshwater withdrawals total (billion cubic meters)	0.0000	645.84	24.916517	85.45622565	147
BOD	Organic water pollutant (BOD) emissions (kg per day)	310.89906	6229910	288130	803062.188	73
Forest	Forest area (% of land area)	0.00646204	94.71794872	30.56020236	23.02204736	172
Animal	Animal species, threatened	0.0000	937.000	89.27108434	117.05188700	166
Bird	Bird species, threatened	0.0000	121.000	17.80571429	20.82071723	175
Plant	Plant species (higher), threatened	0.0000	1838	63.6100629	173.259369	159
CO <sub>2</sub>	CO <sub>2</sub> emissions (metric tons per capita)	0.01270	40.36319	4.8106746	6.50001073	172
Methane	Methane emissions (kt of CO <sub>2</sub> equivalent)	100	995760	51450	140477.027	126

Nitrous oxide	Nitrous oxide emissions (thousand metric tons of CO <sub>2</sub> equivalent)	50	566680	29535	74601.0271	126
GHGs	Other greenhouse gas emissions, HFC, PFC and SF <sub>6</sub> (thousand metric tons of CO <sub>2</sub> equivalent)	0.0000	119720	4725.3	16907.2504	126

**Table 2: Result of Cross Section Regression Analysis**

Dependent variables \ Explanatory Variables	Water	BOD	Plant	CO <sub>2</sub>	Methane	Nitrous oxide	GHGs
Constant	-0.426 (-1.121)	3.752*** (7.083)	-1.448 (-0.983)	-6.019*** (-10.137)	4.635*** (13.903)	4.459*** (12.867)	0.197 (0.731)
Log GDP	0.263** (2.300)	0.274* (1.900)	1.820** (2.015)	2.902*** (8.015)	-0.158* (-1.675)	-0.164* (-1.679)	0.721*** (4.710)
Log GDP <sup>2</sup>			-0.295** (-2.203)	-0.294*** (-5.500)			
Log GDP <sup>3</sup>							
R <sup>2</sup>	0.035	0.048	0.054	0.793	0.022	0.022	0.213
F-Value	5.289**	3.611*	3.878**	324.397***	2.806*	2.817*	22.188***
Turning Point			\$ 1215.474	\$ 86173.57			
N	147	73	159	172	126	126	126

Note: Significant at the 1% (\*\*\*), 5% (\*\*) and 10% (\*) levels of significance. t-values in parenthesis.

Table 2 shows that the relationship between different environmental variables and GDP per capita has turned out to be linear and significant except for two variables i.e. plant species threatened and CO<sub>2</sub> emissions, which turned out to be non linear (quadratic) and significant. The cubic relationship was not found in case of any variable. In case of water variable of table 2, regression coefficient turn out to be positive ( $\beta_1 > 0$ ) which depicts the positive linear relationship between GDP per capita and environmental degradation in terms of fresh water withdrawal for 147 countries analysis. Further, the presentation of the same in pictorial form gives an upward sloping curve, meaning that as per capita income increases, the more will be the withdrawal of fresh water from earth, resulting in fall in the underground water table (Fig. 1). We take the dependent and explanatory variables in log forms in our analysis, so the value of  $\beta_1$  coefficient in linear relationships shows the elasticity i.e. relative change in dependent variable due to relative change in explanatory variable. The value of elasticity for this variable is found to be 0.263 which reveals that with one percent increase in GDP per capita, there is 0.263 per cent increase in fresh water withdrawals. The regression coefficient of per capita GDP ( $\beta_1$ ) with BOD (water pollution) as dependent variable is found

to be greater than zero for 73 countries analysis, thus giving a positive linear relationship between income and water pollution and the same is depicted in figure 2. The regression result and figure 2 reveals that increase in per capita income results in more water pollution due to the positive elasticity i.e. 0.274. Specifically, it was found that one percent increase in GDP per capita leads to 0.274 per cent increase in water pollution.

Further with Plant species (higher) threatened as a dependent variable, the relationship turns out to be non-linear (quadratic). Results confirm the existence of inverted U shaped curve i.e. Environmental Kuznets Curve (EKC) ( $\beta_1 > 0$  and  $\beta_2 < 0$ ). In this type of relationship, environmental degradation first increases with increase in income and then after reaching maximum point, starts declining and the same has been presented in figure 3. The turning point is found to be at \$ 1215.474 GDP per capita. At higher level of income this variable starts improving i.e. there is fall in plant species (higher) threatened. The reason behind this is that at sufficiently higher level of income people become aware and conscious about better environment. Also the government starts making investment for improving and safeguarding environment at higher levels of income.

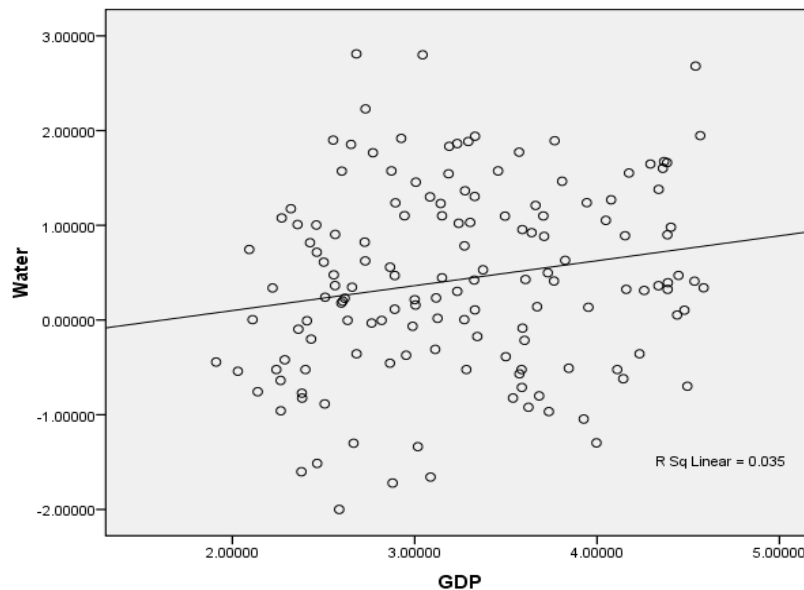


Figure 1: Fresh water withdrawal vs. Per capita GDP – cross-country analysis.

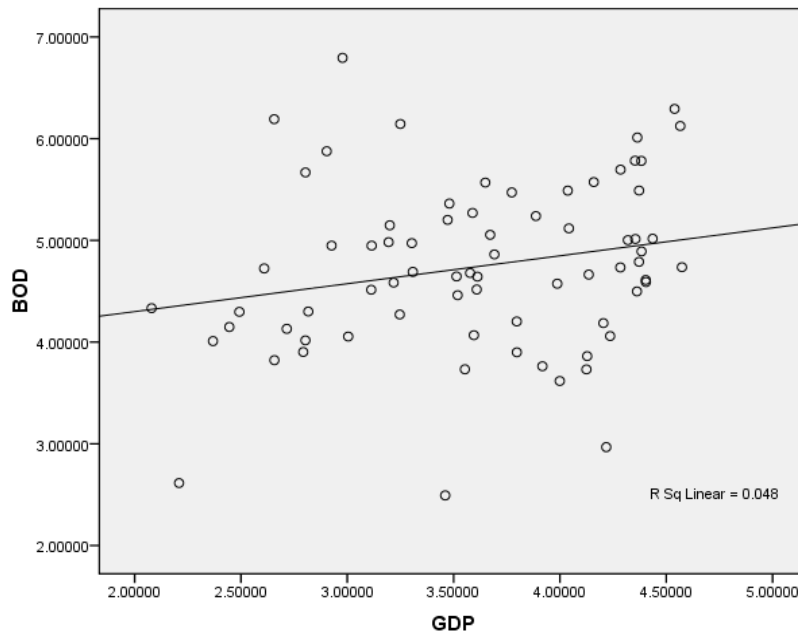


Figure 2: water pollution (BOD) vs. Per capita GDP – cross-country analysis.

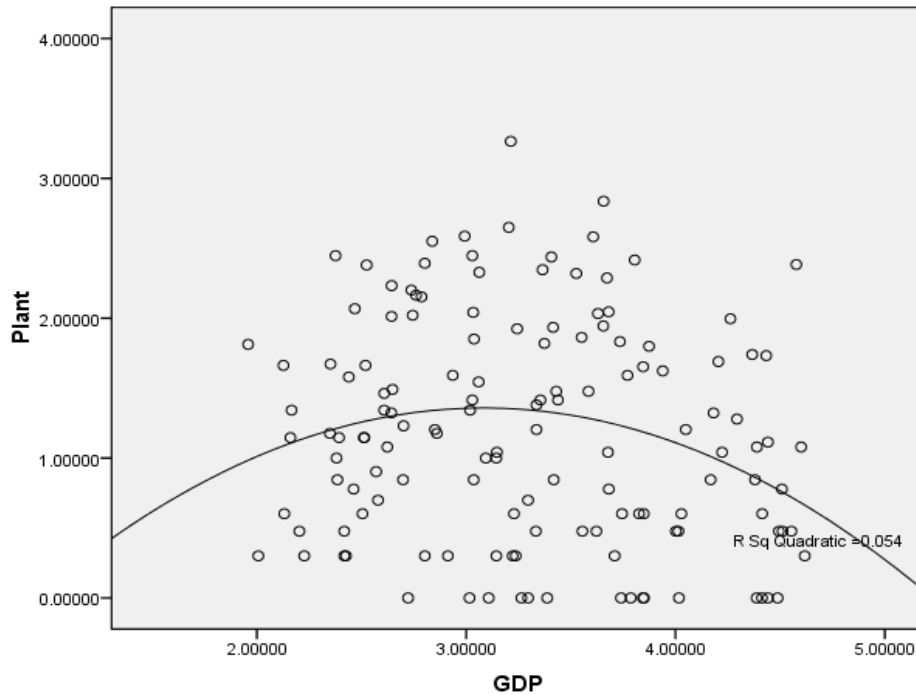


Figure 3: Plant species (higher) threatened vs. Per capita GDP – cross-country analysis.

The result of regression analysis for CO<sub>2</sub> emissions (172 countries) shows a non-linear ( $\beta_1 > 0$  and  $\beta_2 < 0$ ) and significant relationship. In case of this variable also, environmental degradation first increases with increase in income and then after touching maximum level, starts declining and the same has been presented in figure 4. The turning point was found at GDP per capita of \$ 86173.57. It is pertinent to mention that in case of CO<sub>2</sub> emissions, no country in the sample has achieved the level of GDP per capita at which turning point occurs and the CO<sub>2</sub> emissions starts falling. The same is clear from the figure also as the curve seems to touch the maximum point but

no sign of moving downward. The result of the study are in line with both early and recent studies (Shafik and Bandyopadhyay, 1992; Cole et al., 1997; Kahuthu, 2006; Galeotti, 2007) which found that emissions of global pollutants – such as CO<sub>2</sub> – either monotonically increase with income or start declining at income levels well beyond the observed range. Carbon emissions seem to increase at ever decreasing rates but predicted peaks are far outside reasonable income levels. The CO<sub>2</sub> emission as a pollutant is clearly a special case. The inability of finding a bell shape relationship lies in the global nature of such pollutant which involves cross-border externalities,

so that no one country has sufficient incentive to regulate emissions. The free rider problem may simply be more troublesome with carbon than any other pollutant.

CO<sub>2</sub> emission is usually a by-product of increased industrial activity, which, in the absence of

stringent regulation, is a source of toxic emissions and particulates that pose environmental concerns and is responsible for global warming and climate change as the largest contribution to the greenhouse effect comes from carbon dioxide (CO<sub>2</sub>) emissions (56 % as per 1980 figures of IPCC, 1995).

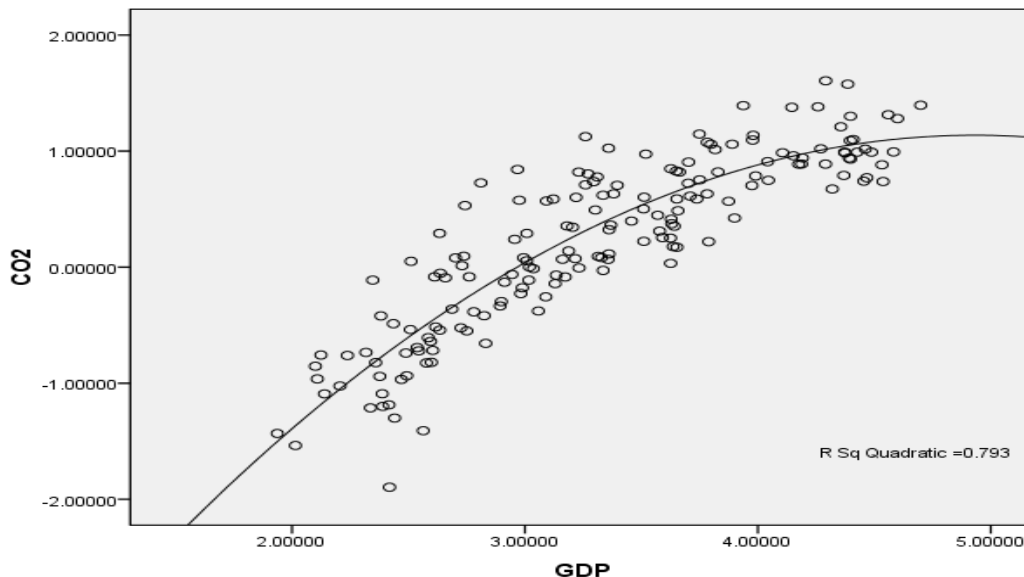


Figure 4: CO<sub>2</sub> per capita vs. Per capita GDP – cross-country analysis.

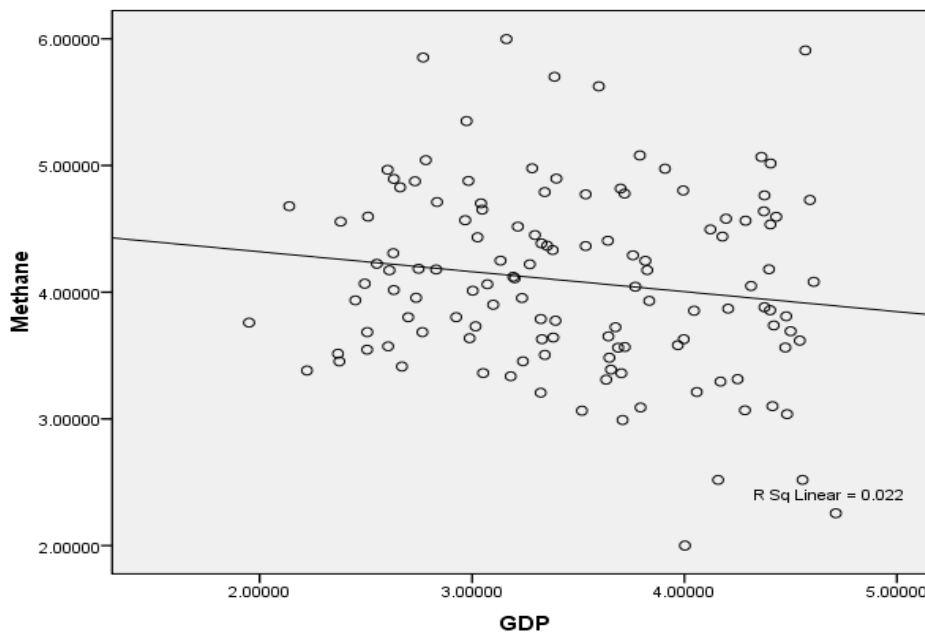


Figure 5: Methane emissions vs. Per capita GDP – cross-country analysis.

The results of regression analysis for Methane emissions, Nitrous oxide emissions and other Green House Gases (GHGs) emissions have been carried out for 126 countries. In case of Methane emissions, there is significant linear negative relationship between GDP per capita and Methane emissions as  $\beta_1 < 0$ . The negative value of elasticity i.e. -0.158 showing that with one per cent increase in per capita income, there is 0.158 per cent decline in Methane

emissions. It is clear from figure 5 that the environment quality improves with economic growth in case of this variable.

Similar linear and negative relationship ( $\beta_1 < 0$ ) has been found for Nitrous oxide emissions which turned out to be significant. The elasticity value is 0.164 which reveals that one per cent increase in per capita income results in 0.164 per cent decline in Nitrous oxide emissions. The environment quality

improves with economic growth in case of this variable as with growth nitrous oxide emissions fall and the same has been shown in figure 6. In case of other Green House Gases Emissions (HFC, PFC and SF6) the relationship with GDP per capita turns out to be positive (linear) and significant ( $\beta_1 > 0$ ). The elasticity is positive i.e. 0.721 in case of this variable. The same has been shown by upward sloping curve in figure 7, meaning there by that as

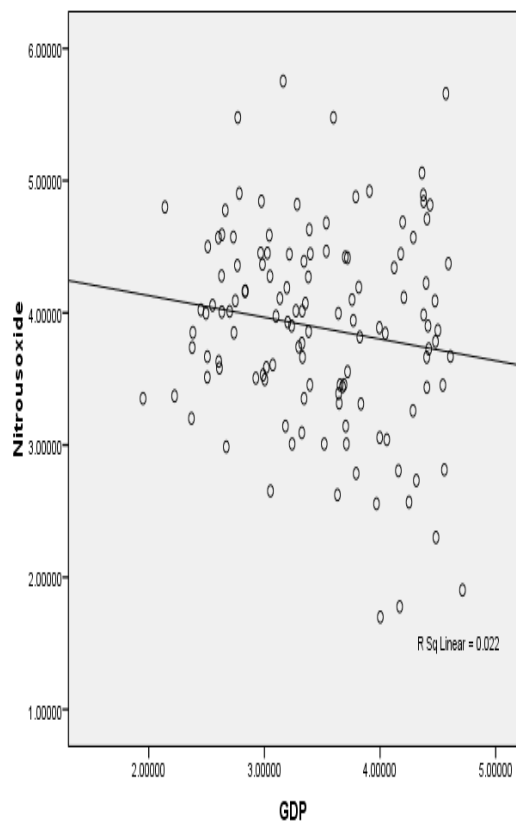


Figure 6: Nitrous oxide emissions vs. Per capita GDP – cross-country analysis.

### Conclusion

Environmental degradation is an important cause of poverty. People who are directly dependent on the natural resources suffer the most due to shortages of food, clean water and other essential resources. On the other hand, people in developed countries have resources and technologies to buffer themselves from the impact of environmental degradation. This will require substantial investments in pollution abatement technology and resource management. It is more difficult for poor countries to absorb these costs. The environmental efforts in these countries have to be funded at the expense of other social programs such as education, health services, and employment schemes which are already starved of funds.

The present study which was undertaken to examine the relationship between different environmental variables and GDP per capita found that there is positive linear relationship between GDP per capita and environmental degradation in terms of

per capita income increases, there are more green house gases emissions resulting in loss of environmental quality. Specifically, it was found that one percent increase in GDP per capita leads to 0.721 per cent increase in GHGs emissions. Thus, highlighting the fact that higher the level of development more will be green house gas emissions.

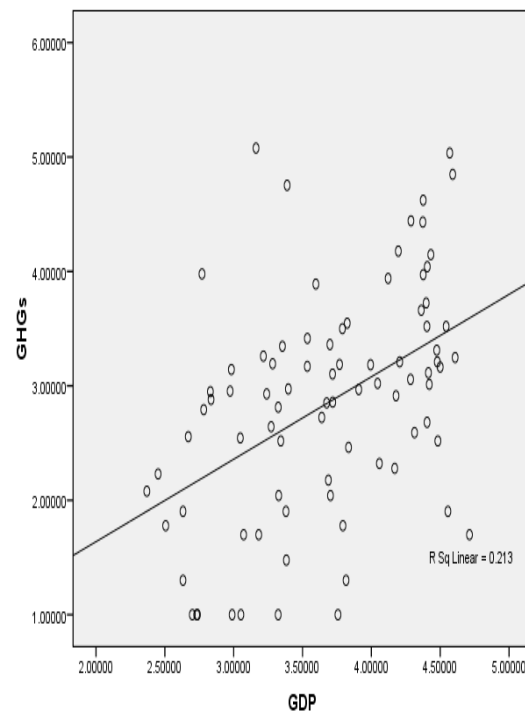


Figure 7: Other Green House Gases (GHGs) emissions vs. Per capita GDP – cross-country analysis.

fresh water withdrawals. As per capita income increases, the withdrawal of fresh water from earth increases resulting in fall in the level of underground water table and its quality. A positive linear relationship was also found between income and BOD (water pollution), specifically, one percent increase in GDP per capita leads to 0.274 per cent increase in water pollution.

Further, in case of Plant species (higher) threatened as a dependent variable, the relationship turns out to be non-linear (quadratic) and confirms the existence of inverted U shaped curve i.e. Environmental Kuznets Curve (EKC). In this type of relationship, environmental degradation first increases with increase in income and then after reaching maximum point, starts declining. The turning point is found to be at \$ 1215 GDP per capita. At higher level of income there is fall in plant species (higher) threatened. The reason behind this is that at sufficiently higher level of income people become aware and conscious about better environment. Also

the governments start making investment for improving and safeguarding environment at higher levels of income. The result of regression analysis for CO<sub>2</sub> emissions shows a non-linear ( $\beta_1 > 0$  and  $\beta_2 < 0$ ) and significant relationship. In case of this variable also, environmental degradation first increases with increase in income and then after touching maximum level, it starts declining. The turning point was found at GDP per capita of \$ 86173.57. However, in case of CO<sub>2</sub>, although the relationship turns out to be quadratic but bell shaped curve is not found because the turning point occurs at a very high level of per capita income. It is pertinent to mention that in case of CO<sub>2</sub> emissions no country in the sample has achieved this level of GDP per capita from where the CO<sub>2</sub> emissions starts falling. The turning point remains out of range from the countries in the sample. The same is clear from the figure also - that curve seems to touching the maximum point but it has not yet reached the turning point.

The results of regression analysis further shows that there was significant linear and negative relationship between GDP per capita and methane emissions as well as nitrous oxide emissions. Thus environment quality improves with economic development in case of these variables, as with growth their emissions fall. In case of other Green House Gases Emissions (HFC, PFC and SF6) the relationship with GDP per capita turns out to be positive (linear) and significant ( $\beta_1 > 0$ ). Thus, highlighting the fact that higher the level of development more will be the green house gas emissions. The regression result for Forest area (% of land area), Animal species threatened and Bird species threatened variables were found to be insignificant.

The analysis of various variables found that there are various types of relationships between economic growth and different environmental indicators and Environmental Kuznets Curve is one of them. Thus overall the study revealed that different environmental indicators behave differently with economic development. Variables like plant species (higher) threatened and CO<sub>2</sub> emissions results in Environmental Kuznets Curve with development where as in case of annual fresh water withdrawals, organic water pollutant (BOD) emissions and other greenhouse gases emissions the relation was found to be positive where as relationship turned out to be negative for other variables like methane emissions and nitrous oxide emissions.

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## **Environmental Degradation to Land Resources: Trend and Instability**

Sanatan Nayak<sup>1</sup>

### **Abstract**

This paper made attempt to assess the approaches, extent, dimension, reasons of land degradation at all Indian level as well as various regions in Uttar Pradesh. Various sources of secondary data have been compared and analysed for trend and instability in the use of land resources across the country and various states. The estimation of growth rate (CAGR) of various land categories have been worked out on spatial and temporal dimension of dynamics of land use pattern in India as well as regional level. Moreover, instability index for various categories of land has been estimated to observe the intensity of variation or fluctuation in time series data at all India level. It is seriously felt that a neo-liberal approach for land use pattern involving people at the front side, which shall be enable to control the damage of the land resources on the one hand and sustainable use of land for higher productivity on the other hand.

### **1. Issues in Land Degradation in India**

#### **A. Approaches to Land Degradation**

There are three approaches in the changing paradigm in land degradation research in developing countries, viz., classical, populist and neo-liberal counter revolution approaches (Biot, Yvan et al., 1995). These three approaches are neither strictly sequential in their historical development nor mutually exclusive. For example, the issue of population on natural resources was a prominent theme in the classic approach to soil and water degradation but has re-emerged strongly as part of the counter revolution too. Also the present emphasis on poverty as a major cause and effect of environmental degradation is shared by both populist and counter revolutionary approaches. The classical approach is basically rest on the assumption that the extent of land degradation and its solution to the problems of land degradation are well known but the problem is to get people to implement them. This is basically the characteristic of soil and water conservation (SWC) in the colonial and ex-colonial territories of East, Central and Southern Africa, South Asia and of the American Soil and Water conservation traditions (Biot, et al., 1995). The development of a re-appraisal of the classical approach of SWC has been developed in the late 1970s, which is known as populist approach. This approach is mostly people centered and bottom up approaches shared much with more politically radical marxists ideas (need for redistributive land reforms and political changes to

empower the people). Subsequently, a more populist and less radical approach has prevailed in the contemporary period. The neo-liberal approach holds that suitable technologies presently exist or can readily come into existence. The problem is to understand the present structure of incentives that prevents land users from adopting them and to design incentives that will induce adoption. This approach derives partly from a reasoned response to the extreme populist ideas, partly from an understanding of the realistic constraints to change of real world bureaucracies and state citizen relationship and partly from a reassertion of the classic position bolstered by the counter revolution in the economic policy of the past decade.

#### **B. Causes of Land Degradation**

Land is one of the natural resources which affects and is affected by the environment. Degradation of land is caused by biotic and abiotic pressures (Planning Commission, 2002). Land degradation occurs due to natural hazards, some direct and underlying causes, which deteriorate the fertility of the soil vis-à-vis agricultural productivity (FAO, 1994). Natural hazards occurs due to water erosion, wind erosion, waterlogging and salinisation, whereas direct causes are due to human activities such as deforestation, shifting cultivation, improper crop rotations, overgrazing, non-adoption of soil-conservation management practices, disproportionate fertilizer use, problems arising from planning and management of canal irrigation, over-pumping of groundwater, water-logging and salinity. The direct causes are much more prominent factors for land degradation (Nayak, 2006). However, the underlying factors such as increasing population, poverty and land shortage are also stronger reasons, which act as a vicious circle for land degradation. Similarly, Iyengar (2003) pointed out that unprecedented rise in human and livestock population has resulted in changes in land use and intensity of land use. The increased use of chemical fertilizer and pesticides, canal and groundwater and modern agro-mechanical technology has led to both reversible and irreversible environmental damages to the land areas under crops (Iyengar, 2003). Agricultural extensification leads to deforestation, cultivation of marginal land and soil erosion, while agricultural intensification leads to pesticides, fertilizer run-offs, waterlogging and salinity (Singh, 2007).

#### **C. Classification of Land Degradation**

##### **Global Scenario**

The concepts and classifications of land degradation has been developed by various agencies, viz., some of the international agency, such as UNEP, UNDP, FAO and at the National level, Ministry of Agriculture, NRSA and Individual Researchers. However, most of these estimates, except NRSA cover fivefold categories of land degradation namely, wind erosion, water

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erosion, water logging, salinity and nutrient depletions (Reddy, 2003). Whereas, NRSA has developed 13 fold classifications initially and 28 fold classifications have been developed in 2003 for land degradation, which is more detailed. At the aggregate level, various types of data on land degradation are available, if not in a systematic way. The concepts and classification of land degradation by the Global Assessment of Soil Degradation (GLASOD) is somehow different from that of NRSA. Land degradation is the temporary or permanent problem of lowering the productive capacity of land. It covers various forms of soil degradation, adverse human impacts on water resources, deforestation and lowering of the productive capacity of rangelands. However, the degrees of severity of land degradation has been recognized as light (somewhat reduced agricultural productivity), moderate (greatly reduced agricultural productivity) and strong (not capable of agricultural production and un-reclaimable at farm level). According to FAO (1994), land degradation occurs due to water erosion, wind erosion, decline of soil fertility, water logging, salinisation and lowering of the water table. However, the effects water and wind erosion are largely irreversible and other cases of land degradation are reversible. Soils with reduced organic matter can be restored by additions of plant residues, degraded pastures may be recovered under improved range management. Moreover, deforestation, forest degradation and rangeland degradation are considered under degraded land in a generalized sense. Land degradation has both on-site and off-site effects. On-site effects are lowering of the productive capacity of the land, causing either reduced outputs (crop yields, life stock yields) or the need for increased inputs. Off-site effects of water erosion occur through changes in the water regime, including decline in water quality and sedimentation of river beds and reservoirs. The main off-site effect of wind erosion is over blowing or sand deposition.

#### ***National Scenario***

The land utilization statistics were available before 1950-51 under five categories in India, viz., (i) Forest, (ii) Area not available for cultivation, (iii) Other uncultivated land excluding current fallows, (iv) Fallow land and (v) Net Sown Area. This fivefold classification, though it gave a broad indication of land use in the country, was not found sufficient to meet the needs of agricultural planning. Also, due to lack of uniformity in the definitions and scope of the classification, the data collected in different states were not comparable (Ministry of Agriculture and Irrigation, 1976). To remove this non-comparability and to make the data more useful, nine fold classification of land use has been introduced since 1950-51.<sup>2</sup>

<sup>2</sup> (i)Forest, (ii) Area not available for Cultivation are classified into two categories, i.e., Area under non-agricultural uses and Barren and

#### **D. Review of Issues and Literature**

Various studies have been undertaken to understand the extent, trend and factors responsible for under utilization of various types of land in different regions of the country since the beginning of the application of modern technology. The technological changes ignited intensive cultivation resulting in conversion of marginal land into productive agriculture through capital intensive cultivation. The institutional factors held responsible for increasing current fallows in India (Nadkarni and Deshpande, 1979). For example, under utilization of agricultural land or increase in fallow land develops when people employed in urban areas keep land idle for using it after retirement or speculation purposes. Their study also revealed that increase in size of operational holding has positive relationship with the fallow land.

Dynamics of land use is a complex phenomenon, which is affected by several socio-economic, agro-climatic, technological, institutional and ecological variables. Pandey and Tewari (1987) examines the land use dynamics and its ecological implications by budgeting the land use change in Uttar Pradesh during the period from 1967-68 to 1983-84. They observed that total land area of the state is being constant, the land use changes can occur through inter-class transfers and the land use changes over time are linearly additive. They observed that when there was change in land from non-agricultural sector to agricultural sector at the cost of ecological sector, on the other hand when there were shift of land from agricultural sector to ecological sector or non-agricultural sector but definitely at the cost of agricultural sector. The changes in agricultural sector would have some implications on ecological and agricultural growth. When the net cultivated area remained constant over a period, it had an adverse implication. On the one hand, fellow land and cultivatable waste increasing leaving NCA unchanged. It had impacted on ecological sector and agricultural growth. They pointed out that agricultural sector in Uttar Pradesh during 1967-68 to 1983-84 indicated a consistent increase in fallow lands in all the regions despite almost a constant net cultivated area. It was noticed that substantial land shifts had taken place from undesirable part of ecological sector, i.e., from Usar and other barren lands to other sectors. While the part of the land shift towards non-agricultural land implies to urban, industrial expansion and infrastructural development. In the agricultural sector, consistent increase in fallow especially other fallow land with the

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un-culturable land, (iii) Other uncultivated land including current fallow are classified into three categories, i.e., Permanent pastures and other grazing lands, Miscellaneous tree-crops and groves not included in the net sown area, Culturable waste, (iv) Fallow Land includes Fallow land other than current fallows and Current Fallows, (v) Net Area Sown

unchanged net cultivated area. The cultivable wastes are declining in the state due to continuous reclamation of land by different agency. Therefore, the reclamation of cultivable waste is adding to the net cultivated land on the one hand and continuous declining of fallow land especially the other fallow land depleting the cultivated area on the other hand. It has also serious ecological implications that lands fastly convert into usar lands, moving towards the undesirable E<sub>2</sub> sector.

Pandey and Tewari (1996) studied the changes in area and compound growth rates in various land use classes over the period from 1970-71 to 1990-91 in selected 14 states and India as a whole. At the all India level, the area forest has increased marginally during the period due to afforestation programme and area shift from pastures and miscellaneous trees to forest. However, these areas are still lower than the targeted one as forest policy 1952. The area under non-agricultural sector had been increased substantially and in some of states, it was quite larger. The area under NCA has remained constantly in most of the years and the area under fallow lands has increased progressively.

Reddy (1991) observed the extent, trend and determinants of under utilization of land, especially current fallows, other fallows and cultivable waste in Andhra Pradesh for period of 33 years during 1955-56 to 87-86. The extent of under utilization in Andhra Pradesh was higher than that of all India level during the period under study. The extend of existence of current fallows mostly dependent on rainfall and part of the crop rotation system followed by the farmers. The presence of other fallows might represent the soil-climatic characters, resources base, un-remunerativeness of farming and level of technology of the region. The CAGR of these three types of during pre-green revolution period shows lower than those of post-green revolution period. The under utilization of land especially current fallows, other fallow and cultivable waste are responsible for a set of technological, institutional, economic factors and climatic factors (Reddy, 1991). Most importantly, he pointed out that technological factors such as introduction tractors and pump sets aggravated the under utilization of land or increase the intensity of waste lands such as fallow land and culturable waste. Increase in these categories of land in drought prone district was more prominent than in the non-drought prone districts. In other words, under-utilization of land was associated with irrigation, tractors, commercialization etc., which can be attributed to the inability of the farmers to adjust to higher demand for resources. And the institutional factors like farm size and tenancy also seen to play an important role. The resource crunch faced by the farmers seems to have aggravated the advent of new technology due to the capital intensive nature of modern technology. This had led to concentration of limited resources on more fertile land by neglecting the other lands. Therefore, it might

be concluded the extent of land utilization or under utilization largely depend upon the availability of resources with the farmers and the nature of investment in relation with the expected returns from land.

Reddy (2003) examined the extent and trend of land use pattern across states/agro climatic region and the factors influencing the land degradation vis-à-vis linkage between degradation and policy and institutional environment in the context of agro climatic regional planning. However, establishing the linkages between land degradation and sustainable development, he focused mainly four types of linkages. Firstly, increased population pressures enhance the demand on land both for agriculture and non-agricultural purposes. Therefore, intensive use of land with the help of modern technology in drought prone as well as irrigated areas causes land degradation.<sup>3</sup> Secondly, he pointed out the linkages between poverty and environmental degradation. One school thought that increase in poverty enhances the dependency of natural resources and therefore more degradation. Whereas, other school thought that when poor depend more on natural resources, they also have greater interest to conserve the resources. Higher dependence does not necessarily mean higher use of natural resources. Poor households though depend more on common resources, use less of resources in absolute terms and vice-versa in case of rich households. Thirdly, the common argument states that land degradation is linked with grazing land. The common feelings that live stocks by the poor farming's especially the small ruminants (sheep and goat), based economies experience greater degradation compared to large farmers with the milch animals. But some of the important studies clearly brought out that lower size class farmers, who keep small ruminants are not the agents but victims of degradation (Reddy et al, 1996). Fourthly, the relationship between degradation and development, which popularly known as 'Environmental Kuznet Curve' (EKC). It portrays that environmental degradation aggravate till point of development (per capita income), after that it start falling with the increase in per capita income. On the whole it was concluded that while the poor were definitely the victims of degradation, the evidence does not support the argument that poor were agents of degradation. The result indicates that demographic factor such as land man ratio was crucial in explaining the land degradation. Land man ration had negative influence on degradation indicating that land degradation was more where pressure on agricultural land was less. In other words, sparsely populated agriculturally backward regions are more prone to degradation than the agriculturally developed region where intensive agriculture is practiced.

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<sup>3</sup> Intensive use of land is definitely less in rainfed areas compared to irrigated areas.

Ramasamy et al (2005) studied the dynamics of land use pattern and factors determining the changes in the land use pattern in Tamil Nadu during 1950-51 to 2000. The factors causing the changes in current fallow land in the state, they observed that rainfall is the important factor for the changes in net sown area vis-à-vis fallow land in the state as irrigated land is hardly 50 percent of the net cropped area. The changes in the relative profitability of crops might also lead to changes in the cropping pattern, which may affect the area under fallow lands. However, the study found that there was a significant decline in the area under cultivable wastes and barren and uncultivable wastes, while there was a sharp increase in the land put to non-agricultural uses. The study reveals that there has been a significant reduction of area under common land mainly because of diversion of these lands for non-agricultural purposes. There has been increase in other fallow land in both aggregate and district level.

### E. Extent of Land Degradation

The share of various categories of land has been estimated in India during 1950-51 to 2003-04 to understand the dynamics of land use pattern and changes within the sub-categories and underlying reasons behind it. Under the nine fold classifications, the area and its respective share under forest, non-agricultural use and current fallows has been increasing over the years, while area and its respective share under barren (usar) and uncultivated land, permanent pastures and grazing land, miscellaneous trees and groves, culturable waste, have been declining in India. The fallow land other than current fallow and net sown area remain constant during the period under study (Table 1, refer annexure). Clubbing the individual items into different aspects such as ecological, agricultural, non-agricultural and common property resources, the dynamics of change in land use can be understood in a clearly manner. Under the ecological factors, the undesirable factor such as barren and uncultivated land has been declining and might have converted into agricultural sector or non-agricultural sector. The increase in the area under forest may be either due to the afforestation programme or the land shift from permanent pastures and miscellaneous trees and groves as mentioned in earlier studies (Pandey and Tewari, 1987; Ramasamy et al, 2005). Some of the common property land such as barren and uncultivated land, permanent pastures and grazing land, cultivable waste have been shown declining throughout the period under study. The sharp decline in area under barren and uncultivated land is mainly due to diversion of land to agricultural sector through reclamation partly and heavy demand on land for non-agricultural purposes due to increase in population and urbanization, modernization.<sup>4</sup> As a result of increase in demand for

land in industrial, housing, and infrastructural development such as irrigation, road, civil aviation, railway etc, the land under non-agricultural purposes have increased sharply from 134 lakh hectares in 1950s to 228 lakh hectares in 1990s.

The estimation of growth rate (CAGR) of various land categories have been worked out for all India level get more detailed picture on spatial and temporal dimension of dynamics of land use pattern in India as well as regional level. Moreover, instability index for various categories of land has been estimated to observe the intensity of variation or fluctuation in time series data at all India level.<sup>5</sup> There has been positive growth of forest, area under non-agricultural use, other fellow and current fellow during 1980-2004 at all India level. On the other hand, barren land, culturable waste and permanent pastures has been declining throughout the period under study. Miscellaneous trees and NAS have been grown during 80's and declined thereafter at the all India level (Table 2, refer annexure). It is observed from the Table 2 that instability is highest under current fallows followed by other fellow land during the period under study at all India level. It is attributed that the highest level of instability under current fallow land is due to the fact that the area under current fallows shows very high year to year fluctuation due to fluctuation in rainfall, as most of the areas are under rainfed at all India level. This is also confirmed in case of Tamil Nadu (Ramasamy, et al, 2005). This may be again due to the fact of declining trend of area under canal irrigation at the country level.

The land use pattern of Uttar Pradesh is mostly similar to that of all India level. The average of total reporting area has declining from 80's to 90's. However, further decline of reporting area in 90's is mainly due to separation of Uttaranchal in late 90's. Due to the same reason, the area under forest in UP has also been declined drastically in 90's. Uttaranchal had been covered more than 60 percent of her reporting area by forest through out the period under study. On the similar way, the area under non-agricultural use, current fallows and net sown area have been increasing over the years, while all other categories such as area under barren land, culturable waste, permanent pastures, miscellaneous tress, and other fallows are declining over the years in the state (Table 3, refer annexure).

The land under current fallow (CF), Other Fallow (OF), Culturable Waste (CW) are called as

<sup>5</sup> Instability index (IIN) has been estimated by regressing the individual land categories with time. When the parameters of log-linear trend found statistically significant, then IIN would be as follows.  $IIN = CV \times (1-R^2)^{1/2}$ , CV is co-efficient variation of the time series data. If the estimated parameter in the regression is not statically significant, then IIN would be the CV only (Ramasamy et al, 2005).

<sup>4</sup> See detail Ramasamy et al, 2005.

under-utilised as these lands are potentially cultivable though not being put to cultivation for one year or more in succession (Pandey and Tiwari, 1996). By definition, CF, OF and CW are the lands once cultivated but CF is the one left fallow during the current reporting year, OF is the fallow for the past one to five years and CW for the past over five years in succession. At the State level, culturable waste and other fallow have shown declining trend, where as current fallow has shown unstable trend (Table 4, refer annexure). At the regional level, culturable waste and other have shown a declining trend in Western, Bundelkhand and Eastern region, whereas in Central region other fallow has shown positive trend. Moreover, in case of Current fallow unstable trend has been reflected in all the regions except Central region. Instability has been observed highest in case of barren and uncultivated land followed by other fallow land in the State level as well all regional level. Eastern region has shown highest level of instability during 1980-2005 for barren and uncultivated land (Table 5, refer annexure). In case of culturable waste and current fallow, the level instability is almost same for all regions. However, the level of instability has increased at the state as well as regional level in case of current fallow during 1980-90. Similar trend is observed in case of other fallow land during the same period for all the regions. Another set of institution was developed in India for collection and estimation of data on wasteland<sup>6</sup> with the effort of Ministry of Rural Development, Government of India in 1985. In the same year, Government of India has formulated National Wasteland Development Board (NWDB) for development and reclamation of various types degraded land. With that approach, NRSA has developed eight fold classification of wasteland and prepared its map in 1985 for all states and union territories by using the data of 1980-82 available in its archives in 1: 1million scale (Department of Land Resources, 2005).<sup>7</sup> Under this effort, nearly 182 districts were identified as critically affected districts, where 16 percent of the total geographical areas were degraded land. Due to small scale (1:1 million scale) and low resolution of the data used (up to 80 meters), these maps could not used for massive reclamation at the grass root level and any isolated patches less than 100 meters could not captured. Hence, NWDB has approached the NRSA to collect another set of data on

<sup>6</sup> Wasteland and degraded land are inter-changeable used. Wasteland are described as 'degraded land which can be brought under vegetative cover with reasonable effort and which is currently under utilised and or land which is deteriorating for lack of appropriate water and soil management or on account of natural causes. Wasteland can result from inherent/imposed disabilities such as by location, environment, chemical and physical properties of the soil or financial or management constraints''.

<sup>7</sup> The eight fold types of degraded lands are as gullied and or ravenous land, Land with or without scrub, waterlogged and marshy land, land affected by salinity and alkalinity, shifting cultivation, degraded pastures and grazing lands, degraded land under plantation crop, mining and industrial wastelands.

land degradation using higher scale to capture isolated patches and severe affected villages in rural India. Therefore, NRSA has started new scale 1:50, 000 scale to capture data on wasteland in almost all districts in India in five different phases starting from 1986 till 1999. Under this effort, 13 fold classification of wasteland was adopted and observed that nearly 20.17 percent of the total geographical areas were degraded land.<sup>8</sup> Further, it was felt by the NWDB to improve the 13 fold classification system to 28 fold classification system, where sub classes are included for capturing the severity of land degradation.<sup>9</sup> Therefore, NRSA has updated the extent of wasteland in India with the same scale in 2003. Accordingly, 5.53 lakh sq.kms (which is 17.45 percent of the geographical area) are degraded at all India level in 2003. Most importantly, the degradation has reduced from 1986-1999 estimation to 2003 by 8.58 million hectares, which is equivalent to 2.70 percent of the total geographical area of the country (Department of Land Resources, 2003). In three states, viz., Meghalaya, Nagaland and Gujarat, the reduction in Wasteland area is more than 10 percent, which is due to shift of land from shifting cultivation to permanent cultivation in the north eastern part of states and due to reduction of Rann of Kutch in Gujarat. In other States, the reduction is due to mainly of implementation of watershed programmes in the country.

The extent of land degradation by remote sensing is lower than that of the State Government estimation is explained variously. Remote Sensing Techniques (RSTs) have poor capabilities in respect of ascertaining sub-surface degradation and nutrient losses. So far as sub-surface waterlogging is concerned, remote sensing technique is just not capable of any estimation (Dhar, 2004). In such cases, it would be prudent to believe the State Government's data on land degradation, which are akin to ground realities. Secondly, NRSA provides information on gullied/ravine lands and land with or without scrub, which represents land under water and wind erosion. But the magnitude is marginal compared to that of water and wind erosion given by state record (Reddy, 2003). As per the NRSA data, the extent and intensity of damage is severe for the agricultural growth of the country by salinity/alkalinity and water-logging, therefore there is a need for extending the in depth study of this category.

<sup>8</sup> The 13 fold classifications of wastelands are as follows: 1.Gullied and or ravenous land, 2. Land with or without scrub, 3. Waterlogged and marshy land, 4. Land affected by salinity and alkalinity, 5. Shifting cultivation, 6. Under utilised degraded/notified forest land, 7. Degraded pastures and grazing lands, 8. Degraded land under plantation crop, 9. Sands (Riverine/Coastal/Desert), 10. Mining and industrial wastelands, 11. Barren Rocky areas, 12. Steep Sloping Area, 13. Snow covered and Glacial Area

<sup>9</sup> Technical task force group was constituted by Planning Commission and NWDB to arrive at precise definition of categories.

## Summary and Conclusions

The estimation and growth rate of various types of land clearly reveals that instability is highest under current fallows followed by other fallow land during 1980-2003 at all India level. It is attributed that the highest level of instability under current fallow land is due to the fact that the area under current fallows shows very high year to year fluctuation due to fluctuation in rainfall, as most of the areas are under rainfed at all India level. The area under non-agricultural use, current fallows and net sown area have been increasing over the years, while all other categories such as area under barren land, culturable waste, permanent pastures, miscellaneous tress, and other fallows are declining over the years in Uttar Pradesh. Instability has been observed highest in case of barren and uncultivated land followed by other fallow land in the State level as well all regional level.

Land degradation is a serious form of environmental degradation, which is mostly man made

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### Annexure

**Table 1: Share of Various Land Use Categories to Total Reporting Area in India during 1950 to 2004 (000' Hectares)**

Year	1950-60	1961-70	1971-80	1981-90	1991-2004
Forest	50584.18 (17.31)	61767.50 (20.28)	66424.30 (21.83)	67092.60 (22.03)	68852.25 (22.56)
Area Under Non-Agricultural use	13407.36 (4.58)	15461.30 (5.08)	18474.70 (6.07)	20681.30 (6.79)	22846.17 (7.49)
Barren and Un-Cultivated Land	35232.18 (12.07)	32907.00 (10.81)	22577.40 (7.42)	19987.00 (6.56)	18608.42 (6.10)
Permanent Pasture and Grazing land	11202.27 (3.83)	13971.40 (4.59)	12500.90 (4.11)	11710.20 (3.84)	10947.33 (3.59)
Miscellaneous Trees and Groves	7369.91 (2.54)	4216.80 (1.39)	3843.70 (1.26)	3659.00 (1.20)	3583.92 (1.17)
Culturable waste	21683.64 (7.43)	17078.20 (5.61)	17198.00 (5.65)	15648.60 (5.14)	14025.58 (4.60)
Fellow other than Current fallow	13047.00 (4.47)	9443.70 (3.10)	9261.80 (3.04)	10100.70 (3.32)	10140.08 (3.32)
Current fallow	12002.82 (4.11)	12077.00 (3.97)	13858.80 (4.56)	14952.20 (4.91)	14869.25 (4.87)
Net Sown Area	127571.73 (43.66)	137600.10 (45.19)	140203.90 (46.08)	140767.40 (46.21)	141292.33 (46.30)
Total	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Source: Ministry of Agriculture, Government of India

Note: Values in the Parenthesis are the percent of the Reporting Area. The figures are the average of the respective decade. Moreover, the figure in 90s stretches up to 2003.

**Table 2: CAGR and Instability Index (IIN) of Various Categories of Land during 1980-81 to 2002-03 in India**

Year	1980-81 to 1990-91		1990-91 to 2002-03		1980-81 to 2002-03	
	Growth Rate	IIN	Growth Rate	IIN	Growth Rate	IIN
Forest	0.00 <sup>NS</sup> (0.78)	0.60	0.2* (13.84)	0.19	0.2* (10.17)	0.61
Area Under Non-Agricultural use	0.9* (9.51)	0.90	0.1* (12.48)	0.95	0.9* (29.13)	1.00
Barren and Un-Cultivated Land	-0.2** (-2.11)	1.02	-0.7** (-2.73)	3.02	-0.6* (-7.62)	2.40
Permanent Pasture and Grazing Land	-0.5* (-6.67)	0.83	-0.5* (-4.60)	1.17	-0.6* (-17.35)	1.07
Miscellaneous Trees and Groves	0.1 <sup>NS</sup> (0.68)	0.01	-1.0* (-4.07)	2.79	-0.3** (-2.32)	3.36
Culturable Waste	-1.1* (-11.27)	0.97	-0.9* (-11.80)	0.88	-0.1* (-33.09)	0.96
Other Fellow	0.3 <sup>NS</sup> (0.37)	3.2	1.0* (3.03)	3.98	0.2 <sup>NS</sup> (1.56)	4.47
Current Fallow	0.7 <sup>NS</sup> (0.61)	14.61	2.0*** (2.07)	12.75	0.3 <sup>NS</sup> (0.79)	14.50
Net Sown Area	0.00 <sup>NS</sup> (0.93)	1.75	-3.0** (-2.22)	1.62	0.00 <sup>NS</sup> (0.78)	1.84



Source: Ministry of Agriculture, Government of India.

Note: CAGR obtained by fitting the standard form  $Y = a + bt$  to the time series data of various types of land. The values in the parenthesis are t-values, \*, \*\*, \*\*\* indicates 1 percent, 5 percent, 10 percent level of significance. NS implies statistically not significant.

**Table 3: Land Use Pattern under various Categories of Land in Uttar Pradesh (in Hectares)**

Year	1980	Percent to Reporting Area	1990	Percent to Reporting Area	2000	Percent to Reporting Area
Reporting Area	30826901	100	29176248	100	24201522	100
Forest	5027862	16.47	4794325	16.24	1687793	6.97
Barren Land	1171302	3.84	954551.9	3.26	562151	2.32
Non-Agricultural Use	2505191	8.07	2505944	8.62	2577446	10.65
Culturable Waste	1110585	3.64	921370.6	3.14	484872.5	2.00
Permanent Pastures	319760.5	1.06	272197.3	0.92	67266.5	0.28
Miscellaneous Trees	588781.6	1.91	516769.9	1.76	349705	1.44
Current Fallows	1234605	4.00	1086325	3.73	1156647	4.78
Other Fallows	880219.5	2.83	820766.4	2.81	605289	2.50
Net Area Sown	18102924	58.58	17314576	59.56	16710352	69.05

Source: Agricultural Data, Department of Agriculture, Government of Uttar Pradesh

Note: The land use categories are estimated based on the average of decadal data.

**Table 4: Region-wise Land Degradation in Uttar Pradesh (in hectares)**

	Year	Barren Land	Culturable Waste	Current Fallows	Other Fallows
UP	1980	1171302 (3.84)	1110585 (3.64)	1234605 (4.00)	880219 (2.83)
	1990	954552 (3.26)	921371 (3.14)	1086325 (3.73)	820766 (2.81)
	2000	562151 (2.32)	484873 (2.00)	1156647 (4.78)	605289 (2.50)
Western Region	1980	269688 (3.30)	177674 (2.17)	266376 (3.26)	207447 (2.54)
	1990	218167 (2.71)	162044 (2.01)	219693 (2.73)	202480 (2.51)
	2000	173291 (2.15)	121131 (1.50)	239343 (2.96)	147430 (1.83)
Central Region	1980	162686 (3.59)	138520 (3.06)	316184 (6.99)	171219 (3.79)
	1990	151325 (3.31)	126281 (2.76)	312225 (6.83)	200659 (4.39)
	2000	121121 (2.66)	104196 (2.29)	317284 (6.96)	185264 (4.06)
Bundelkhand	1980	134229 (4.37)	258356 (8.46)	152546 (4.95)	128726 (4.20)
	1990	120013 (4.05)	184020 (6.21)	132895 (4.49)	94447 (3.19)
	2000	113100 (3.82)	127883 (4.32)	123410 (4.17)	64779 (2.19)
Eastern Region	1980	266197 (3.11)	213252 (2.50)	411148 (4.81)	278389 (3.25)

	1990	200501 (2.32)	164984 (1.91)	411326 (4.76)	263583 (3.05)
	2000	223767 (2.60)	182135 (2.12)	421287 (4.90)	261837 (3.05)
Hill Region	1980	296222 (6.11)	286863 (5.78)	13823 (0.28)	39498 (0.79)
	1990	313764 (5.71)	313901 (5.70)	11679 (0.21)	64195 (1.16)

Source: Agricultural Data, Department of Agriculture, Government of Uttar Pradesh

Note: The land use categories are estimated based on the average of decadal data.

**Table 5: CAGR and Instability Index (IIN) of Various Degraded Categories of Land during 1980-81 to 2004-05 in Uttar Pradesh**

Regions	Categories	1980-2005		1980-90		1990-2005	
		CAGR	INN	CAGR	INN	CAGR	INN
Uttar Pradesh	Barren and Uncultivated	-3.1* (-5.21)	18.26	2.6*** (2.07)	14.19	-6.8* (-8.24)	9.87
	Culturable waste	-3.7* (-6.4)	4.05	0.6 <sup>NS</sup> (0.99)	6.72	-8.10* (-7.71)	12.30
	Current fallow	-0.4 <sup>NS</sup> (-1.25)	4.47	1.5 <sup>NS</sup> (1.00)	17.99	0.2 <sup>NS</sup> (0.35)	6.59
	Other fallow	-1.2** (-2.33)	13.13	4.0** (2.94)	15.97	-4.2* (-12.00)	4.63
West Region	Barren and Uncultivated	-2.4* (23.18)	3.37	-1.8* (-13.76)	1.34	-3.2* (-14.30)	3.04
	Culturable waste	-1.8* (-8.17)	3.43	-0.5* (-5.76)	44.29	-3.7* (-9.44)	4.73
	Current fallow	-1.1* (-4.13)	4.47	-0.7 <sup>NS</sup> (-1.09)	6.65	0.1 <sup>NS</sup> (0.18)	9.03
	Other fallow	-1.3* (-3.75)	11.40	1.7* (8.72)	1.94	-4.2* (-11.45)	4.58
Central Region	Barren and Uncultivated	-1.4* (-4.78)	8.69	-1.2 <sup>NS</sup> (-0.96)	12.05	-2.7 <sup>NS</sup> (-8.69)	10.92
	Culturable waste	-1.4* (-8.28)	3.42	-0.4 <sup>NS</sup> (-0.89)	4.74	-2.8* (-14.57)	2.41
	Current fallow	0.2 <sup>NS</sup> (0.88)	4.47	1.5** (2.83)	116.49	0.3 <sup>NS</sup> (0.86)	5.53
	Other fallow	1.1* (3.35)	11.94	4.0* (6.2)	6.24	-1.3* (-5.84)	3.01
Bundelkhand Region	Barren and Uncultivated	-1.1* (-5.51)	7.97	-2.7** (-3.15)	9.96	-0.7 (-5.31)	1.12
	Culturable waste	-3.9* (-19.10)	1.17	-2.4* (-4.55)	44.29	-5.4* (-20.61)	3.54
	Current fallow	-1.5* (-2.84)	4.47	-3.7 <sup>NS</sup> (-1.7)	28.13	-2.0* (-1.99)	13.60
	Other fallow	-3.6* (8.98)	6.84	-2.9 (-1.61)	19.95	-5.1* (-10.00)	6.22
Eastern Region	Barren and Uncultivated	-2.0** (-2.30)	45.99	5.6 <sup>NS</sup> (1.75)	57.71	-4.4* (-5.42)	12.85
	Culturable waste	-2.6* (-9.75)	2.98	0.2 <sup>NS</sup> (0.26)	7.88	-3.60* (14.08)	3.66
	Current fallow	0.5 <sup>NS</sup> (1.47)	4.47	0.2 <sup>NS</sup> (0.16)	16.45	1.0 <sup>NS</sup> (1.52)	9.14
	Other fallow	-1.0** (-2.05)	13.37	3.4** (2.37)	13.96	-3.7* (-9.74)	5.03
Hill Region	Barren and	0.5 <sup>NS</sup>	15.21	1.8 <sup>NS</sup>	22.72	-0.1 <sup>NS</sup>	0.86

	Uncultivated	(0.87)		(1.05)		(-0.83)	
	Culturable waste	1.1 <sup>NS</sup> (1.3)	6.85	0.2 <sup>NS</sup> (0.08)	30.19	0.3** (2.53)	0.65
	Current fallow	-2.5** (-2.50)	4.45	-6.6** (-2.50)	116.49	-1.8 <sup>NS</sup> (-1.6)	7.81
	Other fallow	5.7* (5.99)	8.38	6.5* (2.37)	77.99	0.1 <sup>NS</sup> (0.45)	0.72

Source: Agricultural Data, Department of Agriculture, Government of Uttar Pradesh

## Environment and Sustainable Development- Some Global Issues

Rajender Kumar<sup>1</sup> and Pratima Kumari<sup>2</sup>

### Introduction

The transformation of developing countries to 'accelerate growth and reduce poverty is mirrored in the contribution of the major sectors to output, employment and income. Using the agricultural sector to supply food, labour and raw materials, while stimulating the industrial sector has been a key policy thrust. Boosting agricultural productivity has been a major focus in the agricultural sector accompanied by increases in levels of investment in industry. But more recently there has been major concern over the environment and its implications for the 'traditional' goals of sustainable development. Environmental problems center on human activities resulting in pollution of the atmosphere, oceans and land. These range from the global (green house warming and ozone depletion) to the regional (acid rain and desertification), national (deforestation) and local (soil erosion, contamination of fresh water resources and urban pollution).

The relevance of such concerns and the priority attached to each varies between developing and developed countries and this is subject to change over time. But there has been a call for broadening the goals development by incorporating mechanisms to minimize environmental degradation. Hence, while increasing the stock of wealth through growth continues to retain major importance in planning the future, the environment forms the context which is likely to shape the quality of life for, both, present and future generations on global level.

Thus, keeping in view the above facts the main aim of this paper is to analyze the cause of increasing green house effect, global temperatures, tides in sea, etc. Depletion of ozone layer and the hazardous effect of ultra violet radiations from the sun are also discussed.

### Review of Literature

Sustainable development entered the development dialogue in the early 1970s. The 1972 UN Stockholm conference on the Human Environment is arguably the first international conference that brought the concept of sustainability to the international arena. However, it was the 1987 World Commission on Environment and Development (WCED) that was largely responsible for providing the normative conceptual bridge between environmental concerns and development outcomes.

Sustainable development was further legitimised following the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil in 1992 (known as Earth Summit); the United Nations Conference on Sustainable Development 1993; and the World Summit for Sustainable Development, Johannesburg (2002). These conferences facilitated the globalization of the concept and establishment of an international consensus on the concept of sustainable development by the formulation of such action plans and guidelines such as the Brundtland Report and Agenda 21. More recently on climate change, a new bargain in being hammered out for fashioning a 2009 Copenhagen Protocol to rich nation's advantage.

### Green House Effects

The green house effect is increasing because of human activities. The scientists and government officials advocate reducing the carbon dioxide emissions. Unfortunately, every major source of energy, excepting nuclear power emits carbon dioxide. Thus, it may be difficult to persuade developing countries which have substantial coal reserve to slow their ambitious development efforts. Table 1 shows Forest Area, Withdrawal of Fresh Water and Green House Index. The statistics reveal the extent of deterioration. Carbon-dioxide and many trace gases released as by-products of human activities are currently accumulating in the atmosphere. The most important in terms of past and current contribution to radiative forcing are carbon-dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), CFCs and tropospheric ozone (O<sub>3</sub>). CO<sub>2</sub> is a prime product of fossil fuel burning is also released as a result of deforestation. CH<sub>4</sub> is emitted from wetlands and rice paddies, enteric fermentation in animals, termite mounds, coal mining and natural gas production, waste decomposition in land fill sites, biomass burning and other natural sources. The sources of N<sub>2</sub>O include certain fertilizers, deforestation and biomass burning.

Precise predictions about global warming are difficult but the best model studies indicate that due to global increase in carbon-dioxide and other green house gases the temperature of lower atmosphere is likely to increase by 1.5 to 4.5 by the year 2030. This would result in the melting of polar ice-caps and rise in sea level from 20 to 165 cm due to thermal expansion of ocean water as well as melting of glaciers. Such an increase in the sea level will cause flooding in many coastal areas, induce saltwater intrusion into aquifers and submerge many coastal wetlands. The global warming caused by the green house effect will be more at poles and in the winter months resulting in progressive shift in the global climate. Warmer climate will promote evaporation of water and increase cloudiness and rainfall. Tropical cyclones will become more intensive and their ferocity will increase.

Green house effect will induce sweeping changes in the biospheres. Plants will be affected by the rising levels of green house gases in two ways. First,

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the high concentration of carbon-dioxide will have fertilizing effect and will encourage plant growth. Secondly, the concomitant increase in the ambient temperature will induce long term irreversible changes. Climate shift will upset the present day cropping pattern over large geographical areas. Some animals will die while other will migrate northward. Insects will breed faster and insect borne diseases may spread further and pose greater challenges to human health. Many wetlands will dry out. Some food chains will be altered and breeding time table of many species will be affected due to global warming. One meter rise in ocean level by 2035 would cause the seas to move inland along shores, submerging large coastal areas. Millions of people would be forced to migrate to safer areas; human stress, anxiety and discomfort would be severe. It has been estimated that a sea level rise of one meter before the end of the 21st century would affect up to 300 million people. For example, coastal areas of Bangladesh Egypt as well as Islands like Republic of Maldives may be completely inundated facing a dismal future.

Thus, uncertainties about the potential impact of green-house gas build up on the magnitude and timing of warming and the implications of such warming on global climate, sea level, biotic diversity and economics should not be the excuse for inaction. Table 1 is in the annexure.

### **Ozone Depletion**

Ozone, a deep blue gas, made up of chemically bounded oxygen atoms, is a minor constituent of the earth's atmosphere. Ozone is the one gas in the atmosphere that limits the sun's harmful ultraviolet radiation from reaching the surface of the earth. It is present in the stratosphere: between 10-45 km. From the earth with the highest concentration at altitudes around 18-20 km in a globe-encircling ozone layer in the stratospheric ozone forms a delicate veil, which prevents harmful UV radiation from the sun rays entering the earth's atmosphere. In fact, the presence of ozone layer in the stratosphere is vital for life on earth because it is the only natural shield against UV radiation which is a potent mutagenic agent.

It has been discovered that the protective ozone layer is getting progressively eroded due to the impact of increasing human activities. The major cause for the depletion of the ozone layer is the world-wide emission of man-made compounds called chlorofluorocarbons (CFCs) used in refrigeration, aerosol spray and in many other items of daily use. CFCs are by and large, chemically inert, having no direct effect on humans or other living organisms. CFCs escaped into the atmosphere ultimately find their way into the stratosphere where they break down ozone molecules involving complex chemical reactions.

The process of stratospheric ozone depletion has caused a marked reduction in average global ozone concentration over the past two decades. These

reductions vary seasonally and generally increase pole ward. The most marked decreases have occurred during Antarctic spring. Concentrations measured in October, 1987 were less than half of those measured in October, 1979. These extreme events have become known as the formation of the 'ozone hole' which results from complex interaction of chemical and physical processes which do not occur at other latitudes.

Recently research by Cambridge University in southeast England shows that it is not, increased pollution but a side effect of climate change that is making ozone depletion worse. At high altitudes, 50 per cent of the protective layer had been destroyed. The research has dashed hopes that the ozone layer is on the mend. Since the winter of 1999 2000, when depletion was almost as bad, scientists had believed an improvement was under way as pollution was reduced. But they now believe it could be another 50 years before the problem is solved. The pollution levels have leveled off but changes in the atmosphere have made it easier for the chemical reactions to take place that allow pollutants to destroy ozone. With these changes likely to continue and get worse as global warming increases then ozone will be further depleted even if the level of pollution is going down. What appears to have caused, the further loss of ozone is the increasing number of stratospheric clouds in the winter, 15 miles above the earth. These clouds in the middle of the ozone layer provide a platform which makes it easier for rapid chemical reactions which destroy ozone to take place.

Stratospheric ozone is important for the biosphere because it absorbs much of the UV radiation which is harmful to animals and plants. As increased amount of UV radiation reaches the earth's surface, human population may be directly affected by increase in skin cancer, eyes disorder and suppression of immune system in human and other living organisms. One per cent decline in ozone results in an estimated three per cent increase in the potential incidence of skin cancer. In addition, yield of some crops may decline, and irreversible changes may occur in marine and other ecosystems which are exceedingly difficult to predict today.

Recently Cambridge University scientists said that, in March, 2004 when ozone depletion was at its worst, Arctic air masses drifted over the United Kingdom and the rest of Europe as far south as northern Italy, giving significantly higher doses of ultraviolet radiation and sunburn risk.

Acid rain has emerged as a great scourge of the industrial countries. The term 'acid rain' is used to describe all forms of precipitation, rain, snow, sleet, dew, which is more acidic than normal. In the last few decades the rain water has become acidic over large areas in Europe and America. Emission of sulphur dioxide and oxides of nitrogen are prime contributors to the environmental acidification as they readily dissolve in the atmospheric moisture, forming sulphuric and

nitric acids which make the rain acidic. A vast expansion of thermal power generation and other industrial activities contribute to environmental acidification.

### Conclusion and Suggestions

Finally, the analysis shows that the broader issues such as global warming, biodiversity and ozone layer depletion have dominated global protocols. It has emphasized that an increase in average global temperature would induce a number of natural changes with significant effects on population. Depletion of the ozone- layer has also been a source of anxiety as it results in ultra-violet light penetrating the atmosphere. This could have devastating affects on humans, animals and the natural environment. There is a need to examine the ways in which developed and developing economies perceive environmental pollution.

The present day policies dealing with environment are inadequate and they are inherently incapable of tackling the escalating degradation of the human environment. A time has come when serious debate must start to emphasize that the taxation should be levied in proportion to the damage inflicted to the environment by an individual, industry or by any other human endeavor. This requires a major shift in our thinking, a careful policy formulation and designing of an appropriate institutional framework to safeguard the common prosperity resources for promoting sustainable development.

Therefore, environmental issues should not be viewed from a sectoral perspective or regarded as an add-on consideration, because they form an integral part of all human activities. The national government's overriding concern for balance of payments to the exclusion of all their considerations has led to the neglect of environmental issues, greatly endangering the societal well-being. There is an urgent need to

include to concept "environmental burden" in international trade and commerce.

Similarly, sustainability criteria should become a touchstone for evaluating developmental projects along with techno-economic feasibility. A wide range of policy choices is available for protecting and improving environment. A judicious blend of short-term and long-term policies would be required to integrate environmental concern with developmental activities for attaining sustainable development. In the short-term, the most effective means of reducing emissions is through strategies that rely on economic instruments including pricing, tax concessions, subsidies and direct regulatory control towards environmental degradation. The usefulness of these measures lies in their inherent flexibility to make them efficient and effective. Government policies in such areas as power generation, building codes waste management, transportation planning, afforestation regulation, social forestry, water and reclamation, could make important contribution to prevent or reduce environmental decay. In the long-term, policies aimed at promoting research development and education about new clean technologies, clean products and ecosystem restoration will go a long way to promote sustainable development and improvement of environmental quality.

Thus, a pragmatic environmental policy should emphasize preventive measures instead of relying on curative approaches. A "paradigm shift" is called for to ensure a healthy environment for the well-being of present and future generations. We must have the wisdom and sense of responsibility so that a cleaner and "safer Earth Planet" is handed over to the future generation and the pollution free environment is shared by all nations with equal share of resources available on this planet earth.

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Annexure

**Table 1**  
**Forest Area, Withdrawal of Fresh Water and green House Index**

<i>Countries</i>	<i>Forest Area as %of Total land Area 2007</i>	<i>Annual Deforestation 2000-05 (%change) Meters)</i>	<i>Annual per Capita Withdrawal of Fresh water 2007 (bn.cubic metres)</i>	<i>Emissions of organic Water Pollutants 2005 ('000kgs/day)</i>	<i>Carbon Dioxide emissions per capita 2005 (Metric Tones)</i>
India	<b>20.6</b>	-	<b>645.8</b>	<b>1519.8</b>	<b>1.3</b>
Sweden	61.1	-	3	100.1	5.4
Korea, Rep	63.6	0.1	18.6	317	9.4
Italy	33.9	-1.1	44.4	481.3	7.7
Switzerland	29.3	-0.4	2.6	-	5.5
Germany	31.1	-	47.1	960.3	9.5
Kenya	6	0.3	2.7	56.1	0.3
Mexico	32.4	0.4	78.2	-	4.1
France	28.3	-0.3	40	6.4.7	6.2
Canada	31.1	-	46	310.3	16.6
U.S.A	321.5	-0.1	479.3	1960.3	19.5
Australia	21.1	0.1	23.9	111.7	18.1
Hungary	21.5	-0.7	7.6	123.2	5.6
China	21.4	-2.2	630.3	6088.7	4.3
Nigeria	11.1	3.3	8	-	0.8
U.K.	11.9	-0.4	9.5	539.7	9.1
Bangladesh	6.3	0.3	79.4	303	0.3
Pakistan	2.3	2.1	169.4	-	0.9
Saudi Arabia	1.4	-	23.7	-	16.5
Egypt	0.1	-2.6	68.3	206.5	2.4

Source: Statistical Outline of India, 2009-2010, Tata Service Limited, Department of Economics and Statistics

# Mining, Land Acquisition and Human Well-Being in Odisha

Saswat Kishore Mishra<sup>1</sup>

## 1. Introduction

Acquisition of land for expansion of non-farm sectors and infrastructure development has emerged as a critical issue in many of the emerging economies like India and China in recent years. These two economies, in particular, have been struggling mightily in meeting the land requirements for industrialization, urbanization, mining, and infrastructure related developmental initiatives primarily owing to their high population densities and hence low land-man ratio (Sathe, 2011). While importance of land in providing livelihood opportunities, individual identity, and a sense of security to its owners apart from its asset value is well-recognized, changes in ownership (i.e., property rights) and the form of land are imperative in the process of economic transition<sup>2</sup>. This has led to conflicts of interests across various stakeholders, and the attempts towards land acquisition have encountered severe protests across different states of India resulting in an impasse of various developmental initiatives<sup>3</sup>.

Resistance against acquisition of land is in sharp contrast to the models of economic development which essentially propound that a transition from the primary sector to the modern sector benefits both the sectors and thereby facilitates overall development of the economy (Matsuyama, 1992; Lewis, 1954). It is pointed out that acquisition of farm land in particular is likely to result in considerable exclusion in the development process. The consequence seems to be

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<sup>2</sup> The nature and the extent of transformation may, however, vary depending on the path of transition.

<sup>3</sup> Peoples' resistance against land acquisition at Jagatsinghpur, Kalinganagar, Lanjigarh, Kashipur, Gajamara, Darlipali, Angul, Kendujhar, Khandadhar, and Puri in Odisha; at Khunti, Khunti-Gumla, Bokaro, East-Singhbhum, Sareikela-Kharasawan, Jamshedpur, Dumka, and Karnpura in Jharkhand; at Jhanjgir Champa district, Dharamjaigarh, and Jashpur in Chhattisgarh; at Nandigram and Singur in West Bengal; at Guntur in Andhra Pradesh; Mughalsarai, Bhatta-Parsaul, and Dadri in western Uttar Pradesh; at Kuduthini, Haraginadoni, Mandakalli and Mysore in Karnataka, are some such major incidences of conflicts of interests of the land owners vis-à-vis the investors and the state. Land owners' protests against acquisition have also been observed in other parts of the country such as at Gobindpura in Punjab, Gorakhpur in Haryana, Sanand in Gujarat, Jaitapur in Maharashtra, Palakkad in Kerala and Chennai in Tamil Nadu, aggravating the problem further.

even far grimmer for the states like Odisha, where a significant amount of land is likely to be acquired for the proposed mining and mining-based projects in the state. The state has signed as many 89 MoUs with different industrial houses between 2002 and 2010 out of which 49 are with the steel producing industries (IDCO Odisha, 2011). Since iron ore and coal are the basic ingredients in the production of steel and their reserves in the state in relation to the country's total reserves is very high<sup>4</sup>, implementation of the proposed steel projects necessitates large scale acquisition of land for mining<sup>5</sup>. Contrary to this, the proportion of land acquired for mining and mining based projects so far has been abysmally low (Mishra, 2012). The proportion of land acquired for the on-going mining and mining-based projects is only 38 percent of total land required, and when all the projects are taken together, it is only 36 percent (IDCO Odisha, 2012). Such a low rate of land acquisition is primarily contributed to stiff resistance by owners.

Given the importance of mining for the state economy, resistance against land acquisition and consequent low acquisition raise a very important question, why acquisition of land for mining and mining-based projects has been so dismal in Odisha? In other words, why are people protesting against acquisition of land for such projects in the state? Answering this question requires addressing a few pertinent issues. First, to what extent the mining sector has contributed to the overall development of the state economy. Second, whether the benefits of mining-led development have trickled down to the people at the local level. Third, how mining based development can be made more inclusive. The objective of the present paper is to deal with these issues. The rest of the paper is organized in the following way: Section 2 presents the current state of land acquisition for the proposed mining and mining-based projects in Odisha. Section 3 addresses the inherent issues and challenges in land acquisition, in general, and for mining projects, in particular. Section 4 examines the impact of land acquisition for mining on wellbeing of people in Odisha. Section 5 concludes the paper with possible policy directions towards more inclusive development process to facilitate land acquisition.

## 2. Status of Land Acquisition

Conventional wisdom and geological evidence suggests that Odisha is one of the country's largest mineral abundant states. It nearly has 17% of the total mineral reserves in the country (Economic Survey

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<sup>4</sup> Odisha accounts for 25.82 percent, 32.53 percent, and 56.36 percent of India's total reserves of coal, iron ore and bauxite respectively (Economic Survey Odisha, 2011-12).

<sup>5</sup> This is so because mining has become a major economic activity in the state that contributes significantly in terms of its share in GSDP, royalty, value of exports, tax revenue, etc. (Mishra, 2012).



Odisha, 2011–12)<sup>6</sup>. Coal, iron ore and bauxite together constitute around 96% of the state's total mineral reserves (Table 1). Coal alone constitutes about 86.17% of all mineral deposits in the state and 26.82% of the country's total Coal reserves. Similarly, Iron-ore constitutes around 7.04% of the state's total mineral reserves and 32.53% of the country's total Iron-ore reserves. Coal and iron-ore have emerged as the major minerals in the state both in terms of reserves and production during the previous decade followed by Bauxite (Mishra and Hota, 2011). There is fairly heavy concentration of Chromite (largely found in Jajpur district), bauxite, manganese, and graphite in the state.

The state has a reasonably high share in total stock of coal and iron ore as well, though they are not of high quality. Besides, it is found in Jharsuguda, Sundergarh and Sambalpur districts of Odisha, but the stock is predominantly concentrated in Angul district. While the stock of iron-ore is largely concentrated in Kendujhar district, bauxite is mainly found in Koraput. In order to extract these mineral resources, the government has been leasing out the mines in these districts to numerous private enterprises and public sector undertakings. A large number of mining and mining-based private industrial companies (for example, steel industries) have flocked in to sign MoUs with the government of Odisha in the last few years. This is precisely because of three reasons: (i) Global boom for steel, the global competition for cheap labor and raw materials. (ii) Reserves of huge mineral resources in the state. Mining leases in terms of number and area has, although, declined slightly (owing to mining related scams) in Odisha, the average number of mining leases and mining area still remains 596 and 98.32 thousand acres respectively between 2000-01 and 2008-09 (Mishra and Hota, 2011). The details of Industrial Entrepreneurs Memorandum (IEMs) implemented in India from August 1991 to May 2012 indicates an investment of Rs 2109 crore in Odisha (DIPP, 2012). The share of Odisha in the major mining states of India in terms of the number of implemented IEMs (86 no.) during the same period is 1.33 percent which is higher than the share of neighboring mineral abundant states of Jharkhand (1.15 percent) and Chhattisgarh (1.26 percent)<sup>7</sup>. Moreover, the total proposed industrial investment from August 1991 to May 2012 in Odisha stands at Rs 14,17,979 crore with an all-India share of

14.95 percent which is highest in the country<sup>8</sup>. These industrial investment proposals are expected to create an employment of 7, 40,841 in the state with an all-India share of 3.54 percent which is just lower than Chhattisgarh (3.93 percent) and well higher than Jharkhand (1.86). In particular, the share of investment on mining in total investment in case of completed projects of Odisha between 2001 and 2011 is 8.6 percent, the state thereby contributing about 43.06 percent to the combined share of Odisha, Jharkhand and Chhattisgarh (CMIE, 2012). The share of investment on mining in total investment in case of under-implementation projects of Odisha between 2001 and 2011 is 9.9 percent, the state thereby contributing about 45.12 percent to the combined share of Odisha, Jharkhand and Chhattisgarh (Ibid). In case of New Added projects and Outstanding Investment projects, the share of mining to total investment between the same period 5.03 percent and 7.52 percent respectively, the state contributing about 48.46 and 47.13 percents respectively to the combined share of Odisha, Jharkhand and Chhattisgarh (Ibid). Evidently, Odisha has emerged as the most favored destination for mining activities in the country (Table 1, refer annexure).

Consequently, the demand for land from the industrial perspective has increased manifold during the last one decade or so. However, the proportion of land acquired for implementation of these projects has not increased proportionately with the increase in demand. Table 2 presents the status of land acquisition for mining and mining based industries vis-à-vis other developmental projects in Odisha. It is observed that, in case of the MoU based proposed mining and mining-based industrial projects, only about 40 percent of the required land could be acquired so far (Table 2, refer annexure).

However, the situation is better in case of the non-MoU projects in general and infrastructure related projects in particular (Table 3). Contrary to the MoU based projects, around 86 percent of the land required for non-MoU based infrastructure development projects could be acquired. The low rate of acquisition is largely on account of resistance by the owners. For example, the proposed steel plants of POSCO and TISCO at Jagatsinghpur and Kalinganagar (Jajpur) respectively; the proposed mega steel plants of Uttam Galva, Arcelor-Mittal and Sterlite group at Kendujhar; Iron-ore mining by POSCO at Khandadhar (Sundargarh), Vedanta Alumina at Lanjigarh (Kalahandi); Utkal Alumina at Kashipur (Rayagada); J.R.Jain power plant (1980 MW) at Angul; two mega

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<sup>6</sup> The total mineral reserves in Odisha by the end of 2009-10 was 75645.22 million tonnes (Directorate of Mines, Govt. of Odisha). The state has also earned the distinction of being the largest mineral producing state in the country in terms of value generated (IBEF, 2011). The state produced minerals worth Rs 28,287 crore in 2010-11 which was the highest in the country (IDCO Odisha, 2012).

<sup>7</sup> The major mining states in India include Odisha, Jharkhand, Chhattisgarh, Karnataka, Andhra Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu, Rajasthan, Goa and Gujarat.

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<sup>8</sup> The share of Chhattisgarh and Jharkhand in the total proposed industrial investment in India from August 1991 to May 2012 are 12.38 and 4.58 respectively (DIPP, 2012)

power projects (3200 MW each) of NTPC at Darlipalli (Sundargarh) and Gajamara (Dhenkanal).

Hence, there is a huge gap between the requirement of land for implementation of projects relating to mining and mineral based industries and the amount of land acquired for the same (Table 3, refer annexure). Given that non-availability of land is likely to halt implementation of many of these proposed projects, it is necessary to address a few pertaining questions. First, why are the land owners so reluctant to give up their land, particularly in case of the MoU based projects? Second, does intervention of the state in the form of the contract (i.e., the MoU) hinder the acquisition process, and, if so, can a market based approach make land acquisition smoother? Addressing these questions requires analyzing the emerging issues and inherent challenges of land acquisition, and assessing the impact/outcome of acquisition on the well-being of people. What follows next is an attempt in this direction.

### **3. Issues and Challenges in Land Acquisition: Why do Farmers 'still' protest?**

Majority of the recent studies (e.g., Marjit, 2011; Ghatak and Ghosh 2011; Bardhan, 2011), and policy initiatives of the government have largely focused on designing appropriate pricing structure of land and other compensations to facilitate land acquisition. Such an approach is based on the assumption that price of land and compensation are the major constraints to land acquisition and a better pricing mechanism and compensation structure would motivate the land owners to give up their land. However, since land owners' willingness to give up land may also be influenced by various socio-economic-institutional factors<sup>9</sup>, emphasis solely on pricing of land and compensation may fail to address the problem of acquisition adequately. On the other hand, discussions in other studies are largely confined to the issues like property rights and transaction costs (Sarkar, 2007), displacement, rehabilitation and resettlement, benefit sharing (Cernea, 2000; Cernea, 2007, Rath, 2007; Fernandez, 2007), societal sustainability (Downing, 2002), food insecurity (Cernea, 2000; Robertson and Andersen, 2010; Downing, 2002), increasing social exclusion in general (Cernea, 2000) and exclusion of women in particular (Thukral, 1996), loss of common property including civil and human rights (Kibreab, 2000), and role of the state in acquisition process (Dutta, 2011; Sarkar, 2007)<sup>10</sup>. Some of the existing

studies also deal with issues relating to depletion of non-renewable resources, carbon emission, and climate change following land acquisition (e.g., CSE, 2008; Jena, 2008; Chaulia, 2003; Mishra and Hota, 2011). The studies, however, fail to recognize that the reasons for protest/resistance against land acquisition vary not only in different parts of the country, but also across different districts of a state. Attempts should, therefore, be toward resolving the problems of land acquisition by identifying the set of factors that influence land owners' willingness to give up land. There is no attempt as such in the existing studies in this direction. What perhaps is more crucial to address is the lack of capabilities of many of the prospective land losers, information asymmetry, institutional constraints and the land losers' perception on their possible inclusion in the development process. This is so because lack of necessary capabilities on the part of the land owners coupled with information asymmetry and socio-political exclusion further aggravate the problem of land acquisition for two reasons.

First, it is likely to raise uncertainty in the mind of the prospective land losers and thereby can. This is so because, in general, transactions in a land acquisition process occur amidst different levels of information asymmetry resulting in '*principal-agent problem*' and hence in market failure. Let us consider the state as the agent and the land owners as the principal<sup>11</sup>. Given information asymmetry and weak institutions, the agent would try to induce/force the principal to sell off their land which may be costly for later, but beneficial for the investors. This may also give the agent an opportunity for rent-seeking as well. What is more important is that the principal may fail to make a rational choice due to lack of private information about the prospective gains from the proposed project, and thereby may end up in making an adverse selection in the form of resistance against land acquisition<sup>12</sup>. The situation is even more critical when the agent lacks necessary information and hence takes an initiative of land acquisition that is not socially desirable. The possibility of adverse selection coupled with rent-seeking by the agent, and the difference in perceptions across the principals may make individual preference orderings to give up land inconsistent.

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spread over large number of small farmers. On the other hand, Dutta (2011) has argued for a more proactive role of the government in land acquisition as the LARR, 2011 allows a private company to buy at least 70 percent of the required land before the government steps in acquiring the remaining 30 percent.

<sup>11</sup> Conventionally, the informed party is known as the agent and the uninformed party is known as the principal.

<sup>12</sup> Hidden characteristics of the private firm or the government which the farmer fails to observe results in an adverse selection (in case of the farmer) whereas, their hidden actions which the farmer fails to observe lead to moral hazard.

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<sup>9</sup>According to Cernea (2000), the extent of land acquisition is influenced by a range of economic, social and cultural hazards, and failure to mitigate these hazards will result in new poverty.

<sup>10</sup>Majority of the existing studies, however, favour intervention of the state in the acquisition process though the justifications differ. According to Sarkar (2007), government intervention is necessary to reduce transaction costs particularly when land holdings are thinly

Second, with acquisition of their land, the owners are exposed to the risks and uncertainties in a greater way. In other words, land acquisition makes owner's livelihood more uncertain, particularly when they lack necessary information and capabilities for alternative opportunities. Lack of bargaining power makes exploring alternative livelihood opportunities further difficult. The model of option pricing (Marjit, 2011) also fails to guarantee opportunity for alternative livelihood to the land losers particularly in a situation where the future anticipated return on land fails to meet its actual value. A situation like this is more likely in the long run for projects that are based on non-renewable natural resources like minerals. Given the risks and uncertainties, the orderings of preferences may vary across individuals depending on their attitude and exposure to risks. The crux of the problem may also lie in failure of the earlier investment initiatives in making the land losers inclusive in the development process as such failures are likely to give wrong signals to the prospective land losers<sup>13</sup>. Hence, addressing the problem of land acquisition for mining related projects in Odisha requires a detailed understanding of the impact on human wellbeing and the next section of the paper is an attempt in this direction.

#### 4. Impact of Mining on Human Well-being in Odisha

It is commonly perceived that the mineral-rich backward regions of the world should invest more in mining activities in order to break the shackles of poverty and destitution. In other words, mining industries can generate wealth, create large-scale employment, develop infrastructure, provide raw materials for most industries, contribute to world production and trade, and foster economic growth. There are studies which corroborate the argument that mining is important as an economic activity and provide a major edifice upon which the overall development of any economy endowed with rich natural resources rests (Ejdemo and Soderholm, 2011; McMohan and Remy, 2001; Stilwell et al., 2000; Ye, 2008; Clements et al., 1996; Brunnschweiler, 2006). On the contrary, there are numerous studies which refute this belief (Sachs and Warner, 1997; Sachs and Warner, 1999; Torvik, 2009; Bjorvatn and Selvik, 2007; Yuxian and Chen, 2011)<sup>14</sup>. There also exist

certain studies which neither support nor discard *resource curse theory* and put forth ambiguous and divergent results (Mehlum et al., 2005, Holder, 2006)<sup>15</sup>. However, whether a given amount of natural resources will facilitate economic development depends on: (i) quality of institution that utilize and allocate resource rents for economic development or mismanagement of resource revenues to finance government expenditure (Mehlum et al., 2005; Atkinson and Hamilton, 2003; Behera and Mishra, unpublished; ); (ii) large scale rent seeking activities (Leiti and Weidmann, 1999; Torvik, 2002; Bjorvatn and Selvik, 2007; Mishra and Behera, unpublished); and (iii) adverse investment policy of the government that discourage investors in resource exploitation (Behera and Mishra, unpublished); (iv) lack of property rights protection (Bjorvatn and Selvik, 2007).

The relationship between mineral resources exploitation and regional and/or national economic development, therefore, is not very clear. In case of Odisha, it is observed that the state GDP grew at an annual average rate of 1.33 percent during 2000-03, and increased by around 11 percent during 2006-09 (Table 4, refer annexure). On an average, mining and quarrying has contributed around 6 percent of the total GSDP during 2000-01 to 2008-09<sup>16</sup>. However, production of minerals has also increased at an annual rate of 13 percent during this period. Even though the volume of production of minerals increased at a decreasing rate, its value continued rising. This is because exports of minerals and ores as a proportion of total mineral extracted from the state have been rising (Table 5) and its share in the country's total value of mineral produced is also showing an increasing trend.

**Table 5: Export of minerals in Odisha and its contribution vis-à-vis India**

Year	Percentage of extraction as exports (%)	Value of exported mineral (%)
1	2	3
2000-01 to 2002-03	9.27	-
2003-04 to 2005-06	26.23	-

<sup>13</sup> A conservative estimate of Fernandez, Das and Rao (1989) established that in Odisha, as many as 5, 46,794 people were displaced while only 1, 92,840 were resettled with the resettlement rate at 35.27% and a massive backlog percent of 64.73%. In case of mining operations the backlog percent is 40.0%. In the category of mining operations here the mining-based industries are not included. Otherwise, this backlog figure would be by all means much greater.

<sup>14</sup> This is a widely debated phenomenon popularly known in development literature as *resource curse theory*.

<sup>15</sup> Natural resource abundant countries have witnessed both decline and rise in economic growth while the diverging experiences are because of difference in the quality of institutions (Mehlum et al., 2005). Holder (2006) holds that natural resources lower incomes in fractionalized countries but increase incomes in homogeneous countries.

<sup>16</sup> While Odisha's share in the all-India total is 11.89 percent, it is 7.13 percent for Rajasthan and 6.74 percent for Gujarat (Economic Survey Odisha, 2011-12). The contributions of other States like Madhya Pradesh, Assam, Andhra Pradesh and Karnataka are 4.99 percent, 4.79 percent, 4.63 percent and 3.78 percent, respectively (Ibid).

2006-07  
to 2008-  
09

-3.77 (negative  
share??)

24.57

Source: Directorate of Mines, Government of Odisha,  
Bhubaneswar

Note: The figures indicate the annual average export of  
minerals as a percentage of mineral extracted

**Table 6: Mineral-wise contribution to quantity of  
total exports (2005-2008)**

Mineral/ore	Average Contribution to total exports (2005- 06 to 2008-09)	% change (2005-06 to 2008- 09)
1	2	3
Iron ore	76.48	-51.64
Chromites	11.94	82.31
Mineral sand	0.42	-
Manganese	0.05	-90.55
Others	22.65	-
Total		-14.70

Source: Economic Survey 2010-11, Odisha

Note: Figures in the refers to the contribution of minerals  
to the total average value of mineral exports during 2005-  
2009 (in %)

Table 7 (in annexure) shows the distributive  
share of minerals in terms of production, value and  
employment. It is observed that coal, iron-ore and  
bauxite emerge as major minerals in terms of share in  
total quantity and value. Coal leads in production,  
whereas iron-ore leads in both value and employment.  
However, the absolute level of employment generated  
in mining sector over the last two decades has not been  
very encouraging because of large-scale, privately-  
owned highly mechanized mines. The level of  
employment in each of these two major minerals as  
well as in other minerals has dipped in the last  
decade<sup>17</sup>. Thus, while production of minerals and their  
values have increased significantly, the level of  
employment generated has declined<sup>18</sup>. The districts  
like Kendujhar, Angul, Sundargarh, Jharsuguda, and  
Jajpur have emerged as the major mining districts in  
the state in terms of value of minerals extracted in  
recent years (Table 8, refer annexure)<sup>19</sup>.

<sup>17</sup> Employment in bauxite mining has increased from 603 in 2000-01  
to 634 in 2008-09 but the rate of increase has fallen during the last  
five years (Mishra and Hota, 2011).

<sup>18</sup> This expanding growth in mineral production and escalating  
mineral value has been accompanied by a perpetual decline in the  
average rate of direct employment by 2.06% annually between 1990-  
91 and 2008-09 (Mishra and Hota, 2011).

<sup>19</sup> Kendujhar (district) tops in terms of area under mining and mining  
leases in the state (Mishra and Hota, 2011). Specifically, iron ore  
mining is extensively done in this district. This makes Kendujhar a

The comparative advantage of Odisha in  
terms of abundance of rich mineral resources has  
helped the state to attract investment by many mining  
and metallurgical companies. The mining districts  
have contributed immensely to the financial stability  
of the state. The state has also emerged as a major  
exporter of mineral products (IBEF, 2010), and the  
sector has provided employment to large sections of  
people including the tribal mass (Economic Survey of  
Odisha, 2010-11), though the level of employment has  
declined in recent years. The royalty collected by the  
state from mining has shown an increasing trend after  
(CSE, 2008) and the mining revenue receipts has been  
steadily increasing (Mishra and Hota, 2011),  
contributing fairly to the state's exchequer over the last  
one decade. The contribution of mining revenue to  
own non-tax revenue has been more than 51% between  
1997-98 and 2009-10 (Mishra and Hota, 2011). Thus,  
mining activities in Odisha has resulted in  
perpetuating revenue receipts in the state exchequer.

However, the question arises as to what  
extent the mining sector has contributed to the overall  
economic development of the state. How the mining  
districts have fared in terms of human development  
indicators? Has the benefits of mining trickled down to  
the people in the mining districts? Table 9 (in  
annexure) summarizes the human development  
indicators across all thirty districts of Odisha,  
categorized into mining and non-mining districts. It is  
observed that the major mining districts<sup>20</sup> have  
performed poorly in terms of the various indicators of  
human development vis-à-vis other districts in the  
state. For example, Kendujhar, Jajpur and Koraput fair  
poorly in terms of infant mortality rate and health  
index than the all-Odisha aggregate. These three  
mining districts also fair poorly in terms of human  
development index at the aggregate level. While Jajpur  
and Koraput fall behind the all-Odisha aggregate in  
terms of income index<sup>21</sup>, Kendujhar and Koraput  
perform poorly in terms of literacy rate index and  
education index. Koraput tops in education deprivation  
index as it also happens to be the only mining district  
having fallen behind in terms of all key well-being  
indicators. A better picture of the performance of  
mining districts in terms of various indicators can be

hotbed of all mining operations and an epicenter of iron ore mining  
in Odisha.

<sup>20</sup> Kendujhar, Angul, Sundargarh, Jharsuguda, Jajpur, and Koraput  
are considered as high performing mining districts in terms of share  
in total mineral production in 2003. Similarly, Dhenkanal and  
Mayurbhanj are considered as low performing mining districts of  
Odisha.

<sup>21</sup> Incidentally, three major mining districts (for example, Angul,  
Jharsuguda, and Sundargarh) have performed better than the state's  
aggregate HDI index as well as Income Index (II). Owing to huge  
investment in mining districts and consequent return, II may tend to  
be on the higher side in these districts, which may have apparently  
inflated the value of HDI.

framed when assessed vis-à-vis the performance of the non-mining districts.

Table 10 (in annexure) shows that the mining districts lag behind the non-mining district in respect of literacy, education, educational deprivation, gender disparity, health and HDI. The average proportion of out of school, adult illiteracy and education deprivation index in case of mining districts are far more than the non-mining districts (Mishra and Hota, 2011). Mining and mineral-based industries depend on the availability non-renewable natural resources. Once these resources get exhausted in a particular area, livelihoods of the project-affected and displaced people absorbed in the projects are likely to be under threat.

Hence, there is an increasing disparity between mining and non-mining districts by means of percolation of development. Incomes generated from the mining districts after acquisition of land and subsequent economic activities do not necessarily benefit the people of the district even at the aggregate level. It is possible that the land owners are uncertain with the benefits of land acquisition pertaining to them. If so, emphasis should be put not only on attracting investment and maximize revenue, but also to promote inclusive development and sustainable livelihood opportunities to the affected people. Given the institutional constrains, simply allocating 26 percent of royalty amount to the mining districts, as it is cited in the Mining Bill (MMDR Bill, 2011) may not be enough to make the development process adequately inclusive due to the possibility of leakages and rent seeking.

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## 5. Conclusions

Uncertainties over inclusion of the land losers directly in the development process due to the lack of necessary capabilities coupled with information asymmetry, socio-political exclusion and institutional constraints may be the main causes behind the resistance against land acquisition. The basic objective of land acquisition, so far, has been primarily to maximize net benefits, and such an approach does not necessarily include all the losers in the process. The present study finds that a robust performance of mining sector (in terms of production, exports and value) and a widespread of mining activities in the state has substantially contributed to government exchequer in the form of royalty, taxes, etc., but failed to contribute to the human well-being of the people in the concerned districts. This means that simply designing the framework for compensation, rehabilitation, and resettlement of the affected people, and assigning role of the state in the acquisition process are unlikely to be enough to address the issues adequately. Smooth course of land acquisition for developmental projects perhaps requires reduction of heterogeneities across individual preference orderings, thereby increasing the scope for inclusion of the land losers in the set of prospective beneficiaries. Efficient mechanism for information dissemination and agency structure, and effective development delivery institutions may be the way forward. However, whether a linear path of forward vertical integration has the potential to make the transition process more inclusive needs further exploration.

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## Annexure

### Table 1: Stock of Minerals in Odisha

Mineral ore	Reserves in Odisha (%)	Stock of mineral resources till 2010 (MT)	Percentage to all-India reserves	Major districts
1	2	3	4	5
Coal	86.67	65226.86	25.82	Angul, Jharsuguda, Sundergarh, Sambalpur
Iron ore	7.04	5153.31	32.53	Kendujhar, Mayurbhanj, Sundergarh
Bauxite	2.39	1810.6	56.36	Koraput, Sundergarh
Chromite	0.24	173.80	98.39	Dhenkanal, Jajpur, Kendujhar
Dolomite	0.44	330.93	12	Kendujhar, Sundargarh
Limestone	1.34	1007.18	1.31	Koraput, Bargarh, Kendujhar, Sundargarh
Manganese	0.16	119.81	28.57	Bolagir, Rayagada, Kendujhar, Sundargarh
Fireclay	0.23	175.53	25.07	Jharsuguda, Cuttack, Angul, Bargarh
Graphite	0.01	4.41	28.7	Balangir, Bargarh, Kalahandi, Kandhamal, Nuapada, Rayagada
Others	1.45	800.32		
<b>Total</b>	<b>100</b>	<b>74802.75</b>		

Source: Directorate of Geology, Government of Odisha, Bhubaneswar, (2011)

### Table 2: Land Acquisition for MoU Based Projects in Odisha

Sectors	No. of Proposed Projects	Land Requirement (acres)	Land Acquired (%)			District(s)
			Total	Govt. land	Private land	
<b>Mining and mining-based industries</b>						
Coal Mining <sup>22</sup>	1	1997.2	0	0	0	Sundargarh (1)
Steel	56	59616.5	34.28	34.11	65.77	Angul (2), Cuttack (4), Dhenkanal (8), Ganjam (2), Jagatsinghpur (2), Jajpur (7), Jharsuguda (7), Kendujhar (14), Koraput (1), Sambalpur (6), Sundargarh (3)
Aluminium	05	13423.21	54.56	26.25	73.75	Jharsuguda (1), Kalahandi (1), Koraput (1), Rayagada (1), Sambalpur (1)
Oil Refinery	1	3351.65	100	14.18	85.82	Jagatsinghpur (1)
Total	63	78388.56	40.73	30.11	69.89	
Without oil refinery	62	73039.71	38.01	32.04	67.87	
<b>Other Industries<sup>23</sup></b>						
Total	07	814.04	37.75	100	0	Cuttack (3), Jajpur (1), Ganjam (3)
<b>Infrastructure</b>						
Railways	03	846.33	0	0	0	Kendujhar (1), Sambalpur (1), Sundargarh(1)
Power	20	20903.16	23.13	24.38	75.62	Angul (5), Balangir (1), Cuttack (3), Dhenkanal (5), Jharsuguda (4), Nayagarh (1), Sundargarh (1)
Total	23	21749.49	22.23	24.38	75.62	
<b>Grand Total</b>	<b>93</b>	<b>100952.41</b>	<b>35.91</b>	<b>30.01</b>	<b>69.99</b>	

Source: IDCO, Government of Odisha, Bhubaneswar

Note: The figure in the parenthesis show the number of projects

<sup>22</sup> Land acquisition for coal mining is not done by IDCO, Odisha. Mahanadi Coal Fields (MCL), a PSU acquires land for coal mining in Odisha.

<sup>23</sup> Includes cement, titanium and auto ancillary industries.

**Table 3: Land Acquisition for Non-MoU Based Projects in Odisha**

Sectors	No. of Proposed Projects	Land Requirement (acres)	Land Acquired (%)		
			Total	Govt. land	Private land
Mining and mining-based industries	107	30615.53	44.14	45.84	54.16
Infrastructure	07	3410.982	85.91	30.04	69.96
Grand Total	114		48.33	43.02	56.98

Source: IDCO, Government of Odisha, Bhubaneswar

Note: The figure in the parenthesis show the number of projects

**Table 4: Contribution of mineral extraction to Odisha' GSDP and its value vis-à-vis India)**

Year	GSDP (%)	GSDP by Mining and Quarrying (%)	Mining and Quarrying as percentage to total GSDP (%)	Mineral Production (%)	Mineral Value (%)	Mineral value per unit lakh tonne (%)
1	2	3	4	5	6	7
1994-95 to 1996-97	1.48	13.69	4.17	8.63	17.63	8.88
1997-98 to 1999-00	7.12	7.50	4.70	4.37	13.39	8.64
2000-01 to 2002-03	1.33	12.17	5.48	12.78	12.78	1.71
2003-04 to 2005-06	11.40	13.92	6.68	18.46	23.65	4.61
2006-07 to 2008-09	10.62	9.13	6.82	9.29	32.37	21.35
2000-01 to 2008-09	7.78	11.74	6.33	12.81	22.93	4.87

Source: Economic Survey, Orissa: 2010-11; Directorate of Mines, Govt. of Odisha, Bhubaneswar

Note: All figures indicate the annual average growth rate in percentage. Figures in the parentheses indicate the average contribution of the value of mineral produced in Odisha to all-India average

**Table 7: Distributive shares (production, value and employment) across minerals**

Mineral	Average Share (%)		
	Production (2000-01 to 2008-09)	Value (2007-08 to 2008-09)	Employment (2001-02 to 2009-10)
1	2	3	4
Coal	53.57	30.33	30.84
Iron ore	35.07	55.37	35.20
Bauxite	3.53	1.19	1.48
Chromite	2.31	9.48	15.81
Dolomite	2.22	0.33	4.97
Limestone	1.95	0.61	
Mn. Ore	0.57	1.88	5.01
Min. Sand	0.18	0.62	
Pyroxenite	0.16	0.08	
Sand(Stow)	0.14	0.00	
Quartzite	0.09	0.04	6.68
Fireclay	0.06	0.01	



Graphite	0.04	0.02	
Others	0.09	0.02	
Total	100.00	100.00	100.00

Source: Economic Survey, Odisha: 2010-11

**Table 8: Distributive shares (production and value) across districts**

District	Mineral(s)	Average Share (%)	
		Production (2003-04 to 2009-10)	Value (2003-04 to 2009-10)
1	2	3	4
Angul	Coal	33.03	23.45
Dhenkanal	Chromite	0.01	0.06
Jajpur	Chromite	2.78	9.81
Jharsuguda	Coal	16.79	11.83
Kendujhar	Chromite, iron ore, manganese	31.53	39.06
Koraput	Bauxite	3.06	1.45
Mayurbhanj	iron ore	0.32	0.40
Sundergarh	Coal, iron ore, manganese, bauxite	11.44	13.17
Sambalpur	Coal	1.03	0.73
Balangir	Manganese	0.01	0.03
Rayagada	Manganese	0.001	0.01
Total		100.00	100.00

Source: Economic Survey, Odisha: 2010-11

**Table 9: Human well-being across 30 districts of Odisha**

*Quantity and value in terms of percentage contribution to all-Odisha aggregate*

District	2003-04		IMR	HI	II	CGERI	LRI	EI	HDI value	HDI Rank	EDI
	Qty.	Value									
<b>MINING DISTRICTS</b>											
Angul	41.06	40.56	95	0.48	0.75	0.89	0.69	0.76	0.66	6	
Dhenkanal	0.01	0.03	97	0.47	0.53	0.92	0.70	0.77	0.59	12	70.76
Jajpur	2.75	8.29	118	0.33	0.50	0.91	0.72	0.79	0.54	22	
Jharsuguda	16.68	16.47	71	0.64	0.76	0.89	0.72	0.77	0.72	2	
Kendujhar	25.65	23.55	117	0.34	0.55	0.92	0.60	0.70	0.53	24	74.03
Koraput	4.70	2.57	136	0.22	0.54	0.88	0.36	0.54	0.43	27	114.33
Mayurbhanj	0.22	0.19	48	0.78	0.49	0.89	0.52	0.65	0.64	9	
Sundergarh	8.93	8.34	62	0.69	0.62	0.92	0.65	0.74	0.68	4	79.06
Sambalpur	NP	NP	102	0.44	0.59	0.89	0.67	0.74	0.59	13	78.46
Balangir	NP	NP	97	0.47	0.50	0.90	0.55	0.67	0.55	21	82.12
Rayagada	NP	NP	131	0.25	0.55	0.88	0.36	0.53	0.44	25	
<b>NON-MINING DISTRICTS</b>											
Balasore			101	0.44	0.47	0.89	0.71	0.77	0.56	18	50.67
Bargarh			100	0.45	0.52	0.90	0.64	0.73	0.57	17	
Bhadrak			65	0.67	0.46	0.92	0.75	0.80	0.65	8	
Boudh			104	0.42	0.50	0.89	0.58	0.69	0.54	23	73.94
Kandhamal			169	0.01	0.52	0.88	0.53	0.65	0.39	29	
Cuttack			63	0.69	0.59	0.92	0.76	0.81	0.70	3	59.82
Deogarh			49	0.78	0.53	0.88	0.61	0.70	0.67	5	
Gajapati			143	0.17	0.56	0.85	0.42	0.56	0.43	28	
Ganjam			107	0.40	0.53	0.89	0.63	0.72	0.55	20	87.47
Jagatsinghpur			125	0.29	0.55	0.91	0.80	0.83	0.56	19	
Kalahandi			51	0.76	0.47	0.83	0.46	0.59	0.61	11	97.96

Kendrapara	77	0.60	0.47	0.90	0.77	0.82	0.63	10	
Khurda	57	0.72	0.64	0.93	0.80	0.85	0.74	1	
Malkangiri	151	0.12	0.50	0.85	0.31	0.49	0.37	30	
Nabarangpur	117	0.34	0.45	0.86	0.34	0.52	0.44	26	
Nayagarh	98	0.46	0.49	0.88	0.71	0.77	0.57	15	
Nuapada	62	0.69	0.47	0.90	0.42	0.58	0.58	14	
Puri	73	0.62	0.53	0.90	0.78	0.82	0.66	7	74.27
Sonepur	96	0.47	0.49	0.91	0.64	0.73	0.57	16	
Total	(97)	(0.4 7)	(0.5 5)	(0.90)	(0.6 4)	(0.7 2)	(0.58)		(74.05)

Source: Economic Survey 2010-11, Odisha ; Human Development Report 2004, Odisha

Note:

(1) IMR – Infant Mortality Rate (1999), HI – Health Index, II – Income Index, CGERI – Combined Gross Enrolment Ratio (6-14 years), LRI – Literacy Rate Index (2001), EI – Education Index, HDI – Human Development Index, EDI – Education Deprivation Index (= adult illiteracy % + out of school %)

(2) The figures in brackets indicate all-Odisha aggregate

**Table 10: Human development in mining vis-à-vis non-mining districts of Odisha**

	Literacy rate (%)	Education Index	Education deprivation index	Average gender disparity	Health Index	HDI
1	2	3	4	5	6	7
Mining districts	55.56	0.67	81.13	0.72	0.45	0.56
Non-mining districts	65.29	0.74	NA	0.55	0.51	0.59
Odisha	63.61	0.72	74.05	0.49	0.47	0.58

Source: Human Development Report 2004, Government of Odisha

## **Ecologically Sustainable Livelihoods in Mountain Economies: Constraints and Policy Options**

I.C.Awasthi\*

### **I. Introduction**

The mountain region covers 10 states namely Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya and Darjeeling district of West Bengal and Karbi Anglong and North Cachar districts of Assam.

The mountain economies has increasingly confronted with the challenges and problems concerning to sustainable livelihoods, mountain agriculture, persistent poverty, fragile environment, and female drudgery. Traditionally, hill people have been meeting their food and other non-food requirements through crop cultivation, livestock rearing and collection of forest produce. Increasing population along with rising aspirations of people due to expansion of development activities and better livelihood options has led to increasing pressure on land and other limited traditional resources. The cultivable land being scarce getting further fragmented with the increase of population and it has hard pressed the people to look for alternative livelihood strategies. The alternative strategies consisted of extension of cultivation on hitherto uncultivated marginal land (though limited), improvement in quality of livestock, diversification of agriculture in to high value crops such as horticulture and non-food crops for the market. But these coping strategies have limitations to provide food security to the people on a sustainable basis due to low productivity of resources and the problems associated with the hill specificities on the one hand and increasing population on the other. The limited resources, low bargaining strength, lack of appropriate institutional mechanism for access to market, credit and other inputs has severely restricted expansion of livelihood opportunities. The mountain agriculture, therefore, could not ensure food security and instead increased the vulnerability of the people.

Also, over the years pressure on land has resulted degradation of pastures and erosion of common grazing land. Horticulture (fruits and vegetables) has potential for high returns but technological and other constraints have severely restricted the scope of expansion. The agriculture is largely traditional with little diversification to potential areas according to its land capability. Improvements in agriculture technology elsewhere did not help much to the hill economy due to problems associated with hill specificities.

Though, there has been some diversification from cereal growing to horticulture (mainly fruits and vegetables) over a period of time yet it was limited to certain pockets of the economies that are generally well connected to road transport. Overall, there has been insufficient food supply within the mountain region and dependence on food imports from outside region increased. The preconditions of agriculture growth, which critically depends on the intensification of resource use, input absorption capacity, infrastructural back up and economies of scale, do not exist in the hill region due to the conditions of fragility and marginality. Also, relatively low accessibility results in limited mobility and high cost of inputs, which severely restricts the possibility of promoting staple or chief commodity and exploiting other niche products in the region. This in turn inhibits trade and specialisation to grow for market principally because neither surplus is produced nor the hill specificities permit trade to develop in a wider scale. In any case trade in the region is minimal for the market primarily because of subsistence nature of economy.

The manufacturing base in any case is miniscule in these areas, no large industries can be set up in the hilly region due to fragility, lack of transportation network (rail), markets, power and economies of scale. Village and household industries based on livestock, food processing and natural resource have been promoted but it could not generate self-reinforcing and self-sustaining forces due to small scale operation, little quantity, dispersed production and lack of access to appropriate institutions. Over a period of time the base of these industries have weakened and deteriorated. Moreover, these industries have been subjected to increasing competition from the similar products from the plain areas that are superior in terms of quality and price much cheaper than the local products. This has had an adverse impact on the local economy.

When agriculture and industrial base is weak this would obviously have far reaching implications to the hill economies. The development strategies, therefore requires to be distinct in different hill economies in view of regional specificities that need to be focused and promoted on mountain resources that has clear comparative advantages (hydro power, tourism, horticulture, and other niche products).

The paper has been structured into four sections. The first section deals with the characteristic features of mountain economies and second section describes the diversity of development patterns and growth trajectory. The third section briefly overviews the agrarian and livelihood situation in one of the mountain states namely, Uttarakhand based on empirical evidences and the final section summarises the main arguments and reports policy imperatives.

### **II. Diversity in Development Patterns**

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In spite of similar biophysical attributes among all the hill regions, the development patterns vary across the hill states in terms of various development indicators.

The case of Himachal Pradesh provides unique example among all the hill states, the transformation from subsistence agriculture to one of the lead horticulture-producing region is worth emulating. The development strategy gave primacy to development of transport network (mainly, roads), communication and hydroelectric projects. Government provided institutional support for diversifying from the traditional cereal crops to horticulture crops along with dairy development. The state also adopted an appropriate land use pattern with a view to optimizing the returns. This has significantly improved livelihood options and the income levels of the people. Health and education sector have shown impressive growth. The forests have been exploited to produce mainly timber and resin that contributes to about 35 per cent from the state (Negi, et. al, 2004). In industry, emphasis is being laid on setting up of industrial units, which are environment-friendly and based on local raw material and niche products. Industrial sector contributes nearly 15 per cent of GDP. Some of the leading industrial houses have been attracted to set up industrial units in the state and introduction of single window clearance for medium and large-scale sector has facilitated promotion of industrial units. Sustainable tourism industry has been promoted without disturbing ecology and environment. Various types of tourism is being promoted in the state such as pilgrimage, tribal, health, adventure sports, wildlife and cultural primarily to provide employment and incomes. State is endowed with vast potential of hydropower. The estimated potential is about 20,392 MW of which 6,045 MW has been so far harnessed. The state is one of the most socially progressive states in the country. It has had lowest decadal population growth after Nagaland and Sikkim, highest literacy rates next to Mizoram and Tripura and low poverty levels. It has performed better in terms of human development indicators and has substantially higher per capita consumption expenditure (second highest in the urban areas) with lower inequality of per capita expenditure. The state has highest per capita NSDP and one of the fastest growing hill economies. Employment growth has substantively increased but unemployment rate continue to increase unabated.

Despite the similar bio-physical characteristics, the development patterns vary across the hill states in terms of various development indicators. Himachal Pradesh provides one of the notable examples in the transformation process from traditional cereal crop producing to one of the lead horticulture producing regions. Himachal Pradesh has made considerable progress in terms of high literacy rates, almost universal enrolments at primary level, availability of schooling facilities and expansion in health care and physical infrastructure. In several

aspects, the State has established benchmarks that have become role models for the other hill States of the country. Focused public interventions, greater participation of women and strong local institutions have been supportive policy measures. Notwithstanding, the state has issues of concerns that need to be addressed. It has huge potential for hydro-power, tourism, excellent agro-climatic diversity for value adding agro business. The state has formulated comprehensive framework for creating investor friendly environment to ensure sustainable industrial development.

Performance of Jammu & Kashmir, on the other hand, does not seem to be that encouraging as in the case of Himachal Pradesh. The state has recorded relatively highest decadal population growth after Meghalaya and lowest overall and female literacy rates and highest gender disparity among all the hill states. Though the poverty level is the lowest after Nagaland yet per capita NSDP is low, lower than national average. The infant mortality rate (IMR) is estimated at 108 per thousand. In spite of a large natural and human resource base, the state lags behind in industrial development. The state possesses immense potential for development of the power sector but the performance has not been on a scale commensurate with the possibilities, only a mere 10 per cent of the total potential has so far been harnessed. In terms of road length per 1000 sq. Km, the state ranks the lowest (127/1000 sq km) as compared to Himachal Pradesh (542/1000sq km) and Assam (872/1000sq km). Also, the inter-district variations in accessibility of roads are very sharp. For example, in terms of road length per 100 sq. km., Budgam district has the highest road density of 81.84 km. and the districts of Leh, Kargil and Doda have poor accessibility to the tune of 2.58, 4.82 and 5.24 km respectively (Sadhu, et.al, 2004). Tourism has been the major economic activity of the state but due to insurgency within the valley since 1989 tourist inflow received a major setback. State has not made any concerted efforts for tourism diversification. The area under fruit and vegetable cultivation has increased marginally though there is immense potential for growing horticulture crops, vegetables, floriculture and medicinal herbs. There is also good potential to promoting handicrafts and handlooms industry.

Jammu & Kashmir has the one of the lowest poverty ratio among all the hill states and relatively better natural resource base but lags in industrial development. The social indicators, in particular gender discrimination in education, infant mortality is still very high. State has immense potentials for tourism and hydel power. It offers vast scope for horticulture production and has unique climate for cultivation of saffron and suitable conditions for floriculture, aromatic and medicinal plants. But these resources have not been harnessed to the extent desired. There is also good potential for promoting handicrafts and handlooms industry. However, strained Indo-Pakistan

relations and continued insurgency in the state has created major set back.

Uttarakhand being new state (carved out from the Uttar Pradesh in 2000) and the database for the independent state is not that robust as in the case of other hill states. However, some of the aggregate indicators that are available point to the state of economy. Literacy rates are impressive with relatively lower gender gap. Poverty ratio has sharply declined in recent year but urban poverty is still higher than rural poverty. State has performed relatively better in terms of development. One of the principal reasons for lower performance is that the state failed to incorporate mountain specific development as was in the case of Himachal Pradesh, such development specificity has been by and large found missing in Uttarakhand (Pokhriyal, 2004). Though there are good potentials for certain products, in which Uttarakhand is supposedly to have advantage, like hydro-electricity, wool processing, forest produce, horticulture and tourism & amenities (Awasthi, et.al, 2005). However, many of these activities could not be developed primarily due to lack of appropriate development strategy. For instance, the estimated potential of power generation is about 20,450 MW in the state of which 11.0 per cent could be harnessed till 2007. There is a huge gap between industrial activities in the plains and hills primarily because of critical constrains in the latter case. Recent Industrial Policy (2008) in particular addresses the economic development in the hills where industrial activities has been by and large considered to be dormant.

People, particularly at a higher altitude, have traditional skills and technology and have been producing wool and woolen products for market either in exchange of commodities or for money since long time but now by and large this home based activity is obliterating. Likewise, the region is well known for Hindu pilgrimage, famous glaciers, trekking, and expedition places and offer potential for development of tourism as an industry. However, the linkages of tourism industry within local economy are found to be extremely weak.

Uttarakhand has recorded impressive literacy rates with relatively lower gender gap. Though there are good potentials for hydro-electricity, tourism & amenities, horticulture, wool processing, forest produce. However, these resources have not been harnessed due to lack of economic infrastructure and institutional support. Recent economic indicators, however show much better performance in terms of sectoral growth and other development indicators in the state.

Northeast states present somewhat mixed pattern in development front. "The trauma of partition, political evolution and insurgency combined with the geographic allocation, transport bottlenecks, natural calamities, etc., have hindered the progress of the North East, and the region has experienced relatively slower

economic growth compared to the rest of the country (Planning Commission, 2002)".

Most of the states have still very high rate of population growth, though declined considerably during last 2 decades, yet most of the states have been growing much higher than national average except in the case of Tripura. Literacy has improved significantly over the years, yet it is still lower in Arunachal Pradesh compared to all India, however the gender gap in literacy is lower in comparison to other hill states. Poverty has declined in recent years but Manipur has highest ratio of poverty (47 per cent). NSDP growth in most of the states has been lower than the all India average. Unemployment rate is huge and is higher than national average. Income inequality, measured by gini-coefficient, has widened in most of these states in recent years barring Arunachal Pradesh and Manipur. Primary sector still constitutes the bulk of the labour force in all the hill states of the region and the secondary sector has remained stagnant. In some cases, the hill economies are experiencing some sort of de-industrialisation (Das, et.al; 2004). The decline in the share of the primary sector is being compensated by the rise in the share of tertiary sector and the rise in the share of public expenditure has been the cause behind the growth of the share of the tertiary sector. The economic development in these economies is yet to be rooted in self-sustaining process (Das, et.al; 2004). Sikkim, despite its impressive performance in economic and social indicators, the poverty levels and unemployment rates continues to be significantly higher and sustainability of major livelihood options (agriculture crops) in which most of the poor depended are declining or stagnating in terms of productivity levels (Papola, 2003).

Efforts to promote horticulture and cash crops as a strategic intervention to replace shifting cultivation by the government has however have been mixed and have failed to completely replace shifting cultivation. Agricultural transformation through horticulture and cash crops has raised social, economic and environmental related problems. Such transformations to horticulture and cash crops failed to satisfactorily deliver the promised economic returns, conversion to settled agriculture has increased vulnerability and has eroded the self-reliance hitherto inherent in upland agriculture (Choudhury, 2004). One of the reasons is that land management is the most neglected part of the development policy and planning of this region (Maithani, 2004). Increasing proportion of rural households with no cultivable land in the region (except in Manipur and Meghalaya) and disproportionately rising small and marginal farmers have added constrains in livelihood in rural areas (Das, 2004).

Being 'special category' states, they receive 90 per cent grant and 10 per cent loan and of these assured central assistance, they do not make any efforts to mobilise their own resources. This has resulted in

increasing dependence on central resources. Various indicators show that all the hill states of North East come under 'very low' category in overall development except Manipur, which is under 'low' category (Goswami and Gogoi, 2004).

In all the northeastern states including other hill states priority to industrialisation is low; it forms a small part of total outlay. Health allocation is also low, in most of the states.

Northeast states have remained industrially most backward region. Decadal population is still very high in majority of states (Nagaland, Mizoram, Meghalaya, Arunachal Pradesh and Manipur) compared to all India average. Per capita income is lower than the national average. North east region continues to be the net importer of food grains. Bulk of labour force is engaged in agriculture and allied activities with high unemployment rates, particularly among youth.

Most of the hill states have good potential for development particularly in horticulture, hydro power generation, tourism and other location specific products. The region has also good potential for petroleum and natural gas resources (North eastern region). Despite of good resource base, there is acute deficiency of critical economic infrastructure in the region. There is need for creating institutions and building capacity in order to unleash and spur development activities.

### **III. Subsistence Agriculture and Livelihood Diversities: Case of Uttarakhand**

Uttarakhand hill region is characterised by subsistence agriculture and any drastic transformation within cereal-based agriculture on terraced type cultivation has obvious limitations to expand its land-based activities. The industrial base, in any case, is precariously small and large-scale industrial activity is neither possible nor desirable from the point of view of ecological and environmental considerations. From long term perspective, traditional agriculture with its low productive base and rudimentary industrial activities does not seem to be a viable and/or sustainable option for providing employment and livelihood to the burgeoning labour force. This precisely makes a strong case for diversification within agriculture sector according to its potential land capability and also for promoting other non-farm pursuits.

#### ***(i) Multiplicity of employment***

People deriving income from different sources are the most common features in poor regions as single source of income is hardly sufficient to eke out living. It is common to our understanding that poor regions are generally characterized by underdevelopment in terms of its resource base both physical and human and various factors reinforces it to remain at low equilibrium trap in development trajectory. This is more so in agrarian economies, which have abundance

of labour supply that is manifested in terms of huge unemployment and underemployment in various forms. Lewisian development framework precisely deals with this kind of phenomenon and it is argued that industrialization process would eventually help to graduate backward economy in to development process with near full employment. However, such development hypothesis has not proved correct and people in poor regions continue to have their dependence on multiple sources of income for living, despite the fact that there has been industrial development in other regions. Engagement in multiple sources of livelihoods is most common not only among poor but relatively well-off households in order to augment their incomes. The two different processes seem to work simultaneously; first as a deliberate household strategy to enhance income as an involuntary response to crisis situation (Stark, 1991) and secondly to seize opportunities as a means of accumulation (Davies, 1996). In poor regions people depend on various sources of employment primarily because of sustenance in the absence of any sole option of employment. Multiple economic activities are most pervasive and widespread among different groups of population in the survey areas in Uttarakhand, manifesting symptoms of backward economy.

It can be observed that about 26 per cent among all the workers have single or sole activity while a large majority of them (74 per cent) resort to more than one activity (Table:1). It is most common feature in all the blocks and districts in the hill region of the state. Apparently, there does not seem to be operating a single pattern of activities in different workers' group, rather different processes seem to work simultaneously across that govern the pluriactivity of work pattern. These processes are governed by the opportunities and options of livelihood available to the population by operating in several labour markets. Interestingly, landless workers seem to be depending primarily on the single activity (68 per cent), probably because the lack of opportunities and alternative options available to them due to entry barriers in the labour markets. This could precisely be the reason for lowest household incomes in this group. While in the case of marginal and small landholding classes, dependence on multiple activities increases in order to augment their household income. However, in the medium landholding class such dependence on multiple activities declines, probably because household have relatively higher incomes from agriculture and animal husbandry and other assured sources of incomes such as from pension and other incomes. Monthly per capita income (MPCI) group shows inverted U shape curve, initially dependence on singular employment rises with rise in income levels but later tapers off as income levels rises. In the higher income group dependence on single employment declines and that of multiple employment rises. Educational levels also indicate somewhat similar pattern, initially dependence on single employment

increases as we move to higher levels of education (up to intermediate) but then such dependence gradually declines and multiplicity of employment rises.

Such a huge dependence on multiple activities seems to be common feature in the mountain economy where cultivation is not only seasonal but the income from this activity is low (20 per cent) that is not enough to provide livelihood beyond a few months in a year. Animal husbandry, though more or less perennial activity, at best supplements the household incomes. Therefore, multiple engagements in activities form an important part of household strategy. Though there does not seem to be perceptible variations in the activities pursued in the developed and less developed blocks yet developed blocks showing greater intensity of multiplicity of activities. This kind of phenomenon indicates relatively better livelihood opportunities available in the developed blocks.

This finding of present study dispel the commonly derived hypothesis that poor households derive their income from multiple sources as part of their survival strategy while the relatively better off households and individuals depend on few and stable sources of incomes (Ellis, 2000; Gordon & Craig, 2001). It can be argued that in relatively less developed regions, lack of opportunities constrict the people to enter in the labour market while in the relatively developed region people seize the existing opportunities for better remunerated activities.

**Table: 1 Multiplicity of Employment among All Workers**

Household feature	One employment	Two employment	Three employment
<b>Social category</b>			
<b>Land class (acre)</b>			
Landless	67.44	23.26	9.30
Marginal	24.68	51.56	23.76
Small	19.63	52.34	28.04
Medium	27.78	50.00	22.22
<b>Income group (MPCI)</b>			
Up to Rs.250	19.35	62.37	18.28
Rs.250 to 500	23.58	55.40	21.02
Rs.500 to 1000	29.82	46.86	23.32
Rs.1000 to 2500	24.70	47.32	27.98
More than Rs.2500	22.58	51.61	25.81
<b>Educational levels</b>			
Illiterates	25.44	52.96	21.60
Primary	19.08	50.00	30.92
Middle	24.48	50.21	25.31
High school	29.73	49.81	20.46
Intermediate	31.01	47.47	21.52
Graduate and above	22.00	54.00	24.00
Technical	20.00	30.00	50.00

<b>Development status of blocks</b>			
Less developed	27.70	52.62	19.67
Developed	23.92	48.77	27.31
<b>Total</b>	25.76	50.64	23.61
Number of workers	324	637	297

Source: Field Survey, 2004-05.

Extent of multiplicity of employment increases sharply among principal workers. About 92 per cent principal workers are such who are engaged in more than one type of employment. In the rural areas such multiplicity of activities is not unusual phenomenon and almost every principal worker is engaged either in cultivation or in animal husbandry activity.

**(ii) Average days of employment**

Average annual days of employment available in agriculture and allied activities are indeed very low in the hill areas. This is primarily because the nature of hill agriculture that poses insurmountable problems in terms of small, fragmented and scattered land holdings where only limited traditional crops can be had in a year and there is little scope for expansion either in terms of area or bringing about radical technological transformation. Irrigation facilities are very low and agriculture is mainly rainfed and use of HYVs and other chemical fertilizers is very low resulting in low productivity and low returns from agricultural crops. All these factors lead to limited food availability hence the food insecurity that is common feature in many parts of the hill districts in the state. Although, people seem to be working very hard in agriculture activities yet it does not provide employment beyond few months in a year. On an average agriculture and allied activities provide employment to about 56 days in a year for males while for females it provides for about 106 days employment (Table:2). Generally, in the context of hill agriculture animal husbandry provides more days of employment than agriculture particularly for females. This is principally due to the fact that agriculture is seasonal activity while the animal husbandry is perennial activity through out the year. It is quite intriguing to observe that despite heavy engagement in agriculture and allied activities it provides employment not beyond two months for males and three and half months for females. Across development blocks one does not find any perceptible variations. However, it can be observed that the relatively developed blocks have generally higher person day's employment compared to less developed blocks.

**Table: 2 Average Annual Person Days of Employment Per Worker**

District	Block	Agriculture and allied (days)	
		Male	Female
Almora	Hawalbagh	57	118
	Salt	53	108

Pithoragarh	Dharchula	56	114
	Berinag	55	102
T.Garhwal	Chamba	63	112
	Kirtinagar	51	99
Uttarkashi	Bhatwari	60	88
	Dunda	54	98
Social category	Brahmin	56	108
	Kshatriya	59	113
	SC	45	80
	ST	58	87
	Others	55	94
Land class	Landless	35	70
	Marginal	55	105
	Small	63	114
	Medium	74	118
Age-group	0-5	-	-
	6-14	25	40
	15-29	41	100
	30-59	70	121
	59+	62	93
Development status of blocks	Developed	59	109
	Less developed	54	102
<b>Total</b>		<b>56</b>	<b>106</b>

Source: Field Survey, 2004-05.

The reasons for higher days of employment in the relatively developed blocks could be due to more areas under horticulture crops leading to commercialisation of agriculture (vegetables, fruits and other non-food crops) compared to relatively less developed blocks (Table:3). This supports our hypothesis that diversification in to high value crops promotes more employment and incomes. Across caste category, scheduled caste has the lowest person day's employment available in agriculture and allied activities both for males and females and highest being for upper castes Kshatriya and Brahmin. SCs have the lowest days of employment available in agriculture and allied activities primarily because of lowest asset base (land, for example) that makes difficult to enhance their endowment base hence provide limited days employment in agriculture and animal husbandry. STs have relatively higher day's employment available, particularly for males, despite the fact that they have also lower per capita land available for cultivation. The reason for this is that STs are generally settled in higher altitude where agro-pastoralism is dominant and certain horticultural crops such as potato, radish, apple, *razma* (kidney beans) are grown in abundance along with animal husbandry (herd of sheep and goats) that provides raw wool for making woollen garments, which is the traditional occupation of the tribal community. Availability of days of employment and size of land class are positively correlated, higher the land size class the higher is the availability of man days and rightly so. This clearly indicates that land

endowment is the most important factor in determining the intensity of employment of a worker. Higher size of land obviously helps to employ more number of people, whatsoever the level of productivity of people engaged in it.

Across age groups, days of employment increases gradually in the higher age-group, lowest being in the age-group 6-14 and highest in the age-group 30-59 but then drops in the highest age-group 59 and above and rightly so. It is common in the hill districts that even school going children (age-group 6-14) help their parents in agriculture and allied activities, particularly in harvesting season when the pressure of work increases. Female children are more conspicuously engaged than their male children counterparts. While agriculture being the seasonal activity, the animal husbandry is perennial one that requires constant care and rearing animals. Children perform various activities such as taking animals for grazing, giving fodder and water, cutting fodder and bringing from the fields, cleaning the place of stay of these animals and sometimes milching the cows and buffaloes etc. It is also observed that relatively developed blocks have higher intensity of employment than the less developed ones, albeit marginally. The intensity of employment, therefore (per person annual person days of employment) is very low in the hill areas of Uttarakhand.

**Table: 3 Area under Horticultural Crops (Acres)**

District	Block	Gross cropped area	Area under horticulture	Per cent
Almora	Hawalbagh	64.33	23.89	27.08
	Salt	85.85	0.00	0.00
Pithoragarh	Berinag	72.57	5.47	7.00
	Dharchula	61.10	12.50	16.98
T.Garhwal	Chamba	20.75	18.41	47.01
	Kirtinagar	46.63	2.66	5.39
Uttarkashi	Bhatwari	12.00	24.83	67.42
	Dunda	32.62	1.95	5.64
<b>Total</b>		<b>395.85</b>	<b>89.71</b>	<b>22.66</b>

Source: Field Survey, 2004-05.

Average days of employment in casual works turns out to be about 51 days for males and 43 days for females per annum (Table: 4). It is very low indeed and the nature of employment is such that people have to find multiple sources of employment to cope their living. Casual employment is mostly available in construction activities both in private and public



domain. Most common activities are construction of individual houses and construction of roads, culverts, bridges and buildings in public works. However, it needs to be mentioned here that such jobs in the construction sector are not necessarily available within the boundaries of villages. The fact is that some of these jobs are available through daily commuting to nearby towns and rural bazaars. However, the access to such jobs for females is somewhat limited owing to various socio-economic barriers and inhibitions. It is interesting to note that days of employment in casual works is higher in relatively in less developed blocks and female casual employment in particular is distinctly visible only in less developed blocks. For females, casual employment in construction activities is not very encouraged due to social and cultural inhibitions, however casual works in agricultural activities is most common for landless and poor families. However, agriculture and allied activities does not ensure such employment beyond few days in weeding and harvesting season and casual employment in construction then becomes economic necessity particularly for poor and landless families. It can be seen that females are employed in construction activities only in two blocks, which are relatively less developed varying from 30 to 45 days employment.

Across social category, the dependence on casual employment is highest (in terms of days of employment available) among SCs (both males and females) followed by Kshatriya and Brahmin in that order and STs, on the other hand, have lowest days of employment available. One of the reasons for higher and lower dependence on casual type of employment is lack of assets (land, for example), low educational levels and non-availability of other regular sources of earnings that forces people to go for casual type of jobs involving hard physical labour. Also, availability of such employment is important, and such opportunities are most likely available in rural bazaars and nearer to block and district headquarters. Proximity to such centres is perhaps the most important factors that generate variety of development activities and earning sources in construction and related activities. Dependence on casual works is higher among the sub-marginal, landless and marginal land holding classes and dependence on such employment gradually declines in the higher land size classes and the fact that none from the medium land holding class is available for casual type of employment. No one is reported having engaged in casual employment up to age 14 years and the days of casual employment for males increases with higher age-groups while declines for females.

**Table: 4 Average Annual Person Days of Employment Per Worker**

District	Block	Casual employment (days)	
		Male	Female
Almora	Hawalbagh	59	-
	Salt	42	30
Pithoragarh	Berinag	62	-
	Dharchula	43	-
T.Garhwal	Chamba	53	-
	Kirtinagar	54	45
Uttarkashi	Bhatwari	40	-
	Dunda	57	42
Social category	Brahmin	42	25
	Kshatriya	53	40
	SC	56	49
	ST	33	-
	Others	37	-
Land class	no land	48	35
	>0 <= .50	52	44
	>.50 <= 2.50	52	-
	>2.50 <= 5.0	45	-
Age-group	0-5	-	-
	6-14	-	-
	15-29	47	44
	30-59	51	43
	59+	56	34
Development status of blocks	Developed	49	-
	Less developed	53	43
Total		51	43

Source: Field Survey, 2004-05.

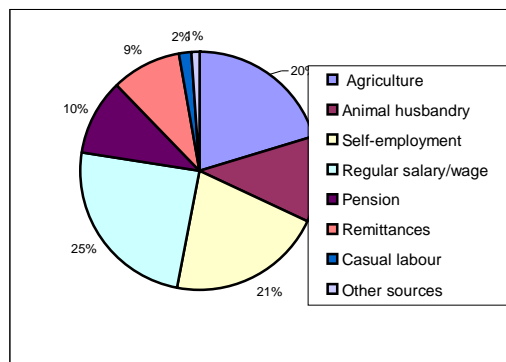
### (iii) Income and earnings:

Income is the outcome of diverse portfolio of activities perused by the rural households from cultivation, animal husbandry, casual wage works, regular wage works and other non-farm activities etc. Income is accrued from these diverse activities as well as from transfer income such as pension and remittances. Sources of income are determined by various factors such as assets base of the households (farm and non-farm), level of education and skill attainment and employment opportunities available.

Cultivation and animal husbandry activities together contribute to about one third (32 per cent) of the total income. Regular employment is yet another important source of income that constitutes about 25 per cent followed by self-employment activities contributing to about 21 per cent income. Transfer income (pension) also contributes substantively (10 per cent) and remittances accounts for about 9 per cent to the total household income. Uttarakhand hill economy has been postulated as highly dependent on remittance income and often termed as money-order economy; however this line of argument does not seem to bear much empirical evidences. Income from casual income (including government programmes) is minuscule

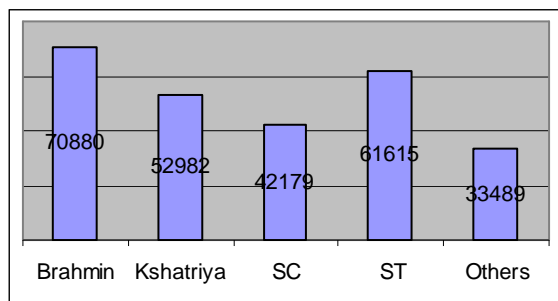
contributing 2 per cent in the share of household income (Figure: 1).

**Figure: 1 Proportion of Income from Different Sources**



Share of income varies across household features from different activities. It can be observed that the household income of Brahmins and ST is significantly higher compared to other social categories. Average annual income of 'other caste' is the lowest followed by SC (Figure: 2).

**Figure: 2 Average Annual Incomes by Social Category**



Majority of Brahmins and ST are associated with highest income quintiles, while the poorest social groups-- the SC and the 'other caste'-- are concentrated in the lowest income quintiles and the Kshatriya are in the middle quintiles (Table:5).

**Table: 5 Distribution of Household Population by Social Category and Income Quintile Groups**

Per capita income quintile group	Brahmin	Kshatriya	SC	ST	Others
Bottom	14.55	23.14	25.93	2.00	33.33
2nd	14.55	20.09	33.33	6.00	41.67
3rd	14.55	21.40	20.37	18.00	25.00
4th	21.82	20.09	9.26	34.00	0.00
Top	34.55	15.28	11.11	40.00	0.00

Total	100.0	100.0	100.0	100.0	100.0
	0	100.00	0	0	100.00

Source: Field Survey, 2004-05.

Typically the hill economy of Uttarakhand showing higher female LFPR than the males that has distinctly come out from the field data and also corroborates with the Census and NSS data. Survey data also shows that there is highly gender biased work structure in the rural areas of the state as women overwhelmingly work in agriculture-related occupations while their male counterparts work in non-farm occupations. This is primarily because the subsistence farming economy with precarious industrial base. Agriculture assumes the predominant sector for employment for large majority of labour force with little surplus generating capacity and by and large this sector acts as labour sponge, in particular for the females. Non-farm activities constituting petty trade and business, wage/salaried employment and casual employment particularly in construction activities have been by and large male dominated activities and female have a very low share in these activities. Generally, developed blocks showing higher share in non-farm activities than the less developed ones primarily because of diversification from cereal crops to horticulture crops and better infrastructure and proximity to block and district headquarters.

Agriculture is increasingly becoming an uneconomic family enterprise, and employment opportunities outside agriculture are extremely limited, particularly for females. Within farm sector there is huge incidence of underemployment in terms of unutilised labour time and majority of rural households are forced to diversify their activities as a part of their survival strategy to cope seasonality and uncertainty of production. The survey results clearly show that the problem of unemployment is huge one in the hill districts of the state and it is more pronounced among relatively less developed blocks than the relatively developed blocks. Unemployment is concentrated more among lower social classes and among landless class. Intensity of unemployment is visible among the higher educated categories.

Females are disproportionately represented in the agriculture and allied activities (90 per cent) with low levels of education and a very high proportion of them are illiterates. Generally low levels of education of a large majority of workers in rural areas of Uttarakhand, particularly of females, have implications from the policy perspective for their employability outside the agriculture. Their low educational levels can hardly help them to secure employment, outside agriculture.

Average annual days of employment available in agriculture and allied activities are indeed very low in the hill areas. Although, people seem to be working very hard in agriculture activities yet it does not provide employment beyond few months in a year. On an average agriculture and allied activities provide

employment to about 56 days in a year for males while for females it provides for about 106 days employment.

However, it can be observed that the relatively developed blocks have generally higher person day's employment compared to less developed blocks. The reasons for higher days of employment in the relatively developed blocks could be due to more areas under horticulture crops leading to commercialisation of agriculture (vegetables, fruits and other non-food crops) compared to relatively less developed blocks. Availability of casual employment is less than two months (50 days) in a year, providing on an average 51 days employment for males and 43 days for females.

Multiple economic activities are most pervasive and widespread among different groups of population in the survey areas in Uttarakhand, manifesting symptoms of backward economy. The average annual income of the households is estimated to be low with significant variations across different castes and land size classes. The principal reasons for variations of income across the castes are linked closely to the asset base of the households and also educational and skill levels that have overarching influence on income generating capacity. It can be observed that the relatively developed blocks showing low proportion of their population in the low income groups and less developed blocks showing relatively higher proportion of population in the lower income groups.

A large majority of workforce (75 per cent) is engaged in agriculture and allied activities contribute to about one third of total household income and mean earnings from this source is lowest compared to that of self-employed and casual wages in non-farm activities that validate our hypothesis that this sector has limited potential for absorption of growing labour force productively.

#### **IV. Policy Implications**

The present paper brings out the some of the major issues that have wider ramifications for policy formulation and implementation with a view to improving livelihoods in the mountain regions. Some of the results have direct implications for policies and programmes based on evidences drawn from conceptual framework of mountain economies and supplemented by household survey in one of the states (Uttarakhand) that have great underpinning to evolve long term policy for sustainable livelihood security and raising living standards.

##### ***(i) Diversification strategy***

Traditional hill agricultural practices have become increasingly uneconomical and therefore there is a need for diversifications from field crops to horticulture and non-food crops that have enormous potential for improvement in livelihoods and income generation. Area studies have also indicated that there has been substantial transfer of area from cereal production to vegetable production with greater advantages to the farmers in terms of income and employment. From the

long-term perspective, this shift from low value field crops to high value added horticultural crops seems to be most obvious and strategic option in the region. However, lack of proper institutional mechanism such as credit, processing, storage, post-harvesting technologies and marketing network have severely hampered the systemic growth of this sector in Uttarakhand. If all these services are efficiently organised with necessary institutional back up, horticulture can generate significant employment and earning opportunities in the region. In certain parts of the region, particularly in lower and middle Himalayas, it offers significant scope for development and even could become a lead sector. Establishment of linkages from growers to local processing and to large plants (within and outside region) is most crucial for sustainable growth of horticulture. Enterprise based activities, based on local resources, is critical for sustainable employment generation and for enhancing income levels, which in turn can help in improving the living standard of the people. With appropriate policy interventions it is possible to develop enterprise-based activities that would provide higher income through processing and value addition, and help develop upstream and downstream linkages necessary to generate internal momentum of growth. Such enterprise-based activities have been developed in certain parts of the hilly areas in the HKH region based on niche products.

Experience of Himachal Pradesh is worth emulating for development of horticulture. Our findings also support the hypothesis that higher area under horticulture helps restrict out-migration. It is therefore important from policy point of view to promote this segment with adequate support system.

Improving the asset base of the poor is crucial. Present research evidence has shown that poor farm households often lack assets (such as land, education and skill) that serve as important capacity variables for participating in RNF activities. However, in view of limited availability of cultivable land, it becomes an extremely difficult policy option to redistribute or distribute land to those who are landless or fall in sub-marginal category. Developing appropriate education and marketable skills are therefore the other important policy options for accessing employment in the skilled labour market.

##### ***(ii) Development of appropriate educational and skill structure***

In spite of relatively distinct resource base and potential for the development of numerous non-farm activities and enterprises in the state, its potential has not been fully exploited to the extent its resource base permits within the constraints of fragile environment. There is a need for converting these physical resources into outcomes in terms of enterprises with value addition activities, capacity building and human resource development. Transformation from the physical into real resource base would generate demand for

numerous types of new skills and competencies, which would ultimately create employment and incomes in the productive activities. For this, the education system has to be made relevant and this would require revamping of existing educational system towards meeting the requirements of the emerging skill structure. Relevance implies a correspondence between the nature of skills required by the enterprises and the type of skills provided by the educational and training institutions.

In this context, vocationalisation of education is of paramount importance with a focus on emerging and market oriented trades. It is critical and so central in a rapidly changing economic environment that has profound impact on the production process, the demand pattern and the skill requirements. Such a change in economic structure requires not only huge capital investment but also a workforce that has the flexibility to acquire new skills for new jobs as the structure of economy and occupation changes.

Vocational education is not only grossly inadequate in the state but seems to be less relevant to the needs of economy. Technical courses like ITIs and Polytechnics suffer from declining intake, obsolete trades, poor infrastructure and weak industry-education linkages. Many professional courses are mushrooming, albeit in recent years, but then without corresponding to the emerging demand of economy in terms of skill and competency levels, they remain qualitatively at sub-optimal levels. Without any evaluation and impact assessment on regular basis, its efficacy to respond the needs of changing economic environment remains largely unknown. Such a situation might result in low returns, which would not be a viable form of investment in the long run, and this kind of situation needs to be corrected by setting some standards and benchmarking with a view to improving the quality of these institutions.

Mismatch is largely due to lack of relevance of course curriculum and inflexibility in education system that does not respond to the changing economic environment. Unless these technical and vocational courses are qualitatively improved to make them marketable, they would continue to become less relevant to the needs of the market. The policy message seems fairly straightforward. Efforts to improve relevant marketable skills are important in an effort to promote employment into high income and the importance of enhanced rural skill base for development of the rural non-farm (RNF) sector is incontrovertible. Our regression results clearly reveal that education and skill are strong determinants for enhancing household income.

### *(iii) Micro-enterprises and its linkages*

A substantively large majority of enterprises appear to be dominated by trade and household manufacturing activities with narrow profile of activities. This kind of enterprise-based activity has limited product lines, carried out on a small scale with little surplus for

reinvestment. There are sizeable constraints in terms of scale and efficiency that result in weak linkage effects. Entrepreneurial activities suffer from numerous internal and external constraints. But over the years, these enterprises are languishing and operating at a low equilibrium trap with little product diversification and surplus. The major reasons for sickness of these enterprises can be attributed to both the supply and demand side aspects.

Rural areas appear to be poorly equipped in terms of economic (roads, electricity, communication etc.) and social infrastructures (vocational and training institutions, market information, access to credit institutions etc). Some of these constraints are typically associated with hill specificities (inaccessibility and fragility, for example) that pose constrain to spur entrepreneurial activities.

Family labour is more prominent in the rural enterprises with minuscule hired labour. Access to various supply side inputs (e.g. credit, technology and market) is low and most of the output of these enterprises is meant for the local markets. Demand is low primarily because of extremely low incomes and purchasing power of those who work. In any case, this is an inadequate base for growth. But, if demand for its output is to grow significantly, it is necessary to strengthen market linkages. Input linkages are extremely weak to the local economy that generate little or no value addition to the enterprises.

It is argued here that mountain areas should primarily focus on niche products in which the region has comparative advantage rather than producing those products that does not have distinct advantage in terms of product and price competitiveness. However, there is a need for evolving special policies and support mechanisms to promote the micro and small enterprises taking into account the diversity and constraints in the regions.

Adequate employment opportunities can not be generated unless productive base of economy is enhanced. This would require sector-specific development strategies integrating environmental, economic and social components of sustainable mountain development. For this, detailed planning is a prerequisite in the region and within regions due to enormous diversity in terms of suitability of land and other resources. In fact, land capability differs considerably according to altitude and slope of the hills, therefore there is a need for appropriate land use patterns across regions and sub-regions.

It is therefore necessary to formulate mountain perspective framework that incorporates growth with equity and that addresses the issues like mountain agriculture, persistent poverty, sustainable livelihood, environment sustainability and gender dimension. Such perspectives would call for an integrated approach to development dovetailing the mountain specificities adequately in order to achieve the desired objectives.

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## Sustainable Development through Organic Farming in India

Varun Mahajan\*

### I. Introduction

Sustainable development has caught the imagination and action all over the world for more than a decade. Sustainable agriculture is necessary to attain the goal of sustainable development. According to the Food and Agriculture Organization (FAO), sustainable agriculture "is the successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of environment and conserving natural resources". All definitions of sustainable agriculture lay great emphasis on maintaining an agriculture growth rate, which can meet the demand for food of all living things without draining the basic resources. Organic farming is one of the several approaches found to meet the objectives of sustainable agriculture.

Organic farming is the form of agriculture that relies on techniques such as crop rotation, green manure, compost and biological pest control to maintain soil productivity and control pests on a farm. Organic farming excludes or strictly limits the use of manufactured fertilizers, pesticides (which include herbicides, insecticides and fungicides), plant growth regulators such as hormones, livestock antibiotics, food additives, and genetically modified organisms. International Federation of Organic Agriculture Movements (IFOAM) defines the overarching goal of organic farming as "Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved."

#### *Organic farming practices*

- Wide crop rotation as a prerequisite for an efficient use of on-site resources.
- Very strict limits on chemical synthetic pesticide and synthetic fertilizer use, livestock antibiotics, food additives and processing aids and other inputs.
- Absolute prohibition of the use of genetically modified organisms.
- Taking advantage of on-site resources, such as livestock manure for fertilizer or feed produced on the farm.
- Choosing plant and animal species that are resistant to disease and adapted to local conditions.

- Raising livestock in free-range, open-air systems and providing them with organic feed.

### II. Review of Literature

**Mader, P et.al.**(2002) reported results from a 21 year study of agronomic and ecological performance of bioorganic and conventional farming systems in Central Europe. They found that crop yields to be 20% lower in the organic systems, although input of fertilizer and energy was reduced by 34 to 53% and pesticide input by 97%. Enhanced soil fertility and higher biodiversity found in organic plots may render these systems less dependent on external inputs.

**Shirsagar** (2008) studied the impact of organic farming on economics of sugarcane cultivation in Maharashtra. The study was based on primary data collected from two districts covering 142 farmers, 72 growing Organic Sugarcane (OS) and 70 growing Inorganic Sugarcane (IS). The results concluded that OS cultivation enhances human labour employment by 16.9 per cent and its cost of cultivation is also lower by 14.2 per cent than IS farming. Although, the yield from OS was 6.79 per cent lower than the conventional crop, it is more than compensated by the price premium received and yield stability observed on OS farms. Overall, the OS farming gave 15.63 per cent higher profits than IS farms.

**Reddy** (2011) conducted tests of significance for paddy in Andhra Pradesh. From Frontier Regression analysis it was found that independent variables such as farm yard manure, total organic manures, nitrogen and other nutrients were positively significant at 1 percent level. This means that with increase in expenditure on independent variables, there was an increase in yield. For paddy, a combination of neem cake and sheep penning application realised the highest technical efficiency. This emphasises the argument that policy makers and agricultural scientists should look at some of the traditional practices as well as ones that have been recently picking up such as application of neem cake.

**Thapa** (2011) examined the adoption and extent of organic vegetable farming (OVF) in Thailand based on information collected from 172 sample vegetable farmers. The results have indicated that slightly more than half of the sample farmers were growing organic vegetables. The result of the Logistic Regression analysis performed to find out the factors that determine the adoption of OVF, found significant influence of several factors including women's leading role in OVF, motivation by GOs and NGOs, motivation by community members and farmers' groups, attendance in training, satisfaction with the price of organic vegetables, and the intensity of pest hazard. Moreover, the Linear Regression analysis carried out to explore the determinants of the extent of OVF at farm household level revealed three significantly influencing factors, namely: the amount of organic fertilizers such as farm yard manure and compost produced by farmers themselves, perception

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of the harmful effect of inorganic pesticides and the length of experience in growing vegetables.

### **III. Emergence and Development of Organic Farming**

The development of the organic farming worldwide had gone through three stages, emergence, expansion, and growth in chronological sequence.

#### *Stage of Emergence (1924-1970)*

#### *Stage of Expansion (1970-1990)*

The research and practice of organic agriculture expanded worldwide after the 1960s. The expansion of organic agriculture started with the oil crisis of 1973. This was a time of new ideas, significant sociological transformations, protest movements and the proliferation of alternative life styles. The new thoughts in terms of using natural resources rationally, protecting the environment, realizing low input and high efficiency, ensuring food security, returning to the earth and maintaining a sustainable development of agriculture, such as organic, organic-biological, bio-dynamic, ecological, and natural agriculture, were remarkably developed in their concepts, research and practical activities (Shiming and Sauerborn; 2006). Largest non-governmental organization of organic agriculture in the world - IFOAM (International Federation of Organic Agriculture Movements) was founded in 1972.

#### *Stage of growth (since 1990)*

The organic farming worldwide entered a new stage of growth in the 1990s. The trade organizations for organic products were founded, organic farming regulations were implemented, and organic farming movement was promoted by both governmental and non-governmental organizations.

### **IV. Methods of Organic Farming**

#### *Soil management*

Plants need nitrogen, phosphorus, and potassium, as well as micronutrients and symbiotic relationships with fungi and other organisms to flourish, but getting enough nitrogen, and particularly synchronization so that plants get enough nitrogen at the right time (when plants need it most), is likely the greatest challenge for organic farmers. Crop rotation and green manure help to provide nitrogen through legumes. Crop residues can be ploughed back into the soil, and different plants leave different amounts of nitrogen, potentially aiding synchronization. Biological research on soil and soil organisms has proven beneficial to organic farming. Varieties of bacteria and fungi break down chemicals, plant matter and animal waste into productive soil nutrients. In turn, they produce benefits of healthier yields and more productive soil for future crops.

#### *Weed management*

Organic weed management promotes weed suppression, rather than weed elimination, by enhancing crop competition. Organic farmers integrate cultural, biological, mechanical, physical

and chemical tactics to manage weeds without synthetic herbicides. Cultural practices used to enhance crop competitiveness and reduce weed pressure include selection of competitive crop varieties, high-density planting, tight row spacing, and late planting into warm soil to encourage rapid crop germination. Mechanical and physical weed control practices used on organic farms can be broadly grouped as tillage, cultivation and mulching. Some naturally-sourced chemicals are allowed for herbicidal use.

#### *Controlling other organisms*

Organisms aside from weeds that cause problems on organic farms include arthropods (e.g. insects, mites), nematodes, fungi and bacteria. Organic farmers use a wide range of Integrated Pest Management practices to prevent pests and diseases. Organic farmers often depend on biological pest control, the use of beneficial organisms to reduce pest populations. When these practices are insufficient to prevent or control pests an organic farmer may apply a pesticide. With some exceptions, naturally-occurring pesticides are allowed for use on organic farms, and synthetic substances are prohibited. Pesticides with different modes of action should be rotated to minimize development of pesticide resistance.

#### *Genetic modification*

A key characteristic of organic farming is the rejection of genetically engineered plants and animals. On October 19, 1998, participants at IFOAM's 12th Scientific Conference, where more than 600 delegates from over 60 countries voted unanimously to exclude the use of genetically modified organisms in food production and agriculture. The dangers that genetic modification could pose to the environment and/or individual health are hotly contested.

### **V. Relevance of Organic Farming in India**

The need for organic farming in India arises from the unsustainability of agriculture production and the damage caused to ecology through the conventional farming practices. The conventional method of farming adopted by other countries is inherently self destructive and unsustainable. The monoculture of high yielding seeds required external inputs of chemical fertilizers. The fertilizers also destroy soil organisms. They damage the rhizobia that fix nitrogen and other micro organisms that make phosphates available to plants (Wadia, 1996). The long term effect was reduction of crop yields. The damaged soil was easily eroded by wind and water. The eroding soil needed use of continuously increasing quantities of fertilizers, much of which was washed/leached into surface and underground water sources.

Science and technology have helped man to increase agricultural production from the natural resources like land. But the realization that this has been achieved at the cost of the nature and environment, which support the human life itself, is

becoming clear. Ecological and environmental effects have been highly publicised all over the world. Organically cultivated soils are relatively better attuned to withstand water stress and nutrient loss. Their potential to counter soil degradation is high and several experiments in arid areas reveal that organic farming may help to combat desertification (Alam and Wani, 2003). India, which has some areas of semi-arid and arid nature, can benefit from the experiment.

The national productivity of many of the cereal crops, millets, oilseeds, pulses and horticultural crops continues to be one of the lowest in the world in spite of the green revolution. The fertilizer and pesticide consumption has increased manifold; but this trend has not been reflected in the crop productivity to that extent. The country's farming sector has started showing indications of reversing the rising productivity as against the increasing trend of input use.

### 5.1 Adverse Affects of Modern Farming Technology

Modern agriculture is based on the use of high yielding varieties of seeds, chemical fertilizers, irrigation water, pesticides, etc., and also on the adoption of multiple cropping systems with the

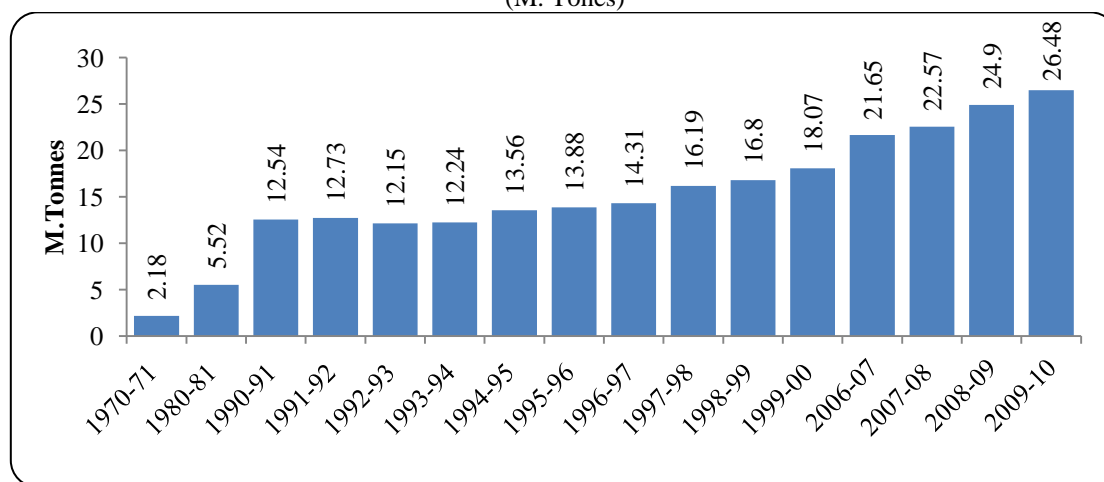
extension of area under cultivation. But it also put severe pressure on natural resources like, land and water. However, given the continuous growth of modern technology along with the intensive use of natural resources, many of them of non renewable, it is felt that agriculture cannot be sustainable in future because of the adverse changes being caused to the environment and the ecosystem.

### Chemical Contamination

#### Fertilizers

Consumption of chemical fertilizers (N, P, K) has been increasing in India during the past thirty years at a rate of almost half a million tonnes on an average, a year. The consumption of fertilizer was only 2.18 mt in 1970-71 but it increased to 5.52 mt in 1980-81, 12.54 mt in 1990-91 and 26.48 mt in 2009-10. It is true that the increasing use of fertilizer at high rates has boosted agricultural production in the country. But it has also caused adverse impact on soil and water as well as environment. Several studies on the effects of high level of fertilizer application on soil health have confirmed the adverse impacts (Singh et. al., 1995). Both drinking and irrigation water wells in large numbers have been found contaminated with nitrates, some of them are having even 45 mg per litre, well above the safe level.

**Figure1: Consumption of fertilizers**  
(M. Tones)



Source: Economic Survey

#### Pesticides

The use of pesticides has helped in increasing agriculture production and also led to the development of resistance in pests, contamination of the environment and resurgence of many pests. Almost all pesticides are toxic in nature and pollute the environment leading to grave damage to ecology

and human life itself. This indiscriminate use leaves toxic residues in foodgrains, fodder, vegetables, meat, milk, milk products, etc. besides in soil and water (Dhaliwal and Singh, 1993). High doses of pesticides severely affect the aquatic animals, fish and the wild life.



**Table 1: Pesticides in our food**

Food product	Contaminant pesticides
Apples	Diphenylamine, Captan, Endosulfan, Phosmet, Azinphosmethyl
Bananas	Diazinon, Thiabendazole, Carbaryl
Cabbage	Methamidophos, Dimethoate, Fenvalerate, Permethrin, BHC
Carrots	DDT, Trifluralin, Parathion, Diazinon, Dieldrin
Cauliflower	Methamidophos, Endosulfan, Dimethoate, Chlorothalonil, Diazinon
Grapes	Captan, Dimethoate, Dicloran, Carbaryl, Iprodione
Onions	DCPA, DDT, Ethion, Diazinon, Malathion
Potatoes	DDT, Chlorpropham, Dieldrin, Aldicarb, Chlordane
Tomatoes	Methamidophos, Chlorpyrifos, Chlorothalonil, Permethrin, Dimethoate

Source: "Return to the Good Earth", Third World Network

#### *Salinity and Water logging*

The modernisation of Indian agriculture has resulted in the increased use of irrigation water. Heavy irrigation is necessary to get high production, as the new varieties cannot withstand water scarcity. Many of the crops, particularly the rice and wheat high yielding varieties need more irrigation water than the traditional varieties. This leads to salinity and water logging leaving the land uncultivable. Over exploitation of underground water is another effect.

#### *Depletion of Energy Resources*

Chemical fertilizers, pesticides, herbicides, etc are manufactured using the non-renewable materials like the fossil fuels. The rice-wheat cropping pattern and the cultivation of crops like sugarcane require high irrigation, which results in the depletion of water level.

#### *Input-Output Imbalance*

The import of chemical fertilizers cannot compensate the loss of soil nutrients through exports. The soil becomes powdery and gets eroded by wind or rain. The Earth can produce only a limited amount of biomass from a given area. If man tries to extract more, the system degenerates.

#### *Reduction in Genetic Diversity*

The genetic base of crops is very important and a reduction of genetic diversity leads to the emergence of pests on a large scale.

#### *Low Productivity*

The productivity of cereals, millets, oilseeds, pulses and plantation crops is very low in comparison with those in other countries in the world. This is in spite of our success in improving the quality of seeds and adoption of efficient technology. The impact of green revolution is showing signs of weakness and production appears to have decreased even after an increase in the inputs used (Veeresh, 1999).

## **5.2 Benefits of Organic Farming**

### *Healthy Foods*

A study conducted in USA on the nutritional values of both organic and conventional foods found that consumption of the former is healthier and the organic food, in general, had more than 20 per cent less of the bad elements and about 100 per cent more of the good elements.

#### *Improvement in Soil Quality*

Natural plant nutrients from green manures, farmyard manures, composts and plant residues build organic content in the soil. It is reported that soil under organic farming conditions had lower bulk density, higher water holding capacity, higher microbial biomass carbon and nitrogen and higher soil respiration activities compared to the conventional farms (Sharma, 2003).

#### *Increased Crop Productivity and Income*

A study of 100 farmers in Himachal Pradesh during a period of 3 years found that the total cost of production of maize and wheat was lower under organic farming and the net income was 2 to 3 times higher (Thakur, et. al., 2003). The cost –benefit ratios mentioned for various crops were:

**Table 2: Cost-Benefit ratios for different crops**

Crops	Organic	Inorganic
Groundnut	1 :1.26	1:1.31
Jowar	1 :1.36	1:1.28
Cotton	1 :1.34	1:1.24
Coconut	1 :1.70	1:1.31
Banana	1 :3.66	1:2.82

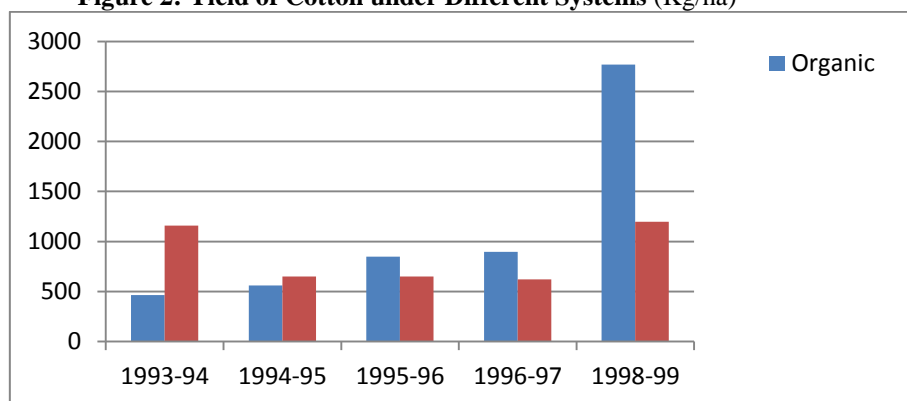
Source: Thakur, et. al., 2003

Field trials of organic cotton at Nagpur revealed that initially in 1993-94, yield of organic cotton was 464kg/ha and that of non-organic cotton was 1159 kg/ha. After that yield from organic cotton had increased and in 1996-97 it increased to almost double. But yield of non-organic had come to almost half to 623kg/ha. When soyabean was used as rotational crop then in 1998-99, yield of organic cotton increased to 2769 kg/ha and that of non-organic to 1199 kg/ha.

**Table 3: Yield of Cotton under Different Systems (Kg/ha)**

Year	Organic	Non-Organic
1993-94	464	1159
1994-95	560	652
1995-96	849	651
1996-97	898	623
Soyabean- as rotational crop		
1998-99	2769	1199

Source: Sharma, P.D.2003

**Figure 2: Yield of Cotton under Different Systems (Kg/ha)**

Source: Sharma, P.D.2003

#### *Low Incidence of Pests*

Indigenous technological products such as Panchagavya (five products of cow origin) which was experimented at the University of Agricultural Sciences, Bangalore found to control effectively wilt disease in tomato (Prakash, TN, 2003).

#### *Employment Opportunities*

According to many studies, organic farming requires more labour input than the conventional farming system. Thus, India which has a very large amount of labour unemployment and under employment will find organic farming an attraction.

#### *Indirect Benefits*

Several indirect benefits from organic farming are available to both the farmers and consumers. While the consumers get healthy foods with better palatability and taste and nutritive values, the farmers are indirectly benefited from healthy soils and farm production environment. Eco-tourism is increasingly becoming popular and organic farms have turned into such favourite spots in countries like Italy. Protection

of the ecosystem, flora, fauna and increased biodiversity and the resulting benefits to all human and living things are great advantages of organic farming which are yet to be properly accounted for.

#### **VI. Progress of Organic Farming in India**

ARISE (Agricultural Renewal in India for a Sustainable Environment) is a major organization in the country engaged in the promotion of organic farming. ARISE comprises of a supporting network of regional groups aiming at sustainable environment by protecting bio-diversity and promoting organic agricultural practices.

The SOEL Survey estimated that an area of about 1.18 million hectares in India is under organic farming representing about 0.66 percent of total agricultural land. It also reveals that there are 677257 numbers of farms in India. But, a comparison of our 1.18 million ha to Australia (12.0million ha), Argentina (4.4 million ha), USA (1.95 million ha), China (1.85 million ha), clearly indicates that organic farming in India has to go very far even to catch up with that of the leading nations of the world.

**Table 4: Area under Organic Farming in the World**

Country	Area under Organic Agriculture(ha)	Percentage of total agricultural land	Number of Producers
Australia	12001724	2.88	2129
Argentina	4397851	3.31	1894
USA	1948946	0.6	12941
China	1853000	0.34	1600

India	1180000	0.66	677257
Italy	1106684	8.68	43029
Germany	947115	5.59	21047
United Kingdom	721726	4.47	5156
Canada	703678	1.04	4128
Austria	518757	18.5	21000
Czech Republic	398407	9.38	2665
Sweden	391524	12.56	4816
Mexico	332485	2.42	128862

Source:SOEL Survey,2010

**Table 5: Export performance of organic food products from India**

S/No.	Organic Food	Sales(tons)	Percentage Share in total sales
1	Tea	3000	25.4
2	Coffee	550	4.7
3	Spices	700	5.9
4	Rice	2500	21.1
5	Wheat	1150	9.7
6	Pulses	300	2.5
7	Fruits and vegetables	1800	15.2
8	Cashew Nut	375	3.2
9	Cotton	1200	10.2
10	Herbal products	250	2.1
Total		11825	100.0

Source: Food Processing Market in India, 2008

**Table 6: State wise Status on Certified Organic Area (2005-06)**

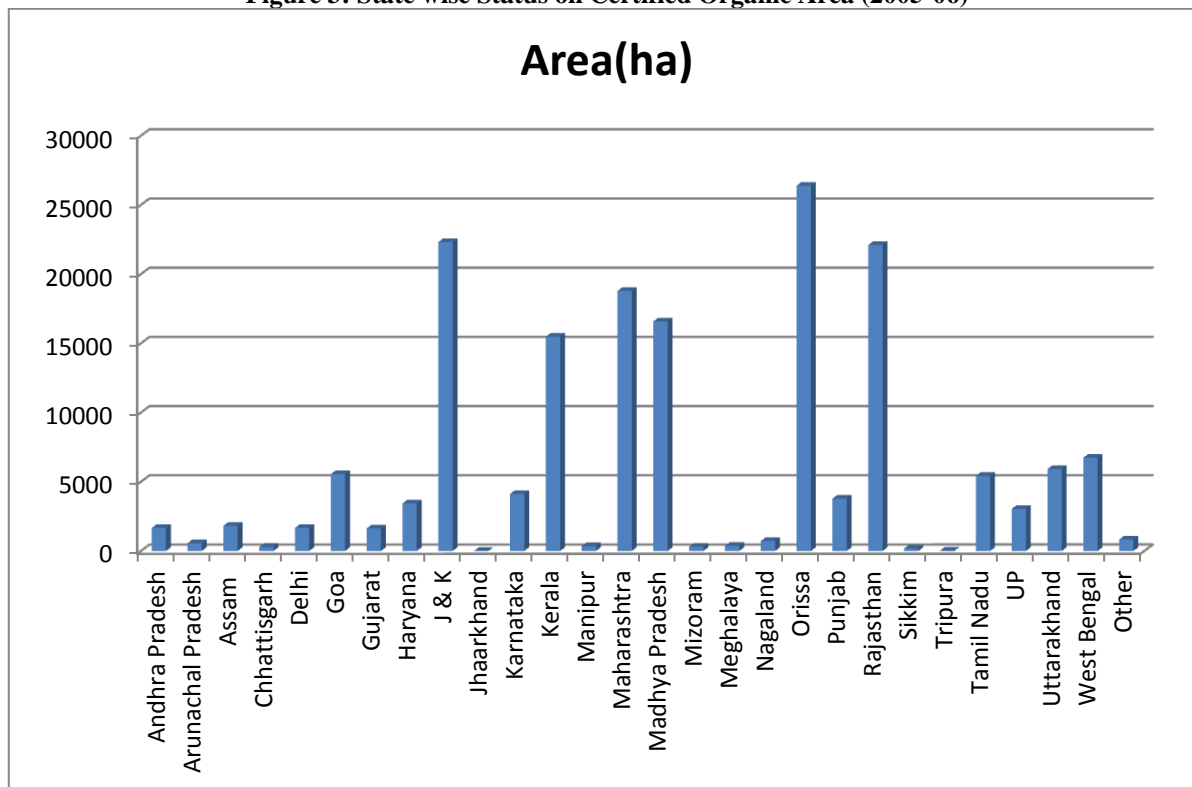
States	Area	States	Area(ha)	States	Area(ha)
Andhra Pradesh	1661.42	Karnataka	4117.17	Rajasthan	22104.9
Arunachal Pradesh	557.76	Kerala	15474.47	Sikkim	177.64
Assam	1817.50	Manipur	347.65	Tripura	20.87
Chhattisgarh	293.16	Maharashtra	18786.69	Tamil Nadu	5423.63
Delhi	1658.71	Madhya Pradesh	16581.37	UP	3033.97
Goa	5555.07	Mizoram	300.40	Uttarakhand	5915.85
Gujarat	1627.06	Meghalaya	378.89	West Bengal	6732.43
Haryana	3437.52	Nagaland	718.76	Other	824.73
J & K	22315.92	Orissa	26387.86		

Jhaarkhand	5.00	Punjab	3779.31		
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Source: Data received from certifying agencies

Table 6 shows that Orissa has the largest certified organic area of 26387.86ha after that J& K with 22315.92 ha, Rajasthan (22104 ha) and Maharashtra (18787 ha).Jharkhand, Tripura and Sikkim have the lowest area under certified organic.

**Figure 3: State wise Status on Certified Organic Area (2005-06)**



Source: Data received from certifying agencies

India is bestowed with lot of potential to produce all varieties of organic products due to its agro-climatic regions. In several parts of the country, the inherited tradition of organic farming is an added advantage. This holds promise for the organic producers to tap the market which is growing steadily in the domestic market related to the export market. Currently, India ranks 33rd in terms of total land under organic cultivation and 88th position for agriculture land under organic crops to total farming area in the World. The cultivated land under certification is around 2.8 million ha. This includes one million ha under cultivation and the rest is under forest area (wild collection) (APEDA, 2010). India exported 86 items during 2007-08 with the total volume of 37533 MT. The export realization was around 100.4 million US \$ registering a 30 per cent growth over the previous year (APEDA, 2010).

#### Organic Farming in Uttarakhand

After declaration of Uttarakhand as organic state, the demand of organic farming has been increased significantly, especially in basmati rice in 2008. Total 3600 tons Organic Basmati paddy is produced in the Kharif- season 2008. A study “Cost-Benefit analysis of organically produced crops grown in Dehradun

and Udhamsingh Nagar” by Alam and Verma found that organic farming is highly relevant for Uttarakhand. Farmers in two of its districts (Dehradun and Udhamsingh Nagar) largely practise chemical intensive farming, characterized by high use of fertilizers and pesticides. This has caused serious damage to the soil, ground water and health.

#### Challenges for certification in Uttarakhand

- A majority of agriculture practitioners in Uttarakhand are smallholders.
- They are having fragmented land holding.
- They are often located in remote areas with long travel times from one place to another.
- The overall revenue from their agricultural production is usually far too small to cover the cost of farm inspection by external inspection body for each farmer.
- The other important problems among the farmer are: - uncertainty about market size, delays in procurement and payment. Only marginally higher profitability when all the crops (basmati and wheat in most cases) are taken into account, and a high incidence of pests.

- Greatest satisfaction is that a very large proportion (94%) of farmers is happy with the programme. This is because of low input cost; improvement in soil condition and onetime payment by the Board.

## **VII. Problems, Constraints and Prospects**

### **7.1 Problems and Constraints**

The most important constraint felt in the progress of organic farming is the inability of the government policy making level to take a firm decision to promote organic agriculture.

#### ***Lack of Awareness***

It is a fact that many farmers in the country have only vague ideas about organic farming and its advantages as against the conventional farming methods. Use of bio-fertilizers and bio pesticides requires awareness and willingness on the part of the farming community.

#### ***Output Marketing Problems***

It is found that before the beginning of the cultivation of organic crops, their marketability and that too at a premium over the conventional produce has to be assured. Inability to obtain a premium price, at least during the period required to achieve the productivity levels of the conventional crop will be a setback. It was found that the farmers of organic wheat in Rajasthan got lower prices than those of the conventional wheat.

#### ***Shortage of Bio-mass***

Many experts and well informed farmers are not sure whether all the nutrients with the required quantities can be made available by the organic materials.

#### ***Inadequate Supporting Infrastructure***

In spite of the adoption of the NPOP during 2000, the state governments are yet to formulate policies and a credible mechanism to implement them.

#### ***High Input Costs***

Now the costs of the organic inputs are higher than those of industrially produced chemical fertilizers and pesticides including other inputs used in the conventional farming system.

#### ***Marketing Problems of Organic Inputs***

Bio-fertilizers and bio-pesticides are yet to become popular in the country. There is a lack of marketing and distribution network for them because the retailers are not interested to deal in these products, as the demand is low.

#### ***Absence of an Appropriate Agriculture Policy***

Formulation of an appropriate agriculture policy taking care of all complexities is essential to promote organic agriculture in a big way.

#### ***Lack of Financial Support***

Supports for the marketing of the organic products are also not forthcoming neither from the State nor from the Union governments. Even the financial assistance extended to the conventional farming methods are absent for the promotion of organic farming.

#### ***Low Yields***

In many cases the farmers experience some loss in yields on discarding synthetic inputs on conversion of their farming method from conventional to organic. It

may also be possible that it will take years to make organic production possible on the farm. Small and marginal farmers cannot take the risk of low yield for the initial 2-3 years on the conversion to organic farming. There are no schemes to compensate them during the gestation period.

#### ***Inability to Meet the Export Demand***

The market survey done by the International Trade Centre (ITC) during 2000 indicates that the demand for organic products is growing rapidly in many of the world markets while the supply is unable to match it.

#### ***Vested Interests***

Hybrid seeds are designed to respond to fertilizers and chemicals. The seed, fertilizer and pesticide industry as also the importers of these inputs to the country have a stake in the conventional farming. Their opposition to organic farming stems from these interests.

#### ***Lack of Quality Standards for Bio manures***

There are a very large number of brands of organic manures, claiming the high levels of natural nutrients and essential elements. But most farmers are not aware of the pitfalls of using the commercially available bio manure products. Elements of chemicals slipping into the manures through faulty production methods could make the product not certifiable as organic.

#### ***Improper Accounting Method***

An understanding of the real costs of erosion of soil and human health, the loss of welfare of both humans and other living things and the computation of these costs are necessary to evaluate the benefits of organic farming. A recent study shows the inappropriateness of the cost and return accounting methods adopted to find out the economics of the organic farming (Prakash, 2003).

#### ***Political and Social Factors***

Any movement for the promotion of organic farming in India will have to counter opposition from the sections who benefit from such policies in the conventional farming system. The political system in a democracy like India is likely to evade the formulation of policies, which affect the interests of the voting blocks unless there are more powerful counter forces demanding changes. In the absence of alternative employment opportunities and other considerations, the organized workforce particularly in the public sector fertilizer, pesticide and seed industries is also likely to oppose moves on the part of the government to promote organic farming on a large scale.

### **7.2 Prospects**

Indian agriculture should be able not only to maintain but also must strive to increase the production of foodgrains. It appears that given the availability of organic infrastructure, minimum efforts for conversion due to the low use of chemical farming methods and the limit of the public investment, organic farming can be progressively introduced. The potential areas and crops, which fulfil the above constraints, could be explored and brought under

organic agriculture. The rainfed, tribal, north-east and hilly regions of India where the traditional farming is more or less practiced could be considered (Veeresh, 2003). Agriculture production in these areas is still almost on the traditional eco-friendly lines and making the farmers aware of the methods of organic farming may not be very difficult.

A Congenial sociocultural environment prevails in India for the promotion of organic agriculture. The farmers of India had been practicing eco-friendly agriculture for centuries till the advent of the 'green revolution' which was based on the conventional farming methods prevailed in the western countries. Still many small and marginal farmers, because of many reasons, have not fully adopted the conventional farming and they follow more or less the traditional environment friendly system.

A country like India can enjoy a number of benefits from the adoption of organic farming. The price premiums for the products, conservation of the natural resources in terms of improved soil fertility and water quality, prevention of soil erosion, preservation of natural and agro-biodiversity are major benefits. Economic and social benefits like generation of rural employment, lower urban migration, improved household nutrition, local food security and reduced dependence on external inputs will be large gains in the Indian conditions. The protection of environment and the consequent increase in the quality of human life will be other contributions of organic farming.

Organic cotton is the cotton grown without inorganic fertilizers, pesticides and defoliant and duly certified by a recognized certifying organization. India has tremendous potential to emerge as a world leader in organic cotton (Venugopal, et. al., 1997). The conventional method of cultivation of cotton needs intensive production technologies requiring very high levels of inputs like fertilizers, insecticides, and water for irrigation. The inputs are often excessively used causing ecological problems besides diminishing rate of returns. Organic cultivation of cotton under certification will be profitable as there is a strong demand for eco-cotton in many Western and Asian countries.

### VIII. Conclusions

The ill effects of the conventional farming system are felt in India in terms of the unsustainability of agricultural production, environmental degradation, health and sanitation problems, etc. Organic agriculture is gaining momentum as an alternative method to the modern system. Many countries have been able to convert 2-10 per cent of their cultivated areas into organic farming. The demand for organic products is growing fast (at the rate of 20 per cent per annum in the major developed countries).

It appears that India is lagging far behind in the adoption of organic farming. So far, the only achievement seems to be the laying down of the National Standards for Organic Production (NSOP) and the approval of 4 accreditation agencies (all

government bodies) whose expertise is limited to a few crops. The following are some of the issues, which require attention at the government policy making levels if we want to lay the spadework for the spread of organic agriculture in the country:

- Substantial financial support by governments (Central, state and lower level bodies) is absolutely necessary to promote organic farming. A major factor behind the progress made by the major organic countries has been the very liberal subsidies provided by the governments. In India, organic farmers do not receive the benefits of government subsidies as they are targeted at the conventional cultivation.
- Identification of crops for cultivation on the organic farms is important. The examples of soyabean in Madhya Pradesh and cotton in the rainfed areas could be kept in view in the process.
- Market development for the organic products is a crucial factor to promote domestic sales.
- The producer organizations must be encouraged to get accredited for inspection and certification in accordance with the NSOP.
- A vigorous campaign to highlight the benefits of organic farming against the conventional system is essential to increase the awareness of the farmers and consumers.

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## Genetically Modified Crops, Agrarian Crisis and India's Emerging Economy

Asmita Bhardwaj\*

### Abstract

Globally controversial, genetically modified (GM) cotton has been adopted widely by Indian cotton farmers. Claiming this widespread adoption to be a success of the technology, the proponents call for faster biosafety trials and labeling regimes. The opponents focus on the *uncertain* environmental risks of genetic modification. This paper argues that both proponents and opponents discuss risks and benefits of GM cotton in a narrow framework. Based on document analysis and interviews, this paper shows that cotton farmers are facing economic and ecological problems which make them different from the “progressive farmers” who made profits from Green Revolution technology. It argues that the kind of policy and institutional support that allowed farmers to benefit during the Green Revolution is scarce during the introduction of GM cotton. The increased export competitiveness of the cotton textile industry supported by the Indian state would further exacerbate cotton producers' risks. Post-economic reforms, there has been a wane in the bargaining power of farmers movements which played an integral role in sustaining farmers profits during the Green Revolution. As a consequence, GM cotton will be unable to alleviate the crisis condition of cotton farmers in rainfed areas.

**Keywords:** Genetically modified cotton, Green Revolution, Gene Revolution, India, economic reforms, farmers movements

### Introduction

Globally controversial genetically modified (GM) cotton or Bt-cotton, produced by the transnational agro-corporation, Monsanto, has been adopted widely in India's cotton belt. Even before their official release, “illegal” or unofficial GM seeds were found growing in the state of Gujarat in 1998. Monsanto's Bt varieties that were officially approved in 2002 have made a dramatic acreage gain since then in the cotton regions of India (ISAAA, 2006). According to GM crop proponents, the popularity of GM crops necessitates their introduction on a wider basis. Bt cotton, and GM crops, will increase agricultural productivity and usher in a “second Green Revolution” (Sibal, 2008; Singh, 2005; Rai, 2006; Patil, 2008). Technology is a crucial component for revitalizing the agricultural sector in the current government policy (Planning Commission, 2006). Simultaneously, farmers' suicides have been

noted in many cotton and rainfed regions (Misra, 2006; NCF, 2006; Planning Commission, 2006; IGIDR, 2006), leading to a consensus that there is widespread agrarian crisis (Patnaik, 2003; Indian Express, 2006).

The 1960s Green Revolution (GR1) that involved the adoption of a package of new high yielding technologies is widely considered to be an important milestone which helped raise agricultural yields, increased agricultural incomes and reduced poverty (Pental, 2005; Lipton, 2007; Shah and Strong, 1999; Khush, 1999; Swaminathan, 2006; Pinstrup-Anderson and Cohen, 2006). The Gene Revolution (GR2) is posited to be the imperative sequel to the 1960s GR1 which will transform the state of Indian agriculture. Will the adoption of GM crops lead to a “second Green Revolution” and agrarian prosperity?

This article provides a comparisons between GR1 and GR2, identifying the factors which led to gains in farmers' incomes. It is divided into two sections, one which focuses on the experience of the GR1 (1965-1991) and second, which focuses on the conditions of adoption of GM crops during the period of the GR2 (1991-2010) respectively. The article asks the following questions. First, did small and marginal farmers gain from Green Revolution technology? If so, how, and under what political-economic conditions? It answers this question by examining available government documents, journal articles and books. Second, under what political-economic conditions is the Gene Revolution (GR2) being implemented and to what effects on small and marginal farmers? This question is answered by examining the adoption conditions of GM crops (1991-2007) through a review of governmental reports, internet websites and interviews conducted in Vidharbha, Maharashtra which has witnessed a spate of farmers' suicides in 2005. Vidharbha, a region located in eastern Maharashtra, is chosen as a case study because farming in Vidharbha is characteristic of dryland rainfed areas in India. Maharashtra is the second richest state in terms of per capita income (Panda and Mishra, 2005). Apart from its coastline, the rest of Maharashtra where Vidharbha is located has been characterized by regional planners as an area of “agricultural backwardness” (NCAER, 1963).

### The Green Revolution: Construction and Aversion of a Food Crisis

The principal Green Revolution technology consisted of dwarf and semi-dwarf varieties of plants which were designed to provide higher yields in comparison with traditional varieties, when used in association with inputs like chemical fertilizers, tractors and pesticides (Parayil, 1992 provide other references and definition). Addressing the skewed land ownership patterns that had resulted from colonial rule, and led to low level of agricultural investments, poverty and agricultural productivity, was a dominant theme in facing the

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problems of Indian agriculture in 1947. However, the shortage of food grains had compelled India to seek food aid in the form of wheat from United States (US) as early as 1952 (Nehru, 1997).<sup>1</sup> In 1965-66, the conditions of food scarcity became worse due to two years of continuous drought. Food zones which had been constituted earlier for movement of food-grains between scarcity and surplus zones were dysfunctional.<sup>2</sup> Prime Minister Lal Bahadur Shastri (who held office from 1964-66) noted this fact in the following words: "I feel sad that this shortage of food supplies is also due to concerned sections not fully realizing their responsibility. Food grains are available, cereals are within the country and yet these are not coming into the market" (Shastri, 1964a). As food prices shot up economic hardship led to mass discontent (Malhotra, 1989).

A large-scale technology-led strategy or GR1 for increasing agricultural production was adopted in 1966 amidst a food scarcity situation. The roots of the technological strategy can also be found in the increasing involvement of the Ford Foundation in India's policies since 1957 (Ross, 1998). The involvement of Ford Foundation in India's agriculture was not incidental but was implicated in the larger international political economy of the Cold War (Ross, 1998). A 1959 Ford Foundation Report (1959) noted that there was a brewing "food crisis" in India due to India's burgeoning population and India needed to increase its food production on a "war footing." The Ford Foundation report strongly reflected the Malthusian thesis on overpopulation amongst the poor and developing countries being the prime cause behind poverty rather than structural constraints that led to unequal land ownership and land reform movements across the world (Ross, 1998). India, which had already been reliant on foreign aid for its five year developmental plans came under further pressure from external donors in 1964. The World Bank and the US made the continued flow of foreign aid and PL 480<sup>1</sup> contingent on India's adoption of agricultural modernization policies and an increased role of foreign and domestic capital in agriculture (Corbridge and Harris, 2000; Frankel, 1978).

Further a section of Indian policymakers was becoming convinced, both due to the Foundation's influence and independently, of the need to increase food production through improved seeds (Ministry of Food and Agriculture, 1959). "The basic question we have to address to ourselves is of increasing food production," noted the then Prime Minister Lal Bahadur Shastri in his speech on All India Radio in 1964 (Shastri, 1964a). He coined the slogan of "Jai Jawan, Jai Kisan," putting agricultural issues on the same footing as the defense of the country. Subsequent

governments continued to follow the basic policies put in place by Lal Bahadur Shastri.

GR1 was also a process of dissemination and adoption of new technology (Roy, 1987). The state invested huge resources in building an institutional infrastructure for the provision of certified seeds and an extension system. The key tenet of GR1 policies was "remunerative and incentive prices to make the production process reasonably safe for the farmers" (Subramaniam, cited in Frankel, 2005; Nehru, 1997). Besides subsidizing the inputs, the state also provided supportive price signals through establishment of a minimum support price (MSP) system and central grain procurement. The other features of GR1 were regulated regional and sub-regional markets, a rural credit system, and centralised public distribution of food grains (PDS). Farmers had no disincentive to choose the new technologies as they were guaranteed a price over and above costs by public procurement prices (Krishnaji, 1990 cited in Rao, 1998). The geographical distribution of high yielding varieties (HYVs) was such that they were introduced in the better irrigated states of Punjab, Haryana and Eastern Uttar Pradesh as well as some Southern states such as Tamil Nadu and in select crops such as rice and wheat. GR1 strategy led to an increase in crop productivity, putting an end to net food imports by 1970 (Rao, 1998).

#### *Economic, Social and Ecological Costs of the Green Revolution*

While India became independent in terms of food production, the technology came in an expensive package. The actual costs at which the technology was bought was much higher than the budget allocations in the Third Five Year Plan period for agriculture (Frankel: 1978).

This meant that the rest of the inputs were to be met through shift in priorities in the allocation of foreign exchange and possibly foreign private investment (Frankel, 2005). State capacity for producing fertilizers, pesticides and seeds was limited. The Indian state faced a tough ordeal in procuring them, as the US withdrew foreign aid, and the private sector gave terms politically difficult to meet. Even in 1969, the expenditure on the technological strategy was only half of what was initially planned (Frankel, 1978).

As yields increased in the early period of GR1, the profitability that state incentives made possible was accessible only to upper and middle class farmers. The initial intentions of the package were also the same. The aim of GR1 policy was to provide incentives to those farmers who had the greatest ability to use the new technology and concentrate resources in regions where there was maximum potential for growth. When the new technology interacted with an unequal agrarian structure and resource situation, there was an increase in class inequalities. "Progressive farmers" (Pearse, 1980) who had better access to material and political

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<sup>1</sup> PL 480

resources were the key beneficiaries of GR1. The new technology facilitated a take-off for cultivators with land and capital, allowing them to consolidate economic power (Dasgupta, 1977; Byres, 1982) while marginalizing the small cultivator (Pearse, 1980).

Fears of class polarization and rural revolt strongly influenced state intervention in the second phase of GR1. A 1969 Home Ministry Enquiry into the causes of rural violence noted unequal access to technology as one of its prime causes. This led the Union Home Minister, Y B Chavan to declare in 1968: "Unless the green revolution is based on social justice, I am afraid it might not remain green" (cited in Desai, 1983). The state introduced a number of policies over the next ten years to address increasing inequalities and give recourse to those who were unable to gain from the new technology. These included land ceilings, employment generation schemes and assistance to small and marginal farmers through the small farmers development programme (SFDA) and the drought prone areas programme (DPAP) (Frankel, 2005). The scale of these programs was unprecedented and they possibly led to a certain degree of positive effect on reducing rural poverty (Byres, 1997). The GR1 also succeeded in creating buffer stocks of food grains. However, the technology and state intervention did not succeed in providing food security through a fall in food prices or address the poor socio-economic condition of farmers in rainfed areas.

By the 1980s, the hidden costs of the GR1 package on the environment also became visible. Areas of intense use of dwarf varieties of HYV's witnessed a decline in the water table, water-logging and increase in salinity due to intensive tapping of groundwater resources (Shiva, 1991; Singh, 2004). The overuse of fertilizers led to a decline in soil fertility, contamination of water bodies and created soil toxicity and micro-nutrient deficiencies (Shiva, 1991). New pest varieties were created leading to heavy crop losses (Shiva, 1991). Mono-cropping systems along with over use of pesticides and fertilizers led to a decline in crop productivity by the 1980s.

#### *The Rise of the New Farmers' Movements: Economic Costs and Political Prices*

The late 1970s saw a new political development in the country as farmers organized and agitated in various parts of the country (Nadkarni, 1987). Governmental intervention in controlling prices produced a new engagement between the farmers' movements and the state. These new farmers' movements focused on setting minimum support prices (MSPs), demanded increased input subsidies (Corbridge and Harris, 2000), and sought agricultural loan waivers, including better terms of trade for agriculture. The class composition of these movements is heavily debated; while some have dismissed them as rich farmers' movements (Byres, 1982), others have conceded the presence of the

agricultural laboring class (Varshney, 1998). However, there is clear consensus that the rise of the rural classes had a defining effect on the shaping of public policy.

Growing as a strong political force, these farmers' movements, including the Shetkari Sangathana and Bharatiya Kisan Union, provided farmers' bargaining power through which farmers could lobby with the government and continue to get a good price for wheat and rice. The power of the movement was such that in 1977 the state agreed to fix MSPs based on terms of trade for agriculture (Lenneberg, 1988). Agriculture became a central piece of the government budget of the Five Year Plan in the 1980s. It was described as a budget "which had the breath of the people and the smell of the soil (Byres, 1982)." More importantly, the rise of the farmers' movement indicates that farmer's profits were not exclusively determined by technology but were a reflection of the political power of the farmer's movement.

#### **The Gene Revolution**

GR1 based on HYVs was largely restricted to irrigated regions of the country. The GR2 claims to turn the fortune of those areas left out by the first GR1 (Lipton, 2007), primarily rainfed areas. Based on similar Malthusian thinking, GM crops are reported to improve agricultural productivity and increase rural incomes (Ramaswami and Pray, 2006). In the current discourse on GM crops in India, Bt cotton is the icon of success of GM crops. Bt cotton has reduced pesticide use, stopped bollworm infestation, and increased farmers' incomes (Qaim and Zilberman, 2003). GM cotton is created by inserting a toxic bacterium called Bt in the selected germplasm, and it enables the cell to encode for an insecticidal protein "Cry1ac" Bt gene, conferring immunity to the cotton plant against a group of insects (Bhagavan and Virgin, 2006), especially the American Bollworm (Planning Commission, 2006).

#### *Policy and Institutional Framework for Adoption of Gene Revolution*

When GM crops were first introduced, India was undergoing a balance of payments crisis. However, unlike the food scarce times of the 1960s, no crisis was noted in 1993 when the first steps towards the introduction of GM seeds were undertaken. The balance of payment crisis led India to adopt an International Monetary Fund/World Bank led structural adjustment package and an export-led model of growth, introducing numerous changes in trade policies, foreign private investment and industrial policies. Liberal policies allowed multinational biotech firms such as Monsanto to form collaborations with the Indian seed company, Mahyco to produce GM crops.

Unlike GR1 where the state provided considerable policy and institutional support, the state's role during GR2 has been minimal. The development

and dissemination of Bt seeds has been an entirely private sector affair. This trend of privatization of seed production started with the adoption of the National Seed Law in 1988. This law played a crucial role in the entry of foreign owned firms and large Indian firms in the seed sector and eased regulations on technology transfer (Pray and Ramaswami, 2003). When Monsanto approached the Indian government for biosafety trials in 1993, India lacked a clear biotechnology policy (Sahai, 2004, Sahai, 2006). It was only after NGOs such as the Gene Campaign raised a hue and cry, that the National Task Force on Agricultural Biotechnology was set up under M S Swaminathan in 2003 and a biotechnology policy was formulated in 2004.

Activists opposed to GM seeds argued that these could lead to ecological risks such as creation of new super-weeds, development of pest resistance over a long period of time, and risks of transfer of genetically engineered traits to non-engineered plants (Shiva, 2000). Against this, the pro-biotech alliance, which included a segment of the farmers movement, the seed industry, multinational seed companies, and the state and central governments, led a strong campaign suggesting that GM seeds are necessary for “making Indian agriculture competitive in the global market,” and “India should shed its conservative stance on GM crops” (cited in Scoones, 2006). Ultimately, the battle to introduce GM crops was won by the seed companies leading to the official introduction of new seeds in 2002.

While the Indian state, which successfully created a number of GR1 institutions, such as the Indian Council of Agricultural Research, established a biotech research program in the 1980s, it failed to yield commercial products as the private sector did. Consequently, the Bt seeds have been available at very expensive rates to farmers. The cost of a 450 gm seed packet of the initial Bt varieties was Rs. 1850 for the first three years, three times the cost of hybrid seeds and manifold the cost of open varieties. This is because rights to the technology are held by a single company, Monsanto, and only three Indian firms have been able to find a different source of the Bt gene (Pray, Bengali and Ramaswami, 2005). Due to the high cost of intellectual property rights, the “CryIac” gene has been leased to the Indian sub-licensees at expensive rates with Monsanto charging 50% as trait value. The price was only reduced when the state of Andhra Pradesh challenged Monsanto through judicial action (Hindu Business Line, 2006). The importance of inserting the gene in a cheaper, public non hybrid variety has been recognized by the government (CSE-NCF, 2006). However, their development and commercialization has been slow. Before and besides the official release of the Bt seeds, an informal (or illegal) seed market that first sprung up in the state of Gujarat has spread to other states (Sahai and Rehman, 2004). Thus the claim of the GM seed industry that Bt cotton has reduced pesticide

use and helped the environment is suspect (references?).

Unlike the extension system developed during GR1, the extension mechanism for dissemination of Bt seeds is sketchy (Sahai and Rehman, 2003; author’s observation). The initial Bt varieties that were released after a 7 year trial period were done so without an appropriate extension program. The status of the extension mechanism was such that the labeling on the seed packets that contained very important information regarding water application and the applicability of seeds in rainfed areas was incomprehensible for most farmers. Farmers as a consequence had to rely on informal and often incorrect sources. In contrast, Monsanto published a number of ads in the news to promote their product (Jaywandhia, interview, 2006).

Sahai and Rehman (2004) note in an early field study of Bt cotton in Andhra Pradesh that Bt cotton is being grown without refuge or a cover of non Bt cotton in fields, owing to lack of information or small size of the fields. Lack of a refuge can lead to an increase in the secondary pest population. Further, no mechanism to test the agronomic compatibility of Bt varieties was created in regions that experience high rainfall variability or water scarcity. It was later declared in two separate government evaluations that “Inadequate testing under different agronomic conditions was a problem” (NCF, 2006) and that “There is no detailed survey available on the performance of Bt cotton under rainfed conditions” (Planning Commission, 2006).

No compensation has been provided by the company or the state for nonperforming Bt crops even though the government itself acknowledges the risk inherent in adopting new technologies. For instance, the 11<sup>th</sup> Five Year Plan (2007) notes:

*As farmers adopt new and untried technology, and increase input intensities, they also face larger risks. These risks are often not well understood owing to lack of knowledge of the specific requirements of new seeds and other new technology for achieving productivity gains. All farmers do not have the ability to bear downside risks and this is evident from the spate of farmer suicides when new seeds fail to deliver expected output, or expenditure on bore wells proves infructuous or when market prices collapse unexpectedly.*

Besides pricing, rainfed regions did not get the kind of state investment as was available to GR1 areas in terms of agricultural input subsidies etc. After the 1991 economic reforms, rural credit has been negatively affected leading to a decrease in number of rural banks and credit disbursed in Maharashtra (Satish, 2007). The issue of remunerative prices has arisen a number of times in political arenas (see 11<sup>th</sup> Five Year Plan) but these are yet to be instituted.

### *Farmers' Condition in Vidharbha*

The socio-economic situation of farmers' adopting Bt cotton is very different from the "progressive farmers" of the GR1. The situation of farmers in Vidharbha is a case in point. Farmer's suicides first came to light in this region in 2005. Farmers in Vidharbha have traditionally practiced cotton cultivation under

conditions of low and fluctuating productivity (Mishra, 2006). A new feature after the 1990s has been a series of crop failures (TISS, 2005). Crop failures have certain existential ecological dimensions that are typical of dryland regions such as inadequate water availability.<sup>3</sup>

**Table: Irrigation Development in Vidharbha**

Division	Net Irrigation (both well and surface) in hectare
	2001-2002
Konkan (coastal)	52.83 (1.78%)
Nashik (coastal)	410.57(13.83%)
Pune (western MH)	725.83 (24.45%)
Kolhapur	407.83 (13.74%)
Aurangabad (Northern MH)	449.93 (15.16%)
Latur	273.77 (9.23%)
<b>Amravati (Vidharbha)</b>	<b>176.73 (5.95%)</b>
<b>Nagpur (Vidharbha)</b>	<b>471.10 (15.87%)</b>
Maharashtra state	2968

Source: Planning Commission/ Government of India (2007). Maharashtra Development Report. Academic Foundation: Delhi

As Table shows the irrigation development in Vidharbha is low especially in hinterland regions and its location in the semi-pervious Deccan plateau makes the development of full irrigation difficult.

The advent of cotton hybrids in 1970s coupled with governmental policies promoting cash crop cultivation (World Bank, 2006), have heightened ecological problems. Cotton hybrids developed a high susceptibility to pests such as the American bollworm in the 1980s (Jaywandhia, interview, 2006). Repeated and indiscriminate pesticide sprays have led to the development of resistance in the pest population, leading to a resurgence of American bollworm besides increased costs of cultivation. Monocultures of cotton heighten the pest problem.

While the costs of cultivation have risen over the years, the remuneration that cotton farmers' get does not cover even the production costs (Mishra, 2006; TISS, 2005). Not only is the centrally declared minimum support price (MSP) much below the production costs but most cotton farmers are also unable to obtain the MSP. The 1970s Maharashtra cotton monopoly scheme that provided a stable price to cotton farmers has become dysfunctional (Mishra, 2006) and private procurement has not been very profitable for farmers. The 1990s financial sector reforms have been unfavorable for the rural credit system, (Shah, 2006), and other safety nets such as crop insurance are dysfunctional. This has led to high indebtedness rate and a critical dependence of farmers on moneylenders. Agriculture, thus, was in a state of

crisis in Vidharbha, when genetically modified seeds came to the area in 2002.

### *Political Power of Cotton Farmers*

The profits that cotton farmers get are also affected by the relationship between the cotton farming and cotton textile sector. The Indian government intervenes in all aspects of the cotton commodity chain; it exports cotton textiles, yarns and finished apparels as well as exports and imports raw cotton. India earns more than 35% of its revenues and 8% of the total excise revenue from textile exports. This share will grow since the textile sector is expected to be a major export earner after the removal of the global Multi-fibre Agreement (MFA) (Tiwari, 2006). New incentives are being given and demanded by the textile industry from the government to face the increased level of competition in the global textile sector. Already prices of domestic cotton are held much below the prices in the international market, to make raw cotton cheaply available to the textile and handloom sector (Mohanty, Fang and Chaudhury, 2003). As the textile industry gets more integrated in the global economy, the producer's risk of vulnerability towards global trends of cotton prices increases. In fact, this global exposure to fluctuating cotton prices led to an influx of cotton imports in India in 1998 (Landes, McDonald, Singh and Vollrath, 2005). The increasing volume of exports and the increasing demand for quality cotton (Landes, McDonald, Singh and Vollrath, 2005) puts cotton producers at an added risk.

New farmers' movements that arose in the 1970s enabled farmers to get a good price for rice and wheat during the GR1. However, the strength of the farmer's movements has considerably declined after the economic reforms in 1991 and the coming of an era of unstable coalition governments (Brass, 1995). The advent of liberal policies and a cutback in government flows to rural areas have weakened the sources of political patronage by which rural elite are linked to the national government (Sen, 1992). Instead of allying with one another, some of the farmers' movements have allied with industry bodies in Delhi and some with environmental movements such as the Gene Campaign. Environmental movements which cover issues right from biodiversity to soil degradation have entered the arena of farm issues. However, they do not possess a strong grassroots base as the previous farmers movements did. To some extent farmer's organizations and environmental movements based in Delhi have lobbied the government for remunerative prices which are yet to materialise.

### **Conclusion**

Cotton farmers in Vidharbha face a number of economic and ecological problems such as uncertain remuneration, water scarcity, and natural calamities, which has led to a crisis of the farm economy in Vidharbha. These farmers are not "progressive farmers" of the kind that existed during GR1 times. It was the better economic, political and ecological resource conditions of these progressive farmers that allowed them to make substantial gains from GR1 technology. None of the problems that farmers' in Vidharbha and other rainfed areas of India face can be solved by Bt technology alone. The kind of "policy and institutional" support that allowed rich and middle class farmers to gain significant economic benefits from GR1 is scarce during the adoption of Bt cotton. Such a state-supported package allowed the grain production process to become safe, predictable and profitable for the adoption of GR1 technologies. The increased export competitiveness of cotton textiles does not provide any benefits to the cotton farmers. Following India's economic liberalization, the farmers' movement does not enjoy the same kind of bargaining power as it did in the 1980s. In 1981, a collaboration of farmer movements was able to create a heavily biased national agricultural budget. The environmental movement and the industries with which the farmer movement now allies do not strongly represent the (cotton) farmers' causes, especially for getting social security. Thus it is highly unlikely that farmers will make certain gains from Bt cotton especially in areas of water scarcity. Therefore, policy intervention in the form of state

support is important for rejuvenating the agrarian economy through alternative technologies or creating non-farm employment.

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### **Notes**

1. Under the PL 480 scheme, overproduction of wheat was sold off to developing countries by the United States in local currency. PL 480 shipments allowed India to focus on its strategies of industrial development instituted under the Nehru regime and made food available to urban and industrial populations at cheap prices (Rudolph and Rudolph, 1987).
2. Malhotra (1989) notes that India had a policy of dividing the country into food zones each consisting of a surplus state and a couple of deficit ones. The grain could move freely between a food zone but internal zonal movement was a strictly prohibited. However, chief ministers of various states who drew their power from the rich peasantry had become hostile to food zones over a period of time. During Prime Minister Shastri's regime, they pressed for an abolition of the food zones.
3. Water scarcity has both geological and political dimensions in Vidharbha. The Deccan region is a semi-arid region with impervious lava flows which makes the search and replenishment of groundwater difficult (Subramaniam, 1975). Surface water irrigation is equally hard to develop. Besides, there is a greater concentration of irrigation development in the sugarcane areas in western Maharashtra, a region dominated by sugarcane farmers who have been historically more politically powerful (Phadke, 2002). As a consequence, only 6% of area is under irrigation in Vidharbha.

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## Bioethanol: The Way Forward in India to Reduce the Emission of Greenhouse Gases

Mrinal Chadha\*

### Abstract

Sky rocketing crude oil prices, growing energy demands and glaring figures of the natural resources getting depleted every second have become major reasons for the academicians and the governments across the globe to focus their attention on expansion of bio energy use. More than the concerns of meeting growing demand for these non renewable fossils, it is the concerns over global warming that has led even the developing economies like India to join the league which was so far being dominated by the developed world. India has recently come up with a comprehensive National Bio fuel Policy with an objective to raise the blending of biofuels with petrol and diesel to 20% by the year 2017.

The core objective of this paper is to highlight the benefits of producing Bioethanol from sugarcane, specifically in context of India. Apart from being country's prime crop and a renewable resource, it is economically sustainable, adaptive to technological changes and relatively less polluting. This not only tackles the problem of environmental damage so caused by the excessive use of fossil fuels but also likely to reduce the country's dependence on imported oil. This paper also touches upon the loopholes in the National Biofuel policy which if fixed sagaciously can yield better results for the environment as well as the rural farmers. It clearly lacks an appropriate incentive structure with absence of subsidies for Bioethanol production, arbitrary linkage of Minimum Purchase Price of diesel with prevailing retail price of diesel and apparent ambiguity about importance of bio fuel in minds of policy makers. An appropriate incentive structure and a strong institutional base are seen as pre requisites for a successful policy implementation on this vital front.

**Keywords:** Sustainable Development, Sugarcane, Bioethanol, National Policy on Biofuel

### I. Introduction

*"We can get fuel from fruit, from that shrub by the roadside, or from apples, Weeds, saw-dust—almost anything! There is fuel in every bit of vegetable matter That can be fermented. There is enough alcohol in one year's yield of a hectare of*

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*Potatoes to drive the machinery necessary to cultivate the field for a hundred Years. And it remains for someone to find out how this fuel can be produced Commercially—better fuel at a cheaper price than we know now."*

- **Henry Ford, 1925**

India imports nearly 70% of its annual crude petroleum requirement<sup>1</sup>, which is approximately 110 million tons. The prices are in the range of US\$ 50-70 per barrel, and the expenditure on crude purchase is in the range of Rs.1600 billion per year, impacting in a big way- the country's foreign exchange reserves. The even worse part is the pollutants which get carried away in the air because of the burning of this Gasoline. Economically and more importantly, Environmentally, It is crucial to work on not just its substitutes but ecologically sustainable substitutes. The substitutes on which many countries started working decades ago! Corn based Ethanol production in the United States has soared remarkably over last many years and recently a complete phase out of MTBE has further geared up the process of use of Ethanol as a commercially viable alternative oxygenate. European economy has recorded dramatic growth in biodiesel production using oil seeds, and Brazil has a long history of Ethanol production using Sugarcane. Developing economies like India and China have now joined the league out of environment concerns and economic advantages which the renewable energy sources offer.

India has several advantages in this context due to its expansive territory, geographical position, solar radiation and availability of water resources. Despite such advantages, issues have been raised pertaining to potential of the sugarcane to produce Ethanol on a massive scale to meet the desired mandate without affecting the food grain prices and imposing any environment threat. This paper, however, attempts to emphasize on the benefits of Bioethanol production from sugarcane which is India's prime crop while recognizing the potential threats that it can confer on environment and the economy. This paper is structured as follows: Section II presents a review of the literature followed by advantages of sugarcane Ethanol for India in Section III. Section IV highlights the potential drawbacks of cane Ethanol with the possible remedies. Section V presents the features of the National Biofuel Policy of India and the apparent loopholes followed by the suggestions in section VI.

### II. Literature Review

The existing literature on Bioethanol has touched upon its various dimensions ranging from ways of Ethanol production to advantages, importance to pitfalls in each of the ways. There are myriad ways to produce the Ethanol but some of the ways which have gained

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<sup>1</sup> The figures in this section are from <http://www.Ethanolindia.net/>

interest from the researchers includes Whey(a by-product of the dairy industry), Maize, Sweet sorghum, Tropical Beet/ Sugar beet(a biennial sugar producing tuber crop, grown in temperate countries), Biomass, Sugarcane. Different countries use different methods of Ethanol production varying with local climatic conditions, feedstock and other factors.

For example, New Zealand currently uses whey to produce Ethanol, US is a whopping example in present times of making Ethanol using Maize.. Brazil, on the other hand, is a famous example of Bioethanol production from sugarcane. The Brazilian history of Ethanol production is traced back to global oil crisis in 1973, It is then that the Brazilian government decided to create an alternative fuel, Ethanol, which would substitute gasoline and do away with the country's nearly total dependence on derivatives of crude oil. A program known as "Proalcool" was born in 1975 using the government's resources for the research and development into new fuels.

The literature has also recognized the fact that it is imperative for developing economies like India and China to initiate measures to promote large scale use of agro fuels as continuously depleting non renewable fossil energy sources will limit the economic growth in times to come. (Stern, 2003), Nashawi et al. (2009) forecasted that the peak in crude oil production will be reached in the year 2014 while the worldwide energy demands are accelerating at a very high pace which inevitably will drive up the crude oil prices. Another even more important reason for growing interest of the policymakers to expand the use of biofuels is to ensure reduced green house emissions as global climate change is the biggest threat in present times.

Although on one hand the use of Bioethanol represents a more environment friendly alternative to fossil fuels as it produces lesser greenhouse gas emissions when burned, but, on the other hand it has been repeatedly debated that the expansion of Bioethanol production may also have negative social and environmental impacts. It has been argued that growing increased quantities of fuel crops for Bioethanol production may compete with food crops for land, water requirements and other essential agricultural inputs. The situation is likely to be the worst for the poor as they are the ones phenomenally hit by food shortage and rising food prices which are expected consequences of the tradeoff between food, fodder and fuel security. As per a study by International Food and Policy Research the Biofuel demand has contributed to the world grain price increase by almost 30% during the period 2000-2007(Rosegrant, 2008). Doubts have been raised on environmental benefits of Bioethanol/biofuels as well. It is true that biofuels release fewer emissions when burned in comparison to their fossil fuel equivalents but it is argued that over their cycle biofuels will not inevitably lead to fewer Green House Gas emissions than the emissions from fossil fuels as there are several other factors at play

because a lot depends upon the land being used for growing the biofuel feedstock and agricultural practices being implemented for feedstock cultivation (Fargione et al. 2008).

This paper does not aim to debunk these contentions about Biofuel use and its expansion overtime, instead the paper highlights the importance of producing Biofuel in India-Bioethanol specifically-using sugarcane and sugarcane molasses as it has the potential to contribute towards rural development of the country without imposing any threat of tradeoff between food versus fuel crops, and food crops price hike.

### **III. Producing Ethanol from Sugarcane: An Ecologically As Well As Economically Sustainable Way for India**

#### **Advantages of Sugarcane Bioethanol**

India imported gasoline valued Rs 15.86 Rs/liter in the year 2004(GOI, 2006) and it has been projected that the gasoline consumption in the country is likely to reach the mark of 22.24 billion liters by 2017; 90% out of which will be met by imports (GOI, 2003), thus making the country ever more dependent on foreign supplies and hence making India extremely vulnerable to external oil price shocks. If India successfully implements the 20% Ethanol blend mandate then it will lead to an annual savings of approximately Rs. 63.48 billion on gasoline imports<sup>2</sup>. So it undoubtedly makes sense for the country to go for increased Bioethanol production. However, the question arises over the apt way of producing it with minimum tradeoffs, if any. Producing Ethanol from sugarcane juice and sugarcane molasses seems to be an ecologically as well as economically sustainable way for the economy as ***Sugarcane is a prime crop of India.*** About 6 million farmers and a large number of agricultural laborers are engaged in cane production<sup>3</sup>. Although Brazil is a leading producer of sugarcane in the world but India dominates in the production of sugar, a significantly large proportion of which is obtained from sugarcane. India's 60% of sugar production comes from Maharashtra and Uttar Pradesh and the remaining production from Tamil Nadu, Gujarat, Karnataka, and Andhra Pradesh. (Table 1).

Bioethanol produced from sugar cane, which is a renewable resource, unlike petroleum is what is needed to follow the path of ecologically sustainable development. The other advantage that the country enjoys with Ethanol produced from sugarcane is that it not just pollutes less rather the overall level of pollution declines as a result of its usage. "Ethanol from sugarcane is the most promising biofuels because its energetic balance is generally positive, meaning that

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<sup>2</sup> ISMA, Yearbook 2008-09

<sup>3</sup> Vision 2030, Indian Institute of Sugarcane Research

the growing sugarcane absorbs more carbon than emitted when Ethanol is burned as a fuel”<sup>4</sup>.

There are two major ways in which this Environment friendly approach can be and has been successful economically: Firstly, large profits from Ethanol production lead to lower production costs for the sugar industry, for instance, co-generation could lead to much reduced capital costs, even raising the product’s competitiveness on an international scale. Secondly, the alcohol and sugar industry generate can generate employment in huge scale especially in a country like India wherein approximately 70% of the population is still dependent on Agriculture. Brazil is a blatant example. The sugar and alcohol Industry creates more than one million jobs in Brazil<sup>5</sup>.

Ethanol production can continue to adapt to future technological advances, for instance, the ‘hybrid’ electric-gasoline car, which is used in countries like the U.S. and Japan, can also function on alcohol. And fuel cell cars, which will use hydrogen as a fuel, could use alcohol as a solution for generating hydrogen within the cars themselves. They could function as a transformer, producing hydrogen from alcohol.

It also fulfills a social purpose as 1 ton of sugarcane produces 72 to 75 liters of alcohol (94.68%) which means for 20 lakh tons, at least 15 crore liters of hydrous alcohol can be produced or 14.25 crore liters of Ethanol can be produced. As Rs. 3/- is conversion cost to produce 94.68% alcohol and further Rs. 2/- to 99.9% Ethanol ; at total conversion cost of Rs. 5 /- a sugar factory can surely afford give at least **Rs. 1100/-** as cane price to the farmers<sup>6</sup>.

#### **Sugarcane for production of Ethanol: Drawbacks**

However, production of Ethanol from sugarcane is not without drawbacks. As mentioned earlier, it has been repeatedly postulated that as the country’s Biofuel program expands it will lead to a tradeoff between foods versus fuel crops as increased land area will be devoted to sugarcane as the available data reveals that the productivity of the sugarcane production has been consistently fluctuating and in fact has recorded negative productivity growth in the previous few years (TABLE 2). This automatically requires larger area under sugarcane production to meet the mandate therefore interfering with land area meant for food crops production. This in turn is expected to lead to land degradation, deforestation and water scarcity overtime. (FAO, 2008).

Nonetheless, these potential pitfalls can be reduced to minimum if the productivity growth rates are much higher in the forthcoming year vis-à-vis the existing trend. Dehradun (in India) exhibits exemplary performance in this context. Approximately 900-1000 hectare area is under sugarcane production in the state

and the area is continuously increasing overtime due to attractive returns and the studies revealed that the income from sugarcane can be increased manifold by adopting intercrop systems (urd pulse as an intercrop with sugarcane). Also the farmers who have adopted this intercropping system have reported improved productivity of sugarcane. Another experiment in Pune, Maharashtra showed that application of Nitrogen and Potash fertilizers through drip irrigation not only saved 30% of Nitrogen and Potassium fertilizer but also increased yield by 19% and more than doubled the water use efficiency. The potential threats from sugarcane Ethanol can be circumvented if main constraints -improper water management and imbalanced nutrition- which adversely affects the yield are appropriately tackled. This study in Maharashtra is an apt example of ensuring high sugarcane yield.

#### **IV. India on the path of sustainable development: The recent approval of National Policy on Biofuel**

An amalgamation of energy concerns with sugarcane Ethanol’s potential to accelerate incomes and employment rates of the rural farmers have led Indian Government to walk on the path of Sustainable Development. In 2003, the first step in this direction was initiated as the Government mandated 5% blending of Ethanol in gasoline followed by 10% in 2008. The National Biofuel Policy was then steered by the Ministry of New and Renewable Energy and under the approved policy<sup>7</sup>, the country aims to raise blending of bio fuels with petrol and diesel to 20% by the year 2017<sup>8</sup>. Some of the other major Salient features of the National Bio fuel Policy includes: Bio-diesel production to be taken up from non-edible oil seeds in waste / degraded / marginal lands, Minimum Support Price (MSP) with the provision of periodic revision for bio-diesel oil seeds would be announced to provide fair price to the growers, Minimum Purchase Price (MPP) for the purchase of bio-Ethanol by the Oil Marketing Companies (OMCs) and it would be based on the actual cost of production and import price of bio-Ethanol. In case of bio-diesel, the MPP should be linked to the prevailing retail diesel price. Also the National Biofuel Policy envisages that bio-fuels, namely, bio-diesel and bio-Ethanol “**may**” be brought under the ambit of “Declared Goods” by the Government to ensure unrestricted movement of bio-fuels within and outside the States.

The existing policy suffers from certain loopholes which need to be fixed for the policy to be successful in achieving its objectives. Firstly, seeing the

<sup>4</sup> Oliveira et al.2005. Ethanol as fuel: energy, carbon dioxide balances, and ecological footprint. Bioscience 55:593–602.

<sup>5</sup> <http://www.wharton.universia.net/>

<sup>6</sup> [http://www.Ethanolindia.net/Ethanol\\_solution.html](http://www.Ethanolindia.net/Ethanol_solution.html)

<sup>7</sup> The new biofuel policy was approved by the Union Cabinet in December 2009.

<sup>8</sup> The National Bio-fuel Policy proposed an indicative target of 20 per cent blending for both biodiesel and bio-Ethanol by the year 2017. While the targets for biodiesel are in the nature of recommendations, Ethanol blending was made mandatory from October 2008. The MoPNG decided to defer the proposed 10 per cent blending of Ethanol, which was expected to start from October 2008.

advantages of Bioethanol production for the country, the government should initiate this incredible usage of Bioethanol by subsidising the Minimum Purchase Price be it for a medium term say 5-10 years. Second, though unrelated to Bioethanol, but the linking of Minimum Purchase Price of bio diesel with prevailing retail diesel price is as arbitrary as anything. The lobbying done by the Central and State governments in terms of fuel taxes is well known fact. Now, for a thing with almost every positive aspect, it is beyond reckoning that the same phenomenon of lobbying should be applied here too. The best way for its encouragement would be to subsidize it for a medium term, after which charging only the production costs incurred should be the way out. The third and the most crucial aspect of the National Policy which this paper highlights is the Unimportance still residing in the minds of our policy makers when it comes to Biofuel. It is apparent from the use of words like “may” (as highlighted above). The hunch in this context is that an issue as serious as this the government is still reckoning that biofuel “may” be brought under the ambit of “Declared Goods” by the Government to ensure unrestricted movement of bio-fuels within and outside the States. It is high time to realize that if there is anything that can be done to promote this ecologically sustainable fuel then let’s do it! Fourth, the policy talks absolutely nothing about the “mandatory” nature required of selling Ethanol by the petrol pumps be it even in 10 % blended form in the medium term.

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## VI. Suggestions beyond the National Policy

At the national level, there are certain other issues which need to be dealt with graveness. One of the raw materials of Ethanol is molasses and the country is exporting molasses till date. So it is high time India should cut down on its exports of sugarcane molasses. Moreover, Technological Changes need to be considered. In this respect, Firstly, India needs to link with the developed world in terms of the technology. Though initially the cost may look massive but keeping in mind the benefits we are going to receive in years from now, the benefits would indeed outweigh the initial cost. Secondly, Automobile sector has to play an active role technologically. Flexi-fuel cars in India can be a revolution. In Brazil almost 9 cars sold out of 10 today are flex-fuel cars; if the same is replicated in India then it can contribute significantly in reducing the country’s reliance on foreign oil.

Eventually, the role of Institutions cannot be overlooked. Public sector banks can cut interest rate on loans to sugar Industry to build Ethanol Plants to boost the production of Ethanol. Moreover, providing appropriate incentives to other crops as to maintain a right level of production of all crops in the country would be a must. A socially desirable way to move towards it would be to give the right to produce Sugarcane to small and marginal farmers rather than the big farmers as this would help in achieving the socially desirable objective of having an egalitarian society.

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- <http://www.Ethanolindia.net/>
- <http://www.icar.org.in/node/3723>

**Appendix  
Table 1**

<b>State-wise Production of Sugarcane in India</b>											
<b>(2001-2002 to 2011-2012)</b>											
<b>(Production in ' 000 Tonne)</b>											
<b>States/UT</b>	<b>2001- 2</b>	<b>2002- 3</b>	<b>2003- 4</b>	<b>2004- 5</b>	<b>2005- 6</b>	<b>2006- 7</b>	<b>2007- 8</b>	<b>2008- 9</b>	<b>2009- 10</b>	<b>2010- 11</b>	<b>2011- 12x</b>
Assam	1011	916	981	884	871	1055	980	1100	1059	1075	984
Andhra Pradesh	18082	15387	15070	15739	17656	21692	20296	15380	11708	14964	15912
Bihar	5211	4521	4286	4112	4338	5956	3855	4960	5032	12763	11839
Gujarat	12465	14071	12669	14570	14580	15630	15190	15510	12400	13760	13390
Haryana	9270	10650	9280	8060	8180	9580	8860	5130	5335	6042	6745
Kerala	270	313	291	283	917	440	218	276	285	272	156
Karnataka	33017	32485	16015	14276	18267	28670	26240	23328	30443	39657	38808
Maharashtra	45140	42617	25668	20475	38853	78568	88437	60648	64159	81896	82472
Madhya Pradesh	1616	1563	1874	2148	2425	2806	3180	2975	2535	2667	3098
Odisha	644	753	858	860	1073	1274	1096	646	490	903	797
Punjab	9250	9290	6620	5170	4860	6020	6690	4670	3700	4170	4800
Puducherry	197	210	148	127	157	160	160	162	-	278	-
Rajasthan	432	422	309	277	483	630	594	388	345	368	998
Tamil Nadu	32620	24165	17656	23396	35107	41124	38071	32804	29746	34252	39367
Uttar Pradesh	117982	120948	112754	118716	125470	133949	124665	109048	117140	120545	122652
Uttarakhand	7555	7332	7651	6441	6134	6100	7686	5590	5842	6498	6596
West Bengal	1984	1281	1253	1033	1248	1267	1272	1638	1001	1134	1175
Others	462	459	479	521	553	515	236	776	1082	1138	1404
<b>India</b>	<b>297208</b>	<b>287383</b>	<b>233862</b>	<b>237088</b>	<b>281172</b>	<b>355520</b>	<b>348188</b>	<b>285029</b>	<b>292302</b>	<b>342382</b>	<b>351193</b>

*Source: Indian Sugar Mills Association. (13289)*

**TABLE 2**

<b>Growth Rate of Yield of Sugarcane</b> <b>(Base : Triennium Ending : 1993-94 = 100)</b> <b>(1994-1995 to 2006-2007)</b> <b>(Percent)</b>	
<b>Year</b>	<b>Growth Rate</b>
1994-95	6.16
1995-96	-4.88
1996-97	-1.84
1997-98	6.91
1998-99	0.1
1999-00	-0.38
2000-01	-3.32
2001-02	-1.76
2002-03	-5.63
2003-04	-6.6
2004-05	9.07
2005-06	3.35
2006-07*	-0.18

*Source: Ministry of Agriculture, Govt. of India.*

\* : Based on third advance estimate 2006-07



# Re-examining India's Radical and Reformist Approaches to Ecologically Sustainable Development

Baldev Agja\*

## Introduction:

### What Sustainability is?

The most important concept in current environmental thinking is sustainability, to investigate about sustainability we need to know about the definition of sustainability. Paul Ekins and Les Newby (1998) determined that sustainability is "The capacity for continuance more or less indefinitely into the future". In generally, sustainability have been discussed in many development concept during the last 20 years for establishing the liberation of global condition of human life when it became the driving concept behind the United Nations Conference on Environment and Development (UNCED) in Rio 1992. Based on this, we can conclude the position of sustainable development is not only face by one based factor but with the interdisciplinary concept which resulted the sustainable development concept.

In globally, sustainable development is a pattern of economic growth in which resource use aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. There is an additional focus on the present generations responsibility to improve the future generations life by restoring the previous ecosystem damage and resisting to contribute to further ecosystem damage (Wikipedia 2012). Sustainable development has three key pillars of development (elaborated through the Brundtland report) focused around economic, social, and environmental sustainability (UNWCED 1987).

## Discussion:

### Concept of Sustainable Development: Reformist and Radical Perspectives

Adams (2001) showed that sustainable development has distinct characteristics of radical and reformist approaches concept. I will analyse both and discuss how the theory and practice of sustainable development relates to these principles and criticize the strength and weakness from the proposes and the basic characteristics.

These paper specifically will focus on how interaction of sustainable development and environmental can build from theoretical approach of radical and reformist perspectives and show the outline implications of each matters. I elaborate on two key points in this paper. First, investigate the position of sustainable development from these perspectives. Second, I discuss reasons for this and

argue that and show the fundamental epistemological and ontological differences between understanding of sustainable development from each perspectives.

### Radical Environmentalism

In any references, radical environmentalists can be recognized by their diagnoses and prescriptions regarding the environmental crisis. In generally, their diagnoses involve a critique of the dominant streams of occidental religion and philosophy, which are said to desacralize nature. Prescriptions generally include anthropocentric and hierarchical attitudes (especially capitalist and patriarchal ones). Accomplishing this is generally believed to require resacralizing and reconnecting with nature (which is usually gendered as female, as in "mother earth" or "mother nature" or sometimes the earth can be conceptualized as a living organism like the Gaia hypothesis determined), combined with direct-action resistance to oppression in all forms.

Radical environmentalism itself has a differences characteristics fundamental conceptual, there are three movements based on radical principle: neo-Malthusian, deep ecology, eco-socialism and eco-anarchy (Grist 2007). In specifically, radical environmentalism has more deep thoughts to face the environmental problems and move on within change our perspectives by philosophy centric emphasis.

### Reformist Environmentalism

Reformism is the belief that gradual changes through and within existing institutions of a society can ultimately change a society's fundamental economic relations, economic system and political structures. This belief grew out of opposition to revolutionary socialism, which contends that revolutions are necessary for fundamental structural changes to occur (Wikipedia 2012).

Different from radical environmentalism perspective, reformist environmentalism thought sustainable development are responsibility for specific understanding of policy and practice including environmental valuation, energy efficiency and emissions efficiency, green consumption, voluntary carbon, regulation.

Reformist environmentalist will focus on practices for market environmentalism that environment not just face by ecological functions but has non use value or usually called "green value" for green consumption and lifestyle. The same direction with these explanations, Adams (2001) also said that change in the individual's behaviour is fostered through social forms of cooperation and participation at the local level.

### Organizing Conflicting Environmental Discourse

Illustrate of environmental discourse are often in conflict, this is not a new observation and become a controversy for a long time. Dryzek (1997) develops a taxonomy for organizing conflicting environmental discourse which classify by two dimensions. First dimension is concern in path to move away from the

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condition created by industrialism: reformist and radical. Second dimension is concern in the character of the alternatives proposed: prosaic or imaginative. So, He also describe about the environmental paradigm and divides to be four categories.

1. Radical and Prosaic: it's also called survivalism and defined by its attention to limits and carrying capacities. It's called radical because it's depend on challenges of economic growth and power relations. It's prosaic because solutions are proposed within the constraints of industrialism.

2. Reformist and Prosaic: its also called environmental problem solving. These discourses are prosaic because the economic-political status quo of industrialism is taken as a given.

3. Reformist and Imaginative: defined by the search for sustainability and determined by sustainable development and ecological modernization.

4. Radical and Imaginative: these included green radicalism. The discourses imagine radically different understandings of the environment, human-environment interactions, and human society.

### **Compare and Contrast: Radical and Reformist Concept for Sustainable Development**

Basically, the conceptual of environmental perspectives (radical and reformist) that showed by Grist (2007) and Dryzek (1997) have the same fundamental material to built the sustainable development. It is not effectively choices, but it is about perception to face the environmental crisis problems.

Based on two environmental perspectives reformist and radical environmentalism, sustainable development concept can built within these both perspectives by develop a comprehend approaches. Although, every perspective has a differences theory and practice but we can compare and contrast the placement of sustainable development on this.

Even though, there are as many criticisms of radical environmentalism as there are differing ideas, emphasis, and priorities within these movements, for examples criticisms come from other environmentalists as well as a wide variety of religious actors, social justice advocates, and political theorists. Some of the typical arguments are not directly or obviously related to religion. But, radical environmental has its own peculiar. The example of radical environmental likes Biocentrism, or eco-centrism, is "The recognition of intrinsic values or moral status in non-human nature" Eco-centric perspectives critique the approach of instrumental valuation of nature's services (as seen in market environmentalism). Instead they espouse the 'deep ecology' perspective where there are no dualities between human and nature. An extreme form of this approach would see people as organisms with no special rights over other creatures, which may lead to ecofascism (Adams, 2001). This argument has historically been most prominent over discussions of

conservation and biodiversity preservation in sustainable natural resources development such as the local wisdom in Baduy Society, there is a conservation forest that protect with their own cultural value.

Different with radical perspectives, reformist is more compromised, for example green consumption, likes Grist (2007) said that green consumption involves the manufacture of products that are more environmentally sustainable, used by niche markets located mostly in the wealthy economies. In terms of environmental and social sustainability this has led to the development of markets for organic foods, fair-trade goods, the Forestry Stewardship Council accreditation scheme for timber produce and the Marine Stewardship Council's sustainable fishery certification scheme and green investment products, amongst others. These green product will supporting by green market and it's more compromised because it's no compulsion to choose. But, there is a regulation to arrange these movements like ecological modernization system that related to market environmentalism under the umbrella of sustainable development.

It is a regulation-oriented programme that became dominant from the mid-1980s, originating in a policy approach to pollution control (Carter, 2001). Technology and procedural innovation is perceived to provide a panacea for sustainable development under this approach, with an underlying utilitarian, rationalist, managerialist perspective to the types of change required (Adams 2001)

### **Conclusion**

Basically, Sustainable Development Can Be Outlook From Both The Radical And Reformist. Sustainability will happen if the action taken in line with the theory developed and thinking of these three crucial aspects (social, economic, environmental). In my opinion, however, in terms of understanding, most of the sustainable development is more emphasis on the process in which the object is obtained from certain stages such as those developed and it more compromised in the reformist perspective, but the radical perspective can be used in deep understanding of sustainability concept for example, nature is not just as fulfilling needs but also supporting our system within interaction between human and nature as a carrying capacity and the value of environmental services can not be ignored and I think these is can be submitted by cultural value and local wisdom.

So that, I recommend that sustainable development can be supporting by both of those perspectives, it doesn't mean environmental discourse problem can be solved just by these concept, but we need more responsibility to take care of our nature and pursuing the sustainable development itself for liberation of the ecosystem.

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## **THEME II**

**INDIA AND THE GLOBALIZED  
WORLD IN SHORT-TERM AND LONG-  
TERM: POLITICAL ECONOMY  
PERSPECTIVES**

# Development as Rights-based Comprehensive Social Inclusion or Fair, Equitable and Enriching Social Empowerment: Towards Identifying Some Key Elements of Appropriate Development

Kamal Nayan Kabra

## Introduction

The development discourse has undoubtedly made great and useful strides during the last seven decades or so leaving deep and multifarious impact<sup>1</sup>. These changes owe themselves largely to the joint efforts of the academia and the decisions-makers commanding the corridors of power. Given the sweep and diverse character of the presently prevalent development discourse it is not easy to zero in on some crisp and convincing broad propositions that can capture the essence of these momentous exercises and interventions in their multifarious dimensions in the realm of ideas, in the concrete socio-economic conditions seen around us and the associated conflicts—open and /or latent.. The task becomes all the more daunting owing to the controversies and sharp conflicts over different dimensions of the discourse. The impact of the changes in the discourse seems to have redefined most aspects of human existence all over the world. As can be seen from the various UN, national and unofficial documents, and other development -related writings, the central purpose of the global efforts directed towards development and modernization during the period have ostensibly been directed towards making the entire world, encompassing both those who are in the lead as also those who have remained laggards, move in the direction of a more prosperous, just, shared and sustainable evolution towards self-actualizing existence. While some strands of the discourse maintain and imply as though all the stake-holders are equal partners in progress, others take pains to elaborate the disequalizing impact inherent in the interaction of the development discourse with the ground level legacy of uneven situation across nations

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<sup>1</sup> Given the virtual explosion of, over the last six centuries or so a constant stream of insightful and perceptive writings and diverse ideas, ideologies, theories and historical interpretations of the global experiences concerning the socio-economic changes in their totality, it seems reasonable to assert that the development discourse can be regarded as the prime discourse of our time, cutting across normal disciplinary boundaries. In order to give a fleeting glimpse of the vast volume of literature one may refer to two volumes which give a fair inkling of the most notable variants of development thinking. For a conventional understanding in terms of the mainstream views, one may refer to two edited volumes, for the early writings, Agarwala, A.N. and Singh, S .P., 1963, *Economics of Underdevelopment*, OUP, Bombay, 1963 and for a relatively newer set of views, Meier, G, 1984., *Leading Issues in Economic Development*, OUP, NY. For later and alternative, critical and radical perspectives, one may refer to, Sachs, W Edited *The Development Dictionary*, Hyderabad, 1997 and Majid, Rahnama and Bawtree, 1995 ?, London, Z books Of course this choice in no way implies undervaluation of many other anthologies.

and with respect to the socio-economic and cultural entities that are variously organized<sup>2</sup>.

As a result, the world today bears no more than a pale resemblance with the world as it existed even not too far back during the troubled inter-war era and, of course, earlier. Similar is also the distance between the reality and the desired and desirable future.

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<sup>2</sup> Notable gains in socio-economic development, primarily attainment of hitherto unknown high levels of per capita income, by many third world countries (TWCs) during the post-World War II period can be considered a notable achievement in a historical perspective. Among the factors that facilitated these achievements the role of post-war development discourse, specifically of the theories of economic development can legitimately be assigned a fairly prominent place. However, the significance of these achievements stand compromised on account of many serious, widespread and often bemoaned negative aspects associated with modern economic growth and many waves of industrialization seen during the last three centuries or so in a number of countries. Little wonder there emerged a series of critiques of both the development experience and the theories used for guiding and explaining the saga of modern economic growth and its emulation in the TWCs. These multi-pronged critiques seem to embody a broad consensus around the following propositions qualifying the accolades showered on the theories of economic development for their contribution to economic growth.

- \* What has been achieved by way of national socio-economic development so far would be dwarfed in comparison to the unfinished/un-attempted but surely feasible and necessary tasks, both in quantitative and qualitative terms.
- \* The unevenly shared gains flowing from economic growth have imposed rather high multi-dimensional costs on the vast majority of the poor countries and these costs are shared inversely with those who gained the most from the growth-related socio-economic changes.
- \* Along with highly prized changes in several spheres of existence as both intended and unintended effects of predominantly one-dimensional, economic growth process, we have also to face the fact that many of these achievements have strayed in to unwarranted and even undesirable directions, amounting to distortions.
- \* Overall, the challenge of self-sustaining, equitable and holistic development that overcomes the limitations and negativities associated with economic growth and ensuring that development becomes consistent with the basic universally accepted normative considerations and values remains, if not more, at least as intractable as ever before. Among several factors that can be held responsible for the impasse, the position acquired by the dominant forces and agencies and the mainstream theories of economic development (essentially a counterpart of the former) can also be counted as major stumbling blocks preventing universally shared, just and sustainable development.

Notwithstanding the economic growth seen so far, the above propositions seem to be justified in view of unnecessary, avoidable and undiminished prevalence of widespread poverty, intensified global and national inequalities, reflected in the TWCs' persistent dependence on the richer countries, exclusion of their masses from the processes and fruits of socio-economic change, growing threat of impending ecological disaster and gathering storm clouds on the sustainability of the prevailing character, speed and direction of hitherto experienced economic growth. The above propositions seem to be the sum and substance of many of the critiques of development processes seen during the past six decades or so. Apart from the substantive political economy real factors that have to take their share of responsibility for whatever has happened and/or did not happen, a broad consensus seems to maintain that the theories of economic development, especially the ones that found favour with the national and international development Establishments too cannot be absolved of their share of responsibility for the present situation.

Hence, it would be far from truth to say that the stage and nature of development as it has come to evolve till date invokes nothing but undiluted universal appreciation. The emergent trends and, more particularly, the challenges and unfinished agenda of development derive considerably from the deepening and widening sense of disappointment with the net outcome of development-centric initiatives and interventions. But to say so is not of course, to overlook the fact that a lot of the achievements of the development initiatives, particularly those in terms of the heights reached by GNP, both total and per capita, across nations and socio-economic groups are also applauded by some sections as constituting the essence of the unprecedented socio-economic expansion, often characterized as development, modernity and globalization. Given such polarity of perceptions, it would be an uphill task to try to capture the essence of these conscious interventions in some generally acceptable propositions about the nature and significance of development and the related processes and outcomes. The purpose of the present exercise is to take a few steps in the direction of capturing some really salient features of the development discourse. It may involve some exploration/speculation for identifying the underlying factors seen to be operative at the theoretical and practical levels in a somewhat overlapping manner. The elements which provide the essentials of the concept of development, owing to the historical roots of development, have to be consistent with and derived from, one, the general character of social change and, then, owing to its normative character, the widely and openly accepted values held as the legitimate guiding principles of our social and individual lives. The values normally evolve historically and at the same time, become a kind of overarching factors in order to respond positively to contemporary challenges in the given national and socio-economic configurations<sup>3</sup>.

The apparent appeal of such an exercise is related to the need to delve deeper and more fruitfully into the theoretical aspects of social change in order to improve and enrich our understanding of these processes as the democratic aspirations to become increasingly self-determining, free societies having a hand in the shaping of our common wanted futures. Such exercises are likely to be of some practical value as well for suggesting some real life policy implication capable of undoing the negative legacy of the dominant development discourse in order to improve the capabilities for meeting the needs and aspirations of

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<sup>3</sup> In our view, it is considered critical to explicitly try and locate the concept of development with an explicit appreciation on the one hand of its wider or general characteristics connected with the on-going processes of social change, and, on the other hand, also simultaneously its ability and clear thrust to respond effectively to the specific challenges of the time, space and concerned entities consistent with the values that seem to have found at the level at least of formal commitment more or less universally...

the people and countries which were either overlooked or left behind and additionally were overburdened with the costs of the changes seen so far. These kind of outcomes are generally bereft of any assurance about corrective processes in order to restore their desirability, say, for example, by providing to the worse-off sections a due share in the likely or ensuing goodies and widely and fairly sharing the inevitable costs of such changes.. Given the present state of the development discourse,<sup>4</sup> there is clearly a great need for a variety of attempt to advance some really large generalizations that may turn out to be capable of coming close to the quintessential essence of a normative development discourse<sup>5</sup>.

### ***I. Some Broad Implications of the Concept of Development - In Terms of the Growth of GNP and Its Centrality in the Prevalent Discourse***

An attempt to look back over the world-wide development discourse of the post-war period may show its great diversity of experiences, ideologies, challenges and conflicting perspectives and interests. And yet there has emerged a somewhat perplexing commonality of approaches in some significant ways, particularly over the use of the GNP as a common element dominating the bulk of the discourse. Surprisingly it is a common thread that binds together many otherwise diverse approaches to development and tends to turn attention from their own differentia specifica. Paradoxically, in some broad, general ways even the most strident critical schools of the mainstream development discourse (that is, the radical schools of development which uphold diametrically different ideologies, values, socio-economic systemic preferences, underlying social forces in terms of the leading role of different social classes and groups and even nation-states) seem to have directly or indirectly embraced the critical role of GNP as the prime indicator and pre-condition even for the attainment of the broader social and democratic goals of development.

In the following section an attempt would be made to offer some hypotheses that try to locate some possible reasons regarding the acceptance of the GNP as the indicator of development outcomes and a critical criterion of development policies even by those who are against anti-capitalists and, indeed, uphold an alternative world view and articulate a world view different from the mainstream, standard Western or neo-imperialist model of industrialization and economic growth.

The latter leans heavily on an interpretation of the historical experience of how the West won global supremacy building on and accelerating its early lead in modern industrialization and, more seriously, goes on

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<sup>4</sup> list some critical writings from Hirsman to some

<sup>5</sup> For a short introduction to the evolution of ideas about development at least for the last few centuries, See, Esteva, , Gustavo, Development in Sachs, W. , op.cit. pp.8-34.

to build an economics of development which is considered universally applicable and relevant. It considered technological advancement riding the wings of capital accumulation as the major engine for creating huge volumes of productive assets capable of producing wealth on a growing scale as measured by GNP. Thus there emerged a theory of national *economic* development by means of various processes of catching-up and re-creating in the late -developing economies a mimetic version of economic development. Of course, it was supposed to follow a broadly similar path requiring continuous growth of capital accumulation and technological progress which are the aspects similar to and in some ways in some cases even connected with, if not dependent on, the forerunner economies. It implied that the phenomenon of GNP growth largely similar to the profound, multi-dimensional changes of the kind seen in the pioneer countries which redefined the economy and society in all their major aspects during the early modern era is also going to be the sought after destiny of the late -comers. The way it was propounded and acclaimed an impression was generated as though it is the only way, or at least a credible course of a future action.

The emphasis in these perspectives is so much on the high and rising level of GNP that the critical role played by various socio-economic and cultural and global factors other than investments and new technologies related directly to GNP were ignored or sort of subsumed in investment and technology. This strand of thought focused on the total output flows and their growth over time. It means little, if any, open and notable concern was shown with the composition of output and other related aspects: the idea simply seems to have been that the fore-runners have blazed the trail and the late-comers would do well to follow in their footsteps, particularly owing to the openly declared intention of the rich to help the poor adopt their trodden path and hope to reach the level of living and productive capabilities that are comparable to the early-leaders in terms of GNP (also in terms of productivity and so on) and related variables. Given the fact that the late-comers were predominantly agricultural economies, the emphasis had to shift to industrialization but it was also understood largely in terms of the total share of the manufacturing and industrial sector as such and basically on a mimetic pattern. This was also generally similar to the Western experience during their comparable phases and also was inherent in the use of imported capital equipment and technology and even the corporate form of organization and mobilization of capital and management of the production units. Broadly, the imitative pattern rarely amounted to detailed product-mix and was meant largely for following the sequence and for comparable stages of growth tended to be different from the forerunners. The idea clearly seemed to be to gradually increase the

growth rate by going in for increasing both the relative and absolute share of industrial GNP and the changes closely associated with these processes of growth and industrialization.

The emphasis on growth and the a high level of GNP total and per capita along with the share of the secondary sector implied emphasis on the rate of capital accumulation and adoption of advanced technology particularly in the industrial sector. Beyond this every thing else was to be left to the market forces as the deciding factor (as was popularized to have been the case in the advanced industrial nations for giving shape to the pattern of production and related aspects. The role of capital investment and technological learning and adoption were taken as primarily instrumental factor capable of contributing to a high and rising level of GNP. It was and remains basically an *instrumental* view of the factors leading to growth., of course, in most cases and contrary to the myth of *laissez faire*, with active involvement of the state in order to facilitate investment and technological up gradation for a quick transition to industrialized, rapidly growing capitalist economies capable of dominating the international markets, as per the new lease of life that the growth of national markets and nationalism got along with capitalist growth. All the other aspects of development were, by and large, sidelined. In brief, the GNP growth and industrialization story was scripted in terms of capital accumulation, mainly embodied technical change organized by means of the competitive market forces extending the range of their operations to the national and the international levels.

The above transformations reflected the social change that preceded, accompanied and followed in the footsteps of growth. However, all these were kept aside in the mainstream development discourse owing to the primary place accorded to GNP growth. The far-gong institutional and historical changes were treated as the consequences of growth not independent by themselves: often they remained hidden underneath the growth story or at the most as certain consequences of growth of output flows (ipso facto considered a notable gain or improvements, measured and flashed in terms of high and rapidly rising level of GNP).

One basic underlying value and normative preference wrapped up in the GNP growth figures apparently was: the more the flow of various goods and services an economy produced over time in its more or less elemental market determined, of course with a friendly state in command, the better it is for all concerned., implying a sort of one-dimensional economic fixation in terms of quantitative economic growth. Moreover, it also carried the view and value judgment that those who command resources either of their own or mobilized from the others in whatever form were the natural masers and beneficiaries; the need for incentives and effort demanded it as also

provided the justification. In any case the emergent marketizing (that is, societies proceeding towards generalized commodity production and coporaization of the economic entities) and social power was concentrated in most of these early industrialized countries both as a pre-condition for and as a consequence of capitalist economic growth. The greater the successes in attaining high and rising rate of growth, the greater the concentration of resources and power, especially after the demolition of monarchies in country after country. The initial lead everywhere became the logical and practical basis for giving a further boost to the initial lead and the growing concentration of resources and power, whether as producers, innovators or as nations which had a lead or a comparative advantage over the other players/survivors..

The saga of industrialization of the West was so impressive, overpowering and influential that almost all the other strands of thought and participants in the development discourse, that is, its adulators, emulators, competitors and detractors, found it too dazzling to question it and its premises in so far as they were related to the growth of GDP and the associated technological and industrial structural changes, and of course were reflected in the rising average level of living.. It means that the growth of GNP came to be treated as some kind of a techno-economic variable and capital accumulation and technical change were considered both the necessary and sufficient conditions or instruments for the growth story to unfold itself. By implication they all became one in singing the praise of the path-breaking role of capital accumulation and technological transformation as the causal factors leading to unprecedented rapid growth of GNP. Of course, the market mechanism or free markets, especially after the replacement of the mercantilist over-regulation policies by those of withdrawing regulations and instituting state support for the processes of capital accumulation and realization of the profits was treated as the victorious engine of growth.

Actually the concept of GNP as the indicator, essence and dynamic engine of further economic growth provided the basic unifying element of the theories of economic growth and industrialization; the existing level of GNP came to be treated as the basis of future growth acceleration over time and expansion over new territories. The critical role of the level of existing income as the factor critical for the future growth of GNP lead to the formulation of the dilemma of growth in terms of the vicious circle of low income trap and the dependence on the advanced countries for capital and technology for breaking out of the low income trap.

This story was consolidated and given a logically tight theoretical format and structure by means of the use of the advances made in the mainstream economics, particularly the Keynesian

macro-economics and its flowering in to the economics of growth. As a result, GNP and its growth and the facilitating underlying micro-level behaviour came to be treated as the basic foundation of the market-led growth process and its understanding in terms of identifying the variables which are essential for economic growth. Given the above thumb-nail sketch of the dynamics of economic growth, one can see how various variants of the economic growth literature give primacy to GNP as the central character of the story.<sup>6</sup>

Thus it can be seen that the complex and multi-dimensional phenomena of economic growth, industrialization and modernization and the underlying and closely intertwined socio-economic and cultural processes and forces came to be portrayed by means of the level and rate of growth of total and mean GNP of a nation. This approach was evolved not only by way of an exercise to simplify a complex multi-dimensional process as a theoretical abstraction but in a substantive sense determining the main thrust of development in an economic universe inhabited by the homo economicus. This is the factor that needs to be examined as an issue that greatly influenced the substance and content of growth taken as another name for development and has come to be examined by so many streams of development discourse for some time now. *According to the most widely prevalent position in development discourse the processes of industrialization and the resulting economic change have come to be portrayed in their essence and substance as the saga of speedy growth of GNP. Thus GNP has been depicted as the key element or facet of or even another name of the growth of capitalism in the domestic sphere of the West which over time was extended over large parts of the globe by way of its uneven spread and in many substantively divergent forms and styles. The vastly different, indeed negative, overall outcomes and effects of the aforementioned change in the former colonies are also well-known parts of the history of capitalism and modern economic growth. The practice of its presentation by way of a single indicator called GNP fails to upfront both its myriad positive and negative outcomes and the associated externalities specifically those that became the fate of the late comers in the world capitalist system.* Obviously the history of the development that took place over large parts of the world is a rather complex and many-dimensional story rooted in and reflecting changes in the dominant values and associated social change. While some elements of the social change emerged spontaneously, there were others that were consciously engineered, often times as a series of steps in the direction of a sort of civilizational redefinition of the existing order of things. It is contrary to common sense to believe that such far -going, multi-dimensional historical processes

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<sup>6</sup> List some important writings that proceed in trms of growth as the central variable .

spread over many continents, countries and centuries can be captured by the quantitative GNP figures. Actually inter-temporal comparability of GNP over such long stretches of time, space and diverse cultures is itself a matter of suspect scientific validity particularly as something that can be explained in terms simply of accelerated capital accumulation and big leap technological changes. This elementary truth, it seems, has still not fully and widely appreciated by many, especially those who have been at the forefront among the beneficiaries and leading lights of the story of modern capitalist industrialization and economic growth.

Let us briefly and in a broad sweep try to recapitulate the main thrust of these epochal changes in the form of some generalizations. It is hoped that such an overview would help us in judging the appropriateness of the GNP-centric concept of development, especially its close inter-connection with capital and technology as the prime contributory/causative factors. Essentially from among the range, scope and intensity of the society-wide and world-wide changes seen during the last three centuries or so either as the pre-conditions of or in association with or in the wake of modern industrialization, one may draw attention to some of the closely related key processes and forces and their most prominent manifestations. At the domestic level there took place profound changes by way of pauperization and proletarianization of the masses of people and the emergence of a generalized system of commodity production (specifically commodification of labour and natural resources) at the one end as the pre-capitalist or pre-modern structures and processes gave way to the emergence of a powerful minority as the leading and most prosperous socio-economic powerful entity. These transformations can easily be considered a qualitative historic leap--a leap into or a gradual movement towards capitalism, of course with national and regional idiosyncrasies and diversities.

There were similar changes on the international plane. These profound changes went hand in hand with the institutional, organizational and civilizational counterparts of industrialization by means of political and military subjugation, more as a grist to the modernization mill of the Western economies than as the outcome of the domestic processes, though any excessive emphasis on any one set of factors alone would surely distort the understanding. Thus the modernization-industrialization story is in some major ways a story of the extension of capitalism and the Western sphere of influence as a sort of unilateral imposition on and incursion in to the rest of the world in the form of colonies. It is too well-known to be specified that the colonies were formed as externally determined and dominated extension of distorted and partial Western capitalism to the rest of the world. Of course, the disarticulation and disparities-ridden diversity of the

domestic configuration seen in the third world too cannot be overlooked. However, many of the diversities, related to both the economic and non-economic spheres: the role of the socio-political and cultural processes involved in the restructuring or redrawing the map of the world as the metropolitan centres and as the dominated peripheries too cannot be overlooked. The simple fact is that much, really much else, in addition to the quantum jump in the level of GNP, has changed and continues to change. Come to think of it and one sees that there is little reason to believe that these changes, both small and big, owe themselves to the growth of GNP as the biggest factor or can be captured by it. Actually the direction of causation could as well be the other way round: GNP is both a factor influencing and influenced by the host of other aspects of socio-economic reality. Moreover, except in the case of some special cases, (largely curiosities) in a free and really democratic society the prospects of *people* considering the growth of GNP as the be-all and end-all of their pursuits do not seem too bright to inspire respect. Of course, the ideologues and the forces behind or sponsoring them can, be considered growth and market fundamentalists. This could be for several reasons which could be summed up as the size of the cake representing the size of the market and hence impacting the prospects for intended investments.

To come to the crux of the matter: the GNP, even when treated as the solo grand manifestation of national development, never comes unaccompanied by other significant and far-reaching changes and not all of the changes the growth of GNP brings in along with it could be defended as positive and in a net sense. It brings in its train a lot of undeclared accompanied baggage. It would take us far away from our present purpose if these aspects were to be explored. But the fact that it is the total GNP as such has been accepted and advocated rules out the role of any interference with the elemental market forces. It means the composition of GNP is considered irrelevant in so far as the total keeps growing and does so economically or efficiently (in fact, this is another name for the preference for larger quantity over a smaller quantity) Thus investment and technological up gradation as determined by the market forces behaving 'rationally' (that is preferring larger value-added over smaller amounts of it) and adding to the growth of GNP are the engines of growth identified by the GNP-centric theories of growth. We have already spoken of the circularity of causation, and its counterpart in low initial income countries as the vicious circle of poverty: income or initial GNP, by way of savings, investment and as spending on technology, is decisive factors impacting the growth of GNP. One can present this reasoning in the form of the vicious circles of poverty breeding more poverty as popular in the economics of growth during the 1950s and 1960s. Except suggesting a way out, among other means, by way of depending



on international capital inflows and technology inflows. There is little else that follows from such theories. Hence the inexorable necessity to link up the early and late industrializers and its well-known consequences for the nature and speed of economic and social development as seen in the third world all these years shown by The pursuit of GNP total as the goal of development rules out any attempt to interfere with its elemental character, except what is ordained by the self-regulating and self-propelled market forces. The moment the agency function is entrusted to any organized agency consciously, that circumscribes the role of the elemental, self-contained market forces and opens up the way for the social processes and forces to enter the arena of development as active forces. In simple direct terms such a turn in the script compromises the theoretically assumed (as distinct from the real life market phenomenon) essential capitalist character of 'development', that is, a departure from the GNP-centrality is ipso facto a departure from capitalist growth, that is, an alteration from the self-determining and self-regulating exclusive or solo role of the market and its use as an instrument of social management as a subsidiary tool and not as a master and autonomous process, if such a thing can even exist except as a theoretical, or make-believe assumption

The colonization of the discourse of modernity and economic growth accompanied in some ways the changing economic terrain and relationships as ground realities. What came to be perceived as exclusively market-related economic/capitalist character of growth, that is, the GNP based approaches, led in practice, to giving an unceremonious burial to the deep socio-economic and cultural character of development under the strong impact of the political and other coercive power relationships. Thus given the enthusiasm over the role of capital accumulation and technological leap-frogging, not only the socio-economic and other aspects of the profound changes were neglected but even as vital processes and institutions as corporatization, establishment of the infrastructure of modernity, direct state role in the form not only of creating but also steadily sustaining and expanding a favourable and dominating financial, trade-related and strategic global framework, backed up by strong military forces for helping the growth and global domination of the early leaders of modernity and growth were either sidetracked or treated as subsumed under the capital accumulation, technological changes and economic growth..

What could have been presented straight away as capitalist growth and industrialization and its inevitable uneven, and, in some senses, unilateral imposition on the rest of the world left behind by the initial growth processes and impulses were sought to be presented in a techno-economic and non-institutional and ahistorical form as the phenomenon of GNP growth. This kind of a turn to give a generic and

context-free name to the diversities of historical experience has its roots in the very compulsions faced by the early leaders of global capitalism as can be inferred from the oft-quoted speech of the US President Harry Truman in 1949.<sup>7</sup> Its theoretical underpinnings and the edifice were erected as critical components of the theories of economic growth and the economics of development meant for the tendentially termed under-developed areas. These power-relations based concepts, theories and related policies and practices were promoted propagated and used as the components of the immediate post-War development discourse. The simple inference is that the GNP-growth related terminology came to occupy an influential multi-purpose role in the emerging development discourse,<sup>8</sup> as something that has little to do with helping the former colonies shape their destinies as developed societies.

What we have noted above seems to be in line with what Galbraith suggested by way of substitution of the term capitalism by the term market system "in order to escape the negative history of capitalism." (p. 29)<sup>9</sup> This terminological practice was considered a clever move in the midst of the cold war ideological rivalries-ridden world. It can be said that the substitution of GNP growth for the simple historical fact of capitalist development or its primitive accumulation and colonial domination and machinations driven extension in to other parts of the world is something similar to the replacement of the term capitalism by market or rather, free market economies.. In the same study Galbraith has explained the real character of the big corporations determined growth of production, measured by way of gross domestic product (GDP). He says, "The *more than minimal fraud* is in measuring social progress all but exclusively by the producer-influenced production, the increase in GDP." (p.15, op.cit. emphasis added). This is something that can also be taken to suggest that the partnership in development, by diverse and highly differentiated and stratified citizens and the nations with great disparities (whether directly and/or under the auspices of various multilateral organizations) for bridging the development lags identified and measured in terms of the GNP levels of the different countries seem to have formed an integral component of the Western countries' post-war strategy of managing a world minus the formal and physically and politically occupied colonies. It seems a reasonable hypothesis that by camouflaging capitalist lop-sided industrial growth as the growth of GNP and promoting such growth as economic development after decolonization, the rich forerunner countries made an attempt to retain at least the essentials of their former

<sup>7</sup> Truman speech from Scars, W. ed

<sup>8</sup> It has been pointed out by many that a specific turn of the phrase and the choice of terminology tend to play useful ideological and political roles.

<sup>9</sup> Galbraith, John K. (204) *The Theory of Innocent Fraud*

unilaterally advantageous and dominant global position. And the UNO and other multilateral agencies too were enlisted for the purpose<sup>10</sup>.

The net result of these practices in development discourse is the artificial creation of the economic sphere as an autonomous sphere by means of state-supported, socially disembodied market processes. Actually a little reflection seems to suggest that instead of total disembodiment (except at an abstract level such a process cannot strictly be followed in a logical manner and tend to lead to logical flaws, inconsistent propositions and/or mismatch between the components of the analyses). what has been perpetrated is adverse social incorporation, that is, sacrifice to varying degrees the pre-eminently social consideration for the sake of serving some so-called economic considerations, often in the garb of efficiency conceived in a narrow economic sense. Its counterpart in development discourse is the treatment of economic development, expresses in terms of, or, indeed identified with GNP, as something complete by itself and mirroring overall development. In any case, economic development continues to be considered in the bulk of development discourse the key or the decisive element. As a part of these views, GNP is considered the mechanism holding the key to economic growth. This flowed from the position which treated the market economy as some kind of self-sufficient, self-regulating and self-accelerating framework.

Along with the portrayal of the market mechanism-mediated capital formation and technological changes as the driver and determinant of capitalist economic growth, GNP has to be taken as a market determined and market manifesting/expanding variable, both on the demand and supply sides. However, the manner in which the pricing process enter the GNP story, (as GNP is essentially an expression in monetary terms obtained by aggregation of physical quantities of production expressed in monetary value terms) is something that shows a great divergence between the abstract theories of pricing and the ground realities of price formation which cannot be captured by the demand-supply interaction. As a result, by and large the GNP accountants consider it a better part of valour and use their discretion to steer clear of the real meaning and significance of the market prices used for computing the GNP and thus reduce the market prices to the role of denominator only. The fact that for purposes of making international comparisons of GNP, the device of purchasing power parity (PPP) is used suggest that for capturing the real social significance of the output flows and the deployment of input supplies for generating these purposes, a lot more, and surely different has to be done, if the market-prices or factor cost based GNP computations have to be taken as

containing vital social information. True, the device of working with a base year to manage a certain degree of inter-temporal comparability of their estimates of GNP is made use of, but much else also blocks comparability, including he vastly changed commodity composition at or during different periods of time. But that has little to do with the diverse bases of and hence meaning of prices in different contexts. Thus the liberal or capitalist view of development is in a sense an economic view (that is, takes the economy and market as autonomous and complete by themselves which are the sole concern of the rational human decision-making). It takes the market for goods, services, ideas and the means of production and exchange as a complete, self-contained and most powerful factor decisive for the rest of social existence. Hence the concept of development was articulated concretely as the growth of GNP and was assumed to be an all encompassing and all-powerful factor for deeply impacting social existence and its improvements along the lines considered ipso facto desirable. It is evident that these views tended to take a putty clay view of the rest of the social existence shaped by the processes and outcomes of the growth of the economy. According to the economic concept of development, Karl Polanyi suggested, no price was considered too high for economic improvement, treating GNP growth as the summum bonum.

Let us sum up the above. The economic conception of social existence, economic fetishism, found expression in the acceptance of the supremacy of the GNP growth, another fetishism or another name for capitalist economic growth as a somewhat polite and neutral-sounding techno-economic, essentially ideology-driven expression as the prime objective, means and indicator of development. It took the form of a high and speedily rising level of economic growth, irrespective of its pattern and without trying to ensure a certain degree of correspondence with the actual needs, aspirations, resource endowments, cultural proclivities. So pervasive and influential became the discourse around GNP growth that the official comparisons and reporting on global trends in development proceed in terms of the ranking of the nations on the GNP scale, though in the form of Human Development Index (HDI), certain other socio-economic variables too have been given some place and value in these comparisons. The latter kind of choices to an extent modifies the GNP-calculus but do not really capture the life-like multi-dimensionality of development. Consequently the salience and relevance of the pattern variables involving conscious social determination of the content of development remains outside the precincts of the dominant development discourse.

## II.

We have argued that in so far as the growth mechanism makes use of the rate of growth of GNP

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<sup>10</sup> See the First UNO development decade--ICWA paper by kabra

as the key variable and the pattern of growth or industrial expansion a by-product or derivative of the processes of capital accumulation and technological innovations, the underlying socio-economic processes, institutions, agencies and the framework of the political and cultural spheres were taken at best as reflections of or carrying the impact of the chosen key economic variables and the market institutions. As for the critical alternative theories of economic development (yes very few of them consciously opted for a holistic, normative, historical and social concept of development) hardly nay of them could become free of the yoke of economic growth fundamentalism to any operationally and visibly significant degree. It remained an article of faith that economic expansion and associated improvement would automatically ensure or at least provide the wherewithal for pursuing their favourite socio-economic and military objectives at national and class levels. Thus it seems. Somewhat unwittingly and even without fully realizing the hidden implications of accepting the supremacy of the GNP growth as the prime objective, means and indicator of development they adopt a lot many things as the accompanied baggage in the form of the primacy of capital accumulation, technological upgradation and the urge to leap-fog in to modernity following the pattern of industrial expansion and diversification. In so far as they adopt the GNP-centric approach. It seems to have been ignored that the GNP-centrality carries with it various stated and unstated assumptions and implications, they themselves disapprove of or find inconsistent with their world view and social preferences. For example, according to the GNP-centric views, the market –led processes of trickle down can at the most ensure that over some undefined time horizon a certain degree of inroad in to absolute poverty may be made ,but it can neither accomplish nor is intended to bring about any reasonable degree of socio-economic equity. To this view of development, this is all that is feasible and consistent with a regime that gives due importance to the system and effective structure of incentives considered critical for the all important objective of wealth generation and technological advancement. These common elements/ideas are found organized around, in various forms, about the quantitative expansion of aggregate production based on the use of new technologies, natural resources and markets from all over the globe to provide the wherewithal of more plentiful and improved levels of consumption in average terms, of course without being concerned with the question of distributional equity or social justice e or fair and rights –based social inclusion. Such exercises tended to proceed both conceptually and in terms of methods of computation of the chosen key variable or indicator of economic growth/development by including and or excluding by some countries of certain elements, such as non-material production in the form of services. Such apparent common

understanding/approach displayed by many diverse ideologies and schools of thought and their close relationship with hostile power blocks in the global divide tended to show some visible and none-too-insignificant commonalities regarding some aspects of economic development. .(See the contributions by Viner and Paul Baran, in Agarwala and Singh anthology as also the Canadian book on soviet and western views ).

### III.

This may appear to be somewhat unusual, even if not inexplicable. However, given the pervading influence and power of the dominant development discourse derived from the success stories of early industrial revolutions in the Western world as also following from their conscious attempts to popularize, eulogize and idealize their growth path and model as some thing universally valid/relevant, at times implying neutrality between the interests of different parties to the game and truly useful, it is understandable that the late-comers try to learn from the experience of the pioneers.<sup>11</sup> .Such lessons are not confined to the technology that came to prevail in the pioneer countries but extend to the socio-economic and commercial strategies and policies as well. One has also to take note of the fact that uneven development is a sort of long-established inevitability because, for a variety of reason: some entities are likely to steal a march over the others, or to put it in a different manner, the breakthroughs neither occur everywhere at the same time nor are they of similar magnitude and significance (Giddens) and having taken the lead, the pioneers are prone to further their lead by making the others follow in their footsteps and according to their open or subtle dictates. Thus the overarching common elements identified in the economic sphere, particularly in the form of aggregate production level and its rate of growth by means of extended capital accumulation in diverse forms came to be accepted almost universally as by itself constituting development (that is GDP growth is development view) and not just the central element and manifestation of development. This view and concept (along with a long chain of policy goals and instruments) have exercised more or less unchallenged and paradoxically practically universal sway. Obviously it marked the victory of the economic instance, particularly its quantifiable generalized commodity production ( that is, production for selling in the market with the help of marketized input supplies ) activity, over the other aspects of human socio-economic and cultural existence. This reminds, as mentioned above, one of the proposition established by Karl Polanyi regarding the separation and autonomy of the economic sphere from the rest of

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<sup>11</sup>The popularity of Gerschenkron 's contribution to the industrialization discourse seems to have been owing to up-fronting such lessons)

social existence in the course of the development of capitalist industrialization with the active role of the government to set up the supremacy of the market and the economic instance. We have alluded to it as something too well known to need reiteration that these processes increased by leaps and bounds as a result of the device of corporatization throwing up the giant conglomerates all over, as the operational and organizational entities helping the process of state-market symbiosis and internationalization of the markets irrespective of the political boundaries and divergent cultural identities of the people. As a result we see the continued expansion of capitalism on the global scale, of course primarily in the highly industrialized rich countries –the so-called first world—and subsequently in a weak and dependent form in the third world. Thus what has emerged is a greatly polarized world between the strong and rich metropolitan Centres on the one end and the weak and dependent Peripheries on the other.

It is essential to recognize at the same time that all this great advance carried with it, indeed exacerbated, the embedded processes of social exclusion on both global national and intra-national domestic plane everywhere. A greatly differentiated and exclusionary rapid expansion of modern industries and similar industrialized services, that is the tertiary sector, was accompanied by consequentially rapidly declining agriculture, (covering both agricultural populations and agriculture-dominated third world countries). The processes also carried with them the germs of increasing informalization in both the rich and the poor countries as formal work opportunities decline. It has been pointed out (by the Council of Economic Advisers, Economic Report of the President of USA, 1995, p.403 ) that in all of Western Europe, no net new jobs were created from 1973 to 1994. Quoting these figures , Lester Thurow, in *The Future of Capitalism*, goes on to point out that the US record of unemployment has generally been no better and at times worse than that of Western Europe, (p.1). Similarly he has shown how these processes of growth were accompanied by worsening income distribution. (pp.2-6)

His pattern of global change was reflected and captured by the emerging development discourse in a highly partisan manner, mainly as holding object lessons for the poor economies, of course, with the active guiding and hand-holding role of the advanced countries and their big capital. This was disclosed in very clear terms by the 1949 statement of the US President Truman. His statement raised the economic development of the underdeveloped areas on the pattern indicated by the early industrialized countries as a kind of *ex cathedra* policy statement and commitment on behalf of the entire North. The development policy of the post-war world emerged not only at the behest of and in order to further the interests of the early leaders of development at the global level but also in order to

replicate the story in the underdeveloped areas with a the active role, contribution and participation by the North, of course by taking on board the small sized leading lights of these highly uneven societies emerging from the direct colonial subjugation<sup>12</sup> as also of those who came to command the home markets nationally. We have also tried to maintain that not only the emulators and imitators but even the critics and supporters of alternative socio-economic philosophy and civilization accepted the primacy of the economic sphere and that of the GNP *a la* the pioneer countries and along with it the mimetic pattern of industrialization, with emphasis on capital accumulation, technological leap-frogging and what came to be known as modernization. Yes, of course, they have their differences and surely substantive differences that. Various serious bones of contention bitterly divided them, providing fodder to the cold war and various national liberation movements, academic controversies as also up-fronting the independent lines of thinking and policy choices on a nationalist self-reliant path of development by the moderate middle path forces and nations, such as the Indo-Fabian guiding the development policy processes in India. But come what may, in the ultimate analysis, it was seen that practically every country and the divergent schools of development thinking accepted the operational utility and practical policy guidance role of the GNP-centric economic growth approaches as the operational pragmatic immediate-run course of public intervention for economic development. The main variable in terms of which the alternative development strategies and policies, particularly the debates on the performance of the industrialization processes and the progress in the direction of self-reliant development were interrogated remained focused on the rate of growth of GNP. It is obvious that with this indicator stealing the show, many other critical aspects and the underlying processes and forces remained on the periphery.

Such omnipotent position of the GNP-centric view of economic development has to be understood in its open as also hidden meanings and implications as also the underlying forces, ideas interests and ideologies.. Its popularity has to be appreciated not only in terms of the huge and incomparable advantage it enjoys in terms of precise and quickly available quantification as the prime performance indicator; that is its measurability, crisp short hand and readily available quantitative expression with brief time-lag, easy inter-temporal and inter-spatial and inter and intra-national comparability are surely matters defining the comparative advantage enjoyed by the GNP measures of how the economy s dong in terms of

<sup>12</sup> In so far as the statement of the US President Truman expressly disowned and repudiated “old imperialism” and pledged the support and active role of the resources, capital and technology and policy advice/guidance and so on, was it a kind of Freudian slip presaging the emergence of a certain kind of ‘New or neo-imperialism’?

economic development. The impression of scientism and precision (to the extent of going to some decimal places and giving even quarterly performance indicators, what to speak of advance and provisional data) make for the popularity of the GNP measure of development. Also working in the same direction is the apparent neutrality as between different interest groups (owing to the pre-fix national, as though the GNP *originating* in the geographical space of a nation, but *accruing to the citizens* according to the pattern of property rights over the entities in which production takes place, were the shared common achievement available to every citizen of the nation on some just and fair basis and thus can be taken to reflect some common good<sup>13</sup>). The short point is: that the quantitative expression of the total value –added during a given year tends to create a façade or appearance of being an objective, almost incontrovertible fact, neutral with respect to many contending forces and interests. Moreover, its putty clay character permitting diverse uses associated with use-values inferred implicitly from the prices based on 'free' choice by the buyers and enjoying the advantage of having a counterpart of exchange values helps to provide a uniform basis for aggregation of the values of production of diverse goods and services into a single aggregate figure. This makes one gloss over its internal or compositional diversity. Its easy transferability through the market processes permits diverse uses of the flow of annual production determined either by policy objectives or the market elemental, unregulated market processes. Thus one can mention many such techno-economic factors that led to or follow from the choice in favour of treating GNP- its level and rate of growth - as the key or almost exclusive indicators of development, along with its many other uses in its many avatars made available by combining its various components selectively on the basis of their inherent character, such as, for example, disposable income or personal incomes or the sectoral or regional income levels and their rates of growth and their relative shares and so on.. The advantages associated with the GNP-related variables and aggregates and sub-components too have played useful roles in managing development policy and macro-economic management at various levels. Thus it is quite understandable that the GNP is justifiably treated as a useful socio-economic variable reflecting as also helping the management of economic development. Thus for a long time GNP and its related aggregates have been fruitfully used to reflect the size of the national economy overtime (lately its utility has been enhanced owing to its convertibility into purchasing power parity terms for facilitating more nuanced international comparisons. Many such factors associated with the GNP figures

are considered critical for determining the capability of the economy to accomplish various development policy-related tasks. These GNP data also show that no less relevant and valuable is the speed of the growth of GNP.

None of the above advantages associated with or attributed to GNP data as techno-economic variable come close to its most critical value as a market generated real life flow of goods and services that in its aggregate version is taken to reflect the level and rate of progress of the production potential of an economy. Its two sides, monetary expenditure or cost of production or the total effective, potential demand side and the income accrual or flow of good and services, that is the aggregate supply side of the economy is a standard method of presenting the macro-economic profile of an economy. The two sides taken together constitute the circular flow of income to capture the essentials of the functioning of the economy. That demand or require any intervention by any institution save that of the freely operating markets. Eeeeeenti produced and the market processes associated with it.

Another great specialty of the GNP is its strong association with the market institutions, processes, valuation procedures, their fetishism, their changeability as also their obscurity or opaqueness and the ease with which it can be taken to show all kinds of changes and influences with little chances of meeting some serious challenge either as a matter of convenience or as a matter of making discretion the better part of valour. However, this specialty is also owing to the powerful interests associated with the use, popularity as also the processes of its production and their continued extended reproduction. Even the computational issues regarding GNP are quite complex and have been made a matter more of conventions than the search for precision and socioeconomic justification. The biggest of such plus points is probably the absence so far of any equally versatile variable or concept with such catholicity of applications and its political economy advantages in terms of the political support it is able to garner, thanks also to the great Keynesian anti-cyclical policy measures which necessitated and created macro-economic centered round GNP and its associated battery of concepts, measures and variables. The technicalities and other controversies and debates regarding the generation of its time series, nationally, internationally, regionally and going back in time its backward extrapolation for quantitative economic history and research have endowed GNP with great amn uses and advantages in national economic management and development planning.

Thus it can be said that the use and popularity of GNO-centric conceptions of development can be easily appreciated and is no surprise that hardly any other macro-economic viable has found its usage including among the on-experts of various decryptions.

<sup>13</sup> Kabra, Kamal Nayan, AES, 2010-11, What is national or nationalistic about GDP?

A major factor seems to be the very close tie-up and integral association with the market institutions and practices and GNP. The mainstream development discourse takes both the markets and the GNP as a the main force dominating the post-industrial revolution national economies by means of their command over and close association with, in many different key roles in the all-too powerful and critical capital accumulation and technological innovations and labor use and improvement as also the means for sustaining these processes. Do REFER TO POLAANYISEPARATION OF AND AUTONOMY OF MARKETS AND ITS IMPACT ON GNP. CHOICE too came to be dominated by the classes that came to be the leading force and masters of economic growth. of the capital accumulation, constant technological innovations and economic growth were in the leadership commanded the economic, particularly its dynamic growth leader and the dominant large controllers of the domestic markets but also owing to the urge of the leaders of the laggards to quickly catch-up with the advanced ones as the latter have successfully projected themselves as really developed and powerful countries with command over the resources that guarantee dominance of the world economy. Also it was the experience of economic growth that was critical in separating the economy as the most prominent and almost autonomous sphere dominating society. This proposition established by Karl Polanyi in the form of disembedded economy made for the ascendance of economic growth as the supreme and almost exclusive indicator of and pre-condition for economic growth a socdominance of the economy disembedded in society became the basis for assigning economic development, reflected in the growth of GNP future place in the global hierarchy as the Centre vis-a-vis the peripheries.. This may appear to the state-nations to be one of the relatively easy way to overcome the dominance of the hegemonic Centres and their upper crust, However such learning exercises may also be supported by the interplay of the late-comer, peripheral countries' domestic socio-economic forces . As has been shown by the history of the 20<sup>th</sup> century, this materialistic aggregate output growth concept of good and desirable life as a critical common element of the concept of development tends to become the most significant and primary, indeed the defining, feature of development.

This kind of common understanding of development in terms of the total production and its rate of growth may be due to its being the common ground between competing world views and ideologies: true, in one case it is the elemental, self-regulated market that is supposed to be the sole and final arbiter while in the other case it is the Party apparatus and state bureaucracy or econocracy in the central planning office that decides what is going to be the content of economic growth that would give the

people a good life in terms of what is portrayed as some form of socialist ethos.. Following this commonality, the third world development was also directed towards the attainment of the objective of high and rising per capita income as the magic wand that is supposed to make the promise of good life the integral component of social existence for every one at least to a minimum human level( very few in any case promised and/or hoped for an equitable society on his basis and that too by and large over an undefined time horizon). Thus cutting across the ideological divide and ignoring the large distances between the conditions of life divide, many different countries and ideologies and development schools of thought tended to define , pursue, monitor and eulogize the total national output or the gross national product (GNP) as the kernel of development or its key variable. What has to be underlined is that in this concept of development, apparently a techno-economic and social variable that has come to be measured with increasing degree of sophistication and the resulting credibility , the development pundits have adopted it as a kind of universally relevant indicator as also the policy and monitoring viable, particularly as evolving as a result of the unrestrained and self-regulated working of the market processes. owing more to what it conceals than to what it reveals the market and ,as shown by Karl Polanyi, the market as “the gradual and spontaneous emancipation of the economy the creation of “ a conscious and spontaneous emancipation of the economy conscious and often violent intervention by the government in fact , created the market system or the econocracy bureau or e is reflected in the “former socialist societies aspiring to achieve US standards of living” for their citizens or rather the working class (Lummis, D.C. , p.65, also the Soviet and Western views of development—refe) of course under a different institutional –organizational and power distribution model In the face of polar opposite institutions and control over and sharing of the socio-economic and cultural power, the common consumerist objectives and aspirations continued to lurk and exercise considerable sway. Thus the generalizations derived from the history of the early industrialized nations tend to become matters of significance for learning and emulation by the countries engaged in catching up and forging ahead. For example, even those who disapprove of or are mortally/deadly opposed to, most of the key features and the outcomes of the policies adopted by the early 'developed' market-driven economies who led the global industrialization-colonization saga, have adopted many of the instruments and institutions along with the consumerist acquisitive hedonism as the ends and definitions of a good life for the individual members of these economic societies . One is (that is practically all the different schools of radical thinking, except the likes of Ivan Illich, or Small is beautiful school of thinkers), fail to recognize or at

least underplay the fact that it is not just markets, accumulation, technological innovations, empires and growing flow of goods and services that are represented by the economic development or growth under the spell of commoditization, corporatization and the creation and strengthening of the capitalist world system, but an entire civilization and world view and socio-economic and cultural outcomes and the associated life styles and values that constitute the core of modernity, economic growth, market economies operating on the global scale. At stake but the entire world view (interestingly many of them now strategically and tactically find it superior option to chart a different course for helping to end the backwardness of these 'under-developed' countries). Recall how the US President Truman announced with great fanfare the beginning of the policy of internationalization of industrialization along their own pattern, and, of course, under their own sponsorship and leadership. But under a different socio-economic pattern and structure of socio-economic and international equations, even most of the radical thinkers and ideologues seem to have been willing to actively pursue the catching-up path of economic growth and modernity. Their assumption seems to have been: the greater and speedier the successes in the attempts to industrialize their economies, the better the prospects for social transformation and global restructuring away from neo-imperialism. (references for de-linking, re-linking and selective de-linking or varieties of auto-centric development paths leading to initially as a part of the new international economic order following different temporal paths and sequences under the global capitalism in order to eventually breaking away from it by way of independence from neo-imperialist yokes. Many such ideas and policies and strategies formed parts of the theories of independent economic development. advanced by the radicals of different hues and persuasions, such as the radical critics of the monopoly capitalism, advocates of non-capitalist paths of self-reliant development and industrialization) Most of the critics of the capitalist paths of development and its generalization and spread in the Third World often adopted and encouraged pragmatic policies of industrialization which had worked successfully elsewhere, especially drawing inspiration on the one hand from the saga of Soviet industrialization and on the other from the case of the East Asian Tigers.. (Remember, the pithy saying: it is immaterial whether the cat is black or white, the fact that matters is the one that catches the mice!) Thus the dazzling experience of successful industrialization and entry in to the hegemonic metropolitan charmed circle of what has come to be called G-7 along with their economic growth diversification and the resulting pre-eminence in the global power balance became to exercise some degree of magnetic pull on the nationalist leadership of the countries that were forced to suffer under the

colonial yoke for many centuries. Positions in the form imperialist capital accumulation and trade and their pursuit in no holds barred manner tends to colour the policy perspectives which find prominent place in the repository of successful development practices and policies. It seems the sheer pull of the success stories tends to get better of the real content and purposes of development. These are matters that tend to follow from the competitive nationalist and class power-seeking urges lurking behind the search for alternatives in order to show quick and alluring results. It has also to be realized that the pursuit of the qualitative and system transforming socio-economic development outcomes by means of some alternative means and policies may make it difficult to show some quick results, particularly those palatable and expected by the upper vocal and resourceful echelons. It is not difficult to appreciate that what has remained undone so far, is far-fetched and something that involves organizing and empowering the left-outs of development—the socially excluded--- in the teeth of opposition by the well-entrenched may tend to have influence with the new leadership. It is a combination of many such factors which make the search for and adoption of alternative development discourse a really daunting challenge. (We have avoided making reference to the geo-political factors, diplomatic maneuverings for buttressing positions close to or derived from the diverse sections of the vested, organized national and global interests, including the role of their so-called academic protégé: one may just recall the role played by the stages of growth theories or the UN Development Decades, not to mention the role of the EDI of the world Bank and so on, to mention just few, such as Perelman and George, Rosen, Western Economists and Eastern Societies, Bombay, Asia or Vikas

This kind of analyses seem to suggest that there may well emerge some critical common elements overarching the main but competing or alternative streams of the development discourse, particularly owing to the kibitzing and arms twisting by the powerful and the so-called international institutions. Which may look as easily available techno-economic quick fixes once they are obtained and replicated. Most and thus help attempt improvements in it for greater relevance and for ensuring the compatibility and consistency with the broader social objectives that constitute the kernel of development. This quest seems critical to the search for the ways out of the current impasse facing the development discourse. Paradoxical as it may sound, marked both by some notable common elements as also some sharp divergences. It is our position that despite differences and controversies over most matters regarding the development, ranging from the concept and content of development to the strategies and policies, there were and still remain some elements in the development discourse that prevent really meaningful

departures and initiatives designed to become really effective correctives for things that are generally believed to have gone wrong. It is ironic that it is some generally widely accepted features of the development discourse which succeed in blocking some of the major effective corrective initiatives and unearthing of the critical missing links to enable development to become a truly meaningful social restructuring process that can overcome the critical obstructions, anomies and contradictions making most of the people on the planet earth, including the planet itself, more of the victims of change rather than its masters and beneficiaries.

An appreciation of the above position demands some effort to identify the major elements of large-scale Post-War consensus and commonality of approaches concerning development at least in the mainstream discourse (best described as economics of development which was in essence, economics of catching-up growth and industrialization) What makes the story really woeful is that even some of the major critiques and alternatives came to accept some critical substantive elements of the mainstream economics of development as their very own under the mistaken notion of considering them as mainly techno-economic and quantification devices, neutral between the social options, choices, forces and outcomes. The actual course and content of development, in terms of the concept, problematic, causative or negative factors as also in terms of the desirable futures were sought to be captured in terms of the level and rate of growth of Gross National Product, (henceforth GNP) Many different theories, divergent theories theory, policies and outcomes had What one is looking for is which it seems to us can be regarded as the central, unifying element of the diverse theoretical and policy-oriented streams, schools and models of development, ranging from alternative routes and methods of classical catching up industrialization under the benign stewardship of and the presumed co-operative endeavours of the early industrialized rich countries, to the alternative, intensely nationalistic exercises aimed at not just bridging the North-South gap under the influence of the surging appeal and élan of Third world resurgence aimed at correcting the legacies of the festering asymmetries capable of undoing the injustices of the past few centuries of global hegemonic industrialization both within the national economies but also in global economic and social relationships. reality that the concern with pushing up the rate of growth of output at the level of the state-nations of the Third World while ensuring similar growth with stability in the economic field as also in the global power balance and ensuring that in this process the existing patterns of the global economy dominated by and on balance unilaterally benefitting the dominant nations. The purpose of the present exercise is to briefly examine how some popular aspects of the mainstream development theories,

including concepts, indicators and policies that assign the central place to the rate of growth and level of the per capita national product, often measured as the Gross Domestic Product (GDP), and gloss over the intimately related issue of the composition of the national product by assuming that the market processes of resource allocation would by themselves produce an efficient and development-friendly outcome is inappropriate to the concrete historically evolved reality, current problems, objectives and aspirations of the third world countries (TWCs). Most of these theories seem to have an inherent disconnect with some of the basic concerns/objectives of development. Hence it seems reasonable to hold that, among other factors, the economics of development too seems to have contributed to the widely observed failures, counter-productive outcomes and the consequent disenchantment that seems to have replaced the enthusiasm that prevailed in the TWCs immediately in the wake of decolonization. This seems to be reflected in the perception that as of now the challenge of appropriate development of the TWCs seem to have become ever more daunting and its realization distant.

Given this perspective, it is intended specifically to identify and explore the neglect of some key aspects related to the changing product-mix or composition or structure of the output flows as it inevitably emerges in the course of the growth of the national product. This seems to be the offshoot of the generally prevalent practice that devotes nearly all the attention to the total output and its rate of growth as the real kernel of development (generally seen in relation to the total population of the concerned entity) and inter-temporal and international comparisons of these growth rates. True, at times a certain level and kind of products-based temporal sector-wise profile as a major part of the pattern of growth too has engaged the attention of some of the development theories, policy planners and economic historians. (Ref Colin Clark, Kuznets and so on). However, such a sectoral disaggregation of the total national product receives the attention of the mainstream economics of development in terms of a scheme of sectorization of the national product and of the work force in terms of some largely invariant techno-economic features of the products or the technology or both, including the sequence in which these groups of activities emerged in some early industrialized economies, irrespective of and largely unrelated to the meaning and implications of these sector-specific product groups or bundles of commodities for different objectives and trajectories of development.

Understandably important as the production-related aspects, particularly the level and rate of growth of output flows overtime for meeting some of the objectives of development (taken as positive and desirable socio-economic change) are, the critiques of development discourse seem to have reached a broad consensus over their limited and misleading utility, a



utility that is often, if not generally, is overshadowed by both the sins of commission and omission associated with the per capita national product taken as the objective, indicator, policy instrument or condition for development in a broader sense. However, both theory and practice show that exclusive or even primary or excessive attention to and interventions for growth of per capita output as such without explicit and pointed attention to the composition of output flows, processes and issues connected with it, turns out to be in most cases, if not always, the very opposite of what is sought to be achieved by means of development.

It is our hypothesis that this feature of the development discourse has serious implications for what we have seen so far and what can be expected in the days ahead when the long-neglected and perverted

aspects of development (especially multi-dimensional equity, rights-based social inclusion or movement towards putting an end to social exclusion and for incorporating or bringing peoples' cultures back in the reckoning as an integral component of development, decentralized or local development as the fulcrum of broad social/national development and so on) can no longer be left unaddressed. This seems to be the case more particularly for those countries, regions or groups of people who are victims of discrimination, suffer the exclusion and deprivation inherent in a world full of disparities and have been either forced or persuaded to inter-relate with the entities who treat the project catching-up development as another vehicle for perpetuating their hegemony.

## **The Significance of the Shift in the Balance of Class Power in Growth and Equity Debate**

V. Upadhyay<sup>1</sup>

In developed countries, levels of production and consumptions are already at levels that are environmentally unsustainable. Further growth in these countries can only come at enormous cost to the environment. Solution to major economic problems facing common people in these countries such as poverty and unemployment has to be found in redistribution of income and wealth in favour of the poorer sections.

Condition of most developing countries is far different from developed countries. Most people in these countries lack even the basic necessities of life. Many face chronic hunger and grave deprivation. For achieving improvement in their lives, economic growth is necessary. The enormity of the problems these people face is such that even though more equitable sharing of currently produced output levels will improve their living conditions somewhat but it may not take them very far.

There is a great deal of literature that deals with relationship of economic growth with income and wealth distribution and poverty reduction. Some important questions raised in this context are: What generally is the impact of economic growth on distribution of income and wealth? Does economic growth worsens distribution (make it more uneven) or it improves it (i.e. it reduces disparity)? Does the impact of economic growth on distribution depend on initial conditions? Does it depend on the nature of growth? What roles do balance of class power, nature of regime, governance factor, and policy framework play in this? We explore these issues in the remaining part of the paper.

### **Relationship between Growth and Distribution: Impact of Growth on Distribution**

In the early decades after the Second World War, i.e. from the 1950s into the 1970s, the dominant view, known as 'the inverted hypothesis', held that in the early period of economic growth, distribution tends to worsen; and only after achieving a certain economic level, one can expect improvement in distribution. This hypothesis was propounded by Simon Kuznets in his 1955 article that contained empirical investigation of the relationship between per capita income and inequality in a cross section of countries.

There was an earlier discernible similarity between Kuznets' empirical results and prediction of

Lewis' (1954) labour supply model. Lewis model focused on structural change in a dual economy setting, in which labour was shifted from a labour surplus traditional agricultural sector, to a modern industrial sector. This process of labour transfer continued until the labour supply was exhausted.

The Kuznets' hypothesis suggested trade-off between equality and growth. For a short while in the 1970s, a trend in literature emerged that downplayed the trade-off arguments and advocated that to alleviate poverty in many developing countries, redistribution measures should be identified that do not hamper growth.<sup>1</sup>

The enthusiasm for 'growth with justice', however, did not last long. The focus of literature shifted with rise of neoliberalism and market fundamentalism in the early 1980s in this period (lasting for about two decades) associated and with globalization and 'Washington Consensus', the major international financial institutions (the World Bank and IMF) dictated policy formulation in a large number of countries who had to borrow money from them for various reasons through imposed 'structural adjustment programmes (SAP)' involving liberalization and privatization. During this phase, questions related to distribution and poverty were set aside in favour of growth. It was argued that growth itself would curtail poverty through 'trickle down' mechanisms. There was however not much discussion about the processes through which 'trickle down' would work.

In the 1990s the subject of relationship between growth, distribution and poverty again started attracting attention of researchers. Despite growth over a period of many years, in many, if not most, developing countries, there was no decline in the incidence of poverty, nor in its severity. This led many scholars to question the basic tenets of the neoliberal analysis including its reliance on trickle down to solve the problem of poverty. There was an increasing emphasis in the development community on making growth pro-poor, on bringing the benefits of growth to the poor.

Although the vast literature during this period takes a pro-distribution stance, it generally lacked a consensus on most issues of importance. The studies were mostly empirical and provided no theoretical breakthroughs. As usual with economists, there are contradictory analyses and interpretations of the existing situation and recommendations are too diverse to be of any practical use.

As mentioned above, the literature exploring relationship between growth, distribution and poverty is mostly empirical in nature. The studies use existing cross-country data on income distribution which are full of problems. Estimates of poverty and inequality are based on data obtained from household surveys.

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Here randomly selected samples of households are asked questions related to income and expenditure. As the methodology and coverage of the household surveys differ from country to country, the comparability of data between countries is quite suspect. And the problem even exists when data of different household surveys done at different points in the same country are compared.

A major problem with income and expenditure data is that of gross underreporting of incomes and spending by the rich section of society, who often do not want to participate, are hard to reach, or deliberately understate their incomes or spendings.<sup>2</sup> It is primarily rich people's intentions to evade payments of taxes that lead them to hide their incomes and spendings. Conversion of nominal values into real values to take into account changes in cost of living also poses problems as suitable Consumer Price Indices that adequately capture changes in consumption behavior of the poor are generally not available.

It is not only the problems with the data sets used in studies explaining relationship between growth, distribution and poverty that are serious. The empirical techniques used to study these relationships are also prone to give misleading, if not meaningless, results and are thus useless from the point of view providing policy guidelines. Dollar and Kraay (2004) warn readers against misinterpretation of results of their own study:

.....existing cross-country data on income distributions that we use contains substantial measurement error. We, therefore, cannot rule out the possibility that our failure to uncover systematic effects of average incomes and policy on income share of the poorest quintile is simply a consequence of this measurement error. We also cannot rule out the possibility that there are complex interactions between inequality and growth, not captured by our simple empirical models, that net out to small changes in the former that are uncorrelated with the latter.

Ravallion points out that lack of correlation found between changes in inequality and indicators of policy reforms, as in Dollar and Kraay, does not mean that the growth effects are the only factors on which the outcomes of such reforms for the poor depend upon. According to Ravallion,

(One) reason why the low correlations found between policy reform and changes in overall inequality can be deceptive is that starting conditions vary a lot between reforming countries. Averaging across this diversity in

initial conditions can readily hide systematic effects.

He further elaborates:

Suppose that reforming developing countries fall into two categories: Those in which pre-reform controls on the economy were used to benefit the rich, keeping inequality artificially high, and those in which the controls had the opposite effects, keeping inequality low. The reforms may well entail sizeable redistribution between the poor and the rich, but in opposite directions in the two groups of countries. Then one should not be surprised to find that there is zero correlation between growth and changes in inequality, or that the average impact of policy reform on inequality is not significantly different from zero. Yet, there could be well be non-random distributional change going on under the surface of this average impact calculation. This can arise when policy reforms shift the distribution of income in different directions in different countries. And it is not implausible that they would do so, given the diversity in initial conditions across developing countries at the time reforms begin.

There are broadly two opposing strands found in the literature on these subjects. At the one end of the spectrum are those who argue that a free market-based system and liberal economic policies raise incomes of all, the rich and the poor, proportionately. Dollar and Kraay (2004) argue that growth-enhancing policies and institutions tend to benefit the poor – and everyone else in society – equiproportionately. According to them,

We cannot reject the null hypothesis that the income share of the first quintile vary systematically with average incomes. In other words, we cannot reject the null hypothesis that incomes of the poor rise equiproportionately with average incomes.....There is no systematic relationship between average incomes and the share of income accruing to the poorest fifth of the income distribution. (Dollar and Kraay, 2004, p. 30)

This 'growth is distribution-neutral' stance of these studies translates into a stance that 'growth is good for the poor'. It is stated that as incomes of poor also rises with the incomes of the rest in society, there is a reduction in poverty as measured by some fixed income levels. This way focus remains on growth, away from exploration of alternative policy packages

and debates about their consequences for redistribution and poverty. The ‘growth is good for poor’ is the usual policy prescription given to developing countries by the international finance institutions and Western Governments.

At the other end of the spectrum is the argument that economic growth, especially during the last two or three decades, has been associated with increase in inequality. This has prevented benefits of economic growth reaching the poor. To support this view, evidence is cited that shows that during the 1980s and 1990s, inequality and poverty have risen in many countries, including some developed countries. This leads to the conclusion that poverty reduction cannot be achieved just by faster economic growth: redistribution measures need to be a necessary component of any strategy aimed at poverty reduction. (See Dagdeviren, van der Hoeven, and Weeks, 2004)

During the last thirty years, income inequality has risen considerably in all western economies, and more so in America. In our analysis, we will focus on America because this issue has been very extensively researched in America and huge quantity of very authentic data has been produced in this area by economists in recent years. The earlier studies deliberating on this issue have been inconclusive about the direction of effect of growth on distribution largely because they have used data of 30-40 years after WW-II during which growth in Europe and America was relatively quite inclusive. As Stiglitz in his recent book, “The Price of Inequality” puts it:

For thirty years after WW II, America grew together – with growth in income in every segment, but with those at the bottom growing faster than that at the top .....But for the past thirty years, we have become increasing a nation divided; not only has the top been growing the fastest, but the bottom has actually been declining. (It hasn’t been a relentless pattern – in the 1990s, for a while, those at the bottom and the middle did better. But then .....beginning around 2000, inequality grew at even more rapid pace.) (Stiglitz, 2012, p. 4)

He further states,

What America has been experiencing in recent years is the opposite of trickle-down economics: the riches accruing to the top have come at the expense of those down below. (Stiglitz, 2012, p. 6)

In a major work on distribution of income in America, spanning several decades, Emmanuel Saez and Thomas Piketty using income tax data show that

the income share of the richest 1 per cent of individuals in 2007 (the year before the onset of the Great Recession) stood at 23.5 per cent. It was 10 per cent in 1980. From 1980 to 2007, the US economy experienced a long phase of economic growth, albeit interrupted a few times by minor downturns. The gains of growth, however, accrued mostly to the rich. The top 1 per cent seized about 60 per cent of the gains in national income between 1979 and 2007. In contrast, the bottom 90 per cent earners’ share in gains was a fourth of what the top 0.1 per cent got.

It is not only during the growth phase the wealthiest captured most of the gains in national income; they continue to seize the lion’s share of gains even of the feeble recovery during this continuing Great Recession. ‘Even what has been happening in this recession is unusual. Typically, when the economy weakens, wages and employment adjust slowly, so as sales fall, profits fall more than proportionately. But in this recession, the share of wages has actually fallen, and many times are making good profits.’

As revealed by Piketty and Saez, the top 1 per cent of Americans gained 93 per cent of the additional income generated in 2010.

The Gini-coefficient (a measure of inequality with range of 0 to 1 with higher value indicating higher incidence of inequality) in the United States was 0.469 in 2010, registering a huge rise from 0.403 in 1980.

In comparison to income inequality, wealth inequality in capitalist societies is generally even more severe. According to Sylvia Allegretto, in 2000 the wealthiest 1 per cent Americans owed 35.6 per cent of the nation’s net wealth.

From the foregoing analysis, it is clearly evident that in the current phase of advanced capitalism in the 21<sup>st</sup> century, when the full effects of neoliberalisation (accompanied with globalization and financialization) resulting from the historical shift in the balance of class power in favour of capital around 1980 have been fully worked out, changes in income and wealth distribution are completely independent of different phases of growth cycle: Inequality has been on the rise in the period of growth as well as in the period of stagnation or recession.

Stiglitz argues that ‘inequality is the result of political forces as much as of economic ones’. Schtuz (2011) is in broad agreement with many analysts in economics and other social sciences who have ‘forcefully contended that power and class are at the very heart of the problem of rising inequality’.

In his ‘Introduction to the 2006 Verso Edition’ of his book ‘Limits to Capital’ originally written in 1982, David Harvey writes that “Marx’s critical apparatus is far more applicable to neoliberalism than it was to the ‘embedded liberalism’ and Keynesianism

that dominated in the advanced capitalist world up until the mid-1970s”.<sup>3</sup> Referring to Marx, he writes:

In Volume 1 of Capital, Marx shows that the closer a society conforms to a deregulated, free-market economy, the more the asymmetry of power between those who own and those excluded from ownership of the means of production will produce an ‘accumulation of wealth at one pole’ and an ‘accumulation of

misery, agony of toil, slavery, ignorance, brutality, mental degradation, at the opposite pole’. (Harvey, 2006, p. xi)

Stating that ‘(t)hree decades of neoliberalisation have produced precisely such an unequal outcome,’ he opines that ‘this was what neoliberalizing agenda of leading factions of the capitalist class was about from the very outset’.

#### Notes

1. See Dagdeviren, van der Hoeven and Weeks (2004)
2. See Ravallion, 2004, p. 64
3. Also see Upadhyay, 2011

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# Petty Commodity Production, Agrarian Crisis and Neoliberal State: Some Heuristic Propositions

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## 1. Introduction

India's growth story is the current fairy tale, after the 'East-Asian-Miracle' story two decades ago. Notwithstanding, the growing number of billionaires, India is expected to be promoted from a Low-Middle Income country to Upper-Middle-Income country in the World Bank development classification of nations in next one decade. There are even other medallions such as membership into the group of 'BRIC' countries and 'emerging economies' are also credited to its achievements. Neoliberalism, the current global paradigm, has not only brought the not-so-easily reversible changes in economic structure but continue to threaten with more. However, the mammoth unorganised/informal sector, the soft underbelly of the shining India, continues to stare right in the face of this growth rhetoric. Agriculture constitutes a significant part of this unorganised sector, which is marred by a long silent crisis, manifesting in terms of farmers' suicides. A curious feature of this sector is the growing number of small and marginal farmers either owning tiny pieces of land or leasing tiny holding, participate in fully commercialised agriculture producing for the market and drawing all the inputs from market, subjected to primary accumulation by the rest of the capitalist system. This class, despite an acute crisis, continues to grow in number. The riddle I pose is that how is it a class apparently living in a crisis, continue to grow. Further, is this rise momentary to a long term feature of current development model? For those of the sector who wish to leave, can the capitalist sector absorb this surplus labour? If these are trapped in agriculture, then what are the survival strategies within and outside for this class? This paper raises some of such rhetorical questions and searches for answers in a political economy framework.

## 2. Rise of Small-marginal Farmer

A glaring feature of current structure of Indian agriculture is the rise of small and marginal farmers who constitute 86 percent of the total farmers and own over 43 percent of land. If the land under tenancy included, whose details are officially fully not available, the share of operational holdings could be even be greater. Big farmers or landlords have dwindled in number and disposed considerable share of their holdings, though they still owned 56 percent of land in 2002-03. There could be some diversity across regions with different agro-climatic conditions, irrigation endowments, etc, while the common feature

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being agriculture is done by small and marginal peasantry. Faster urban sector growth in the recent decades led to a steady migration. Landed big farmer class are exiting from the rural scene, leasing good part their lands to small farmers in several parts of India. Growth of non-agricultural sector and education further provided opportunities to many to migrate.

The 55<sup>th</sup> round of NSS data shows 40 percent of rural incomes are diversified which imply growth of non-agricultural opportunities enabling some structural transformation. In spite of migration of rural workers, the number of small and marginal farmers has been on an increase. Even though the per capital landholding size decreasing, the overall share of operational holdings of the class in question is rising [see table no.1, refer annexure].

## 3. The Agrarian Crisis

The contemporary agrarian crisis began in mid-Nineties, is deeper than merely an outcome of neoliberal policies adopted since 1991 as contemplated by some [Reddy, N and Srijit Mishra (2009)]. The neoliberal reforms such as allowing FDI in seed production, reduction of fertiliser subsidy, reduction in the Priority Sector lending [Shetty, S L (2007)], allowing an adverse drift in the terms of trade for agriculture are some of the major aspects [Rao, C H H (2007)] have certainly accentuated the crisis. Ecological strain resulting from an intensive monocropping and an extensive use of groundwater has imposed costs on the dwindling returns to farming [Ratna Reddy]. The growth of agriculture, besides the losing share in GDP to 13.4 percent, considerably slowed down 2.5 percent during 1991-2010. The labour productivity as well as land productivity both have fallen by half in the last three decades and capital-labour ratio has doubled in agriculture [Behera (2012)]. As a result, employment growth has fallen to 0.16 percent. These are the distress conditions which compel rural workers to migrate. Lack of enough room to migrate forces the rest to become subsistence farmers. While the reforms have certainly triggered the current crisis, as for the small and marginal farming class, the vulnerability lies in the very structure of 'petty commodity production'<sup>2</sup>.

Over two and half lakh farmers have committed suicide between 1995 and 2011 across all over India, including states like Andhra Pradesh,

<sup>2</sup> Petty commodity production usually with no savings potential, depends on private borrowing at high rates of interest rates, buys inputs in small quantum at higher prices, and cannot afford high investments, thus gets trapped in a low equilibrium trap. The ability to bear market and production risk also is limited for not having enough capital base. Trapped in interlocked markets, paying premium prices, operating under extreme competitive conditions push market prices below cost of production. It has a tenacity to exist by not accounting own labour and in short run subsistence is produced. But in the long run, the economic unit fails to earn the fundamental viability.

Maharashtra, Karnataka, U.P., Punjab, Haryana and Kerala. Most of the victims belong to small and marginal farmers, and many belonging to backward class and scheduled castes. According to the data available from *National Bureau of Crime Records* show that the number of farmers suicides have been on increase year after year [Sainath,P (2012) in *The Hindu*]. Several scholars have analysed these farmers suicides, there is consensus that they are the legacy of the economic reforms [Parthasarathy (2003), Revathi *et al* (2009),

**Table No.2. Farmers' Suicides in India**

FARM SUICIDES IN INDIA & 5 WORST-HIT STATES (1995-2011)							
Year	Maharashtra	Andhra Pradesh	Karnataka	Madhya Pradesh+ Chhattisgarh*	Yearly Total for Big 5	Yearly Total All-India Farm Suicides	Big 5 FS as % of all farm suicides
1995	1083	1196	2490	1239	6008	10720	56.04
1996	1981	1706	2011	1809	7507	13729	54.68
1997	1917	1097	1832	2390	7236	13622	53.12
1998	2409	1813	1883	2278	8383	16015	52.34
1999	2423	1974	2379	2654	9430	16082	58.64
2000	3022	1525	2630	2660	9837	16603	59.25
2001	3536	1509	2505	2824	10374	16415	63.20
2002	3695	1896	2340	2578	10509	17971	58.48
<b>Total</b>	<b>29066</b>	<b>12716</b>	<b>18070</b>	<b>18432</b>	<b>69284</b>	<b>121157</b>	<b>57.19</b>
2003	3836	1800	2678	2511	10825	17164	63.07
2004	4147	2666	1963	3033	11809	18241	64.74
2005	3926	2490	1883	2660	10959	17131	63.97
2006	4453	2607	1720	2858	11638	17060	68.22
2007	4238	1797	2135	2856	11026	16632	66.29
2008	3802	2105	1737	3152	10796	16196	66.66
2009	2872	2414	2282	3197	10765	17368	61.98
2010	3141	2525	2585	2363	10614	15964	66.49
2011	3337	2206	2100	1326**	8969	14027	63.94
<b>Total</b>	<b>33752</b>	<b>20610</b>	<b>19083</b>	<b>23956</b>	<b>97401</b>	<b>149783</b>	<b>65.03</b>
<b>Total 1995-2011</b>	<b>53818</b>	<b>33326</b>	<b>37153</b>	<b>42388</b>	<b>166685</b>	<b>270940</b>	<b>61.52</b>
If we include Chhattisgarh's 2011 figure not as 'zero' but as 1555 based on the preceding five-year average.							
2011#	3337	2206	2100	2881	10524	15582	67.54
<b>Total 2003-11</b>	<b>33752</b>	<b>20610</b>	<b>19083</b>	<b>25511</b>	<b>98956</b>	<b>151338</b>	<b>65.39</b>
<b>Total 1995-2010</b>	<b>53818</b>	<b>33326</b>	<b>37153</b>	<b>43943</b>	<b>168240</b>	<b>272495</b>	<b>61.74</b>

Sources: Tables derived from National Crime Records Bureau reports from 1995 to 2011  
 \*It is not possible to disaggregate MP and Chhattisgarh data for the years they were an undivided state. So their numbers are taken together here.  
 \*\*2011: Chhattisgarh figure is 0  
 # With Chhattisgarh figure taken as average of 2006 to 2010 period which is 1555.

Mishra (2009), Karam Singh (2009), Nair and Menon (2009), Deshpande, R S (2009)]. Micro details of suicides apart, the big picture is the rise of small and marginal farmers undertaking high risk crops, with degraded resources, and unsupported institutional structures of neoliberalism [Sainath (2000)]. The deflationary macroeconomics and 'structural reforms' of neoliberal State do not allow it to extend institutional

protection to agriculture, institutional credit, affordable technology through public sector, disaster management and so on. Terms of trade are allowed to drift against the sector. Minimum support prices no longer cover cost of cultivation of a capitalist farmer, but only paid-out costs of a self-exploiting farmer to get subsistence but not a re-investible surplus. This still keeps the policy makers unperturbed as for the much needed marketed surplus for the modern sector, thanks to the teeming hapless petty producers ready to pull the yoke. Under the conditions of free market forces, untamed private moneylenders and manipulative monopolistic market structures, the 'petty' producer is going to be distressed more and more and perpetual indebtedness is the only living condition that is going to be reproduced. The paradox to this condition is the ever increasing army of small and marginal farmers, a putative antediluvian category under classical theory, but marching into the suicidal enterprise of agriculture.

The issue of agrarian constraint to capitalist growth is well-debated during the planning era. It was a widely prevalent view that modern sector's growth hit an accumulation crisis during mid-sixties and there was no palpable agrarian surplus forthcoming. Worse, the supply shortfalls in foodgrain production in the economy posed an inflationary barrier to growth<sup>3</sup>. The raging issue of extent of agrarian transition and mode of production was debated vigorously in various issues of *Economic and Political Weekly* and *Social Scientist* in seventies. The debate, as stated by Alice Thorner (1982), remained inconclusive from the diverse positions taken by the Marxist political economists and the practitioners. As for the agrarian constrained, Indian State resolved through a technological means called Green revolution. The debate could not give direction for class action largely because of 'base-determining-superstructure' approach, while politics of change lie in superstructure not in base. It also largely left out the role of the state in managing the class alliance and hegemony. There is a need to critique afresh the political economy of present change to understand the politics of it.

There is a need for a structural analysis when the crisis is protracted. We need to search for explanations for this putative paradox and a prognosis about its future in order to attempt any emancipation project. Development economics, with in the discipline of economics, offer some directions. However, lack of political analysis about the nature of the state and society, resting on certain lame assumptions about the state and the approach can soon degenerate into populism. 'Mode of production' approach in Marxist frame, in spite of several limitations offers a strong

<sup>3</sup> Ashok Mitra (1984) argued that the kulak class lprevails over the public policy through influencing agricultural price policy which kept the terms of trade to shift in favour of agricultural, affecting the industrial accumulation.



structural analysis. Given the crucial juncture of present times, it may be time to revisit the approach, critique it in Gramscian sense, to reclaim the useful. Recent works of Sanyal (2007) and Partha Chatterjee (2008) offer fresh perspectives in political economy which are worth examining. Regarding the question of proliferation of 'petty production' in Indian agriculture, I shall outline five features of current state of capitalist development to understand the issue in question in the following.

#### **4. Mode of Production Analysis as a Method**

Three decades ago, characterisation about the mode of production in Indian agriculture got pegged between two positions such as dominantly pre-capitalist and semi-feudal [Patnaik (1973), Bhadhuri (1976)], with emerging capitalist relations, at one end to dominantly capitalist relations with persisting subtle semi-feudal relations [Rudra (1978), Patnaik (1984)]. There were other equally compelling views that capitalist relations had already entered under the colonial rule [Upadhyay (1988), Gunder (1996), Banaji (1975)], while some others held the opposite view that colonial rule introduced feudal relations and blunted growth of production forces by unequal exchange and drain of surplus against formation of potential capitalist relations [Bagchi (1998), Chandra (1984), Prasad (1987)].

The debate could not give clarity over the dynamics of change and also any clear agenda for political action. One view is that the debate on mode of production under historical materialist framework is bound to hit a dead end given its inherent obsession with the 'base' determining 'superstructure' mode. The idea of a unilinear movement of history from one epoch to the next, was derived by Marx in the context of Western European historical context. While in fact, within the Europe itself such a movement from one epoch to the other was so varied. Byres (1981) outlined at least six distinctly different routes to capitalist transition, like, English, French, German, Russian, Japanese and American routes, and cautions against stereotyping any them to replicate elsewhere in the same way. The transition route is largely determined by the specific historical, political and social conditions. The follies in historical materialism apart, the strength of the Marxist method lies in the moral and structural analysis of society and capitalism.

Sanyal (2007) argued that problem with base-superstructure model is that it leaves little scope to understand the changes in the politics of society that lie in the superstructure. Antonio Gramsci called to abandon this framework towards 'state-civil society' dichotomy which enables one focus on the politics of the hegemonic state, while the superstructure is still not independent of the base. Partha Chatterjee (2008) argued that while Gramsci's state-civil society model is highly useful to analyse the politics, coming to third

world situation, where the formation of bourgeois civil society is weak and there is a huge section of population for not owning property lie outside civil society, what he chose to call 'political society'. Managing political society, for him, constitute the politics of the third world developmental state like India. Political society is one which doesn't have all rights of citizenship, but has a right to franchise. Squatters, street vendors, urban slum dwellers, landless poor, *dalits* who may till assigned lands etc, constitute this political society, their means to survival have not legal entitlement, but the state would patronise them by protecting this otherwise illegal existence. The competitive electoral politics gives some scope for the political society to exercise to negotiate for incremental benefits is what he calls passive revolution. Chatterjee further argues that the state, as in the West, uses various governmental technologies that engage the populations, produced by statistics in various programme termed as 'development'. This is helped by international capital through funding various non-Governmental Organisations (NGOs) who act as vehicles of this agenda.

#### **5. Capitalist Development and Petty Production in India**

India's path of capitalist development is perhaps quite distinct in respect of five things. First of all, what distinguishes India's path of capitalist development is the fact it acquired liberal political democracy in its anti-colonial struggle, even before any substantial capitalism developed, like some of the Western capitalist countries. A liberal democracy in polity, without a bourgeois revolution, to precede a capitalist development in the economy, is perhaps not only unique in India's historical trajectory but can pose implications for the latter. As Gramsci pointed out in Italian context, the weak urban bourgeoisie entered into an alliance with feudal class to form the hegemony over the artisan-peasantry-agricultural labour in country side and self-employed petty producers-workers in urban areas. Gramsci questions of the possibility of an active 'revolution' under repressive state. This perhaps is valid not only in Italy, but all those nation-states including India where bourgeoisie revolution is incomplete. It would not be inappropriate to add a nuanced caste-dimension to this formation in India. The hegemonic relation, harnessed by state violence against any militant resistance, leaves the option of 'passive revolution' for the masses. 'Hegemony' in Gramscian sense is a process of dominance of ruling classes with a consent and participation of masses in the political process. The hegemonic state succeeds in parting with some marginal benefits to underclass such as free access to education, health, public distribution system, and other fringe benefits for participating in the 'development' project of the state. The state succeeds in transferring part of tax resources for maintaining



political equilibrium, acceptable to the capitalist class as long as the principal concerns of the latter are attended by the state. Karl Polanyi (1947) informed us state always provided the subsistence whenever capitalism denied people access to survival. Even Colonial British state has practiced famine relief programs in India. What perhaps the Indian state practices in the contemporary times is not very different so as to diffuse any acute political crisis. Liberal political system succeeds in generating the hope for survival and the state craft lies in reproducing the belief. The counter-hegemonic politics therefore cannot disengage with this process.

The second important feature is that India's capitalist development is spearheaded by the state through mobilising forced and small savings. The capitalist accumulation in the modern sector almost remained dominantly funded mostly within and agrarian accumulation did not play any leading role in the process. Nevertheless, agrarian sector retains its importance as being a major buyer of commodities of the modern sector and supplier of food and non-food commodities to the rest of the economy. The development of large scale capitalism in agriculture remained incomplete. While abolition of intermediaries in the Fifties ended the phase of large feudal estates, agriculture for a long time was dominated by the middle peasant. Implementation of land ceilings, however perfidious, discouraged keeping large holdings<sup>4</sup>. Green revolution has enabled surplus accumulation by rich farmers in the regions with public irrigation in the Seventies and Eighties. Now more or less this class of farmers have diversified into non-agricultural occupations without giving up their ownership on land, leasing their lands to small farmers in regions like Coastal Andhra. Landless labours are becoming peasants by leasing-in these lands, even at highest rents up to 50-55 percent of produce. These tenant farmers in such regions are now the petty commodity producers. The state has distributed cultivable waste lands in several parts of the country to the landless who now joined the ranks of marginal farmers. These small owner-cultivators and the tenants, however, depend on a *rentier* class of moneylenders, commission agents, millers, pesticide-fertilizer-seed dealers, etc., who fleece them. Thus the emergence of petty producers, either as owner-cultivators or tenants, dominantly in agriculture is a culmination of certain economic and political process.

The third aspect is concerned with state of technological conditions of development. The historic moment of India's entry into capitalist development in the post-War times is that of a highly capital intensive condition of production. The capitalist modern sector requires very little labour. Hence there is no way the

surplus labour in agriculture would ever be absorbed in the modern sector, including the service sector, as contemplated by Sri Arthur Lewis. On the top of it, given the demographic transition and the population rate acceleration during 1950-80, there has been a considerable expansion of surplus rural population, and the rural sector cannot absorb this growing labour force. The push and pull factors have contributed to increased urban migration. In terms of sheer numbers, recent studies have shown that while during 1950-90 only 4% of labour moved out of agriculture into non-agriculture, in the last two decades during 1991-2010, 12% of labour has moved out –three times [Behera (2012)]! If one looks at where this 16% of labour migrated to, we find that 4% of them moved to manufacturing industry while 12% moved to service sector. However within industry and services, 94% of them entered the unorganised sector and only 6% could enter organised sector. Again in the unorganised sectors in industry and service sectors, 60% of them are in self-employment category, in other words, urban petty producers. In sum, there are no signs that the surplus labour in agriculture can move into modern sector in any substantial proportion. The thriving capitalist sector has no place for them. Even when they are forced to migrate, majority of them end up in the urban unorganised sector, a good proportion of them as self-employed self-exploiting petty commodity producers. Thus petty commodity production seems to emerge as a substantial mode of production in India.

The fourth aspect is, even though primitive accumulation in agriculture is blunted in certain ways, it does not mean such a process is absent fully. State facilitated some primitive accumulation process displacing people for construction of dams, public sector units and mining through land acquisition laws<sup>5</sup>. Since the scale of acquisition had been relatively low the primitive accumulation process, understood as one that would dispossess the peasants of their means of subsistence, remained relatively marginal. In the neoliberal times, there is a bid to expand the same for Special Economic Zones, thermal and nuclear power projects, national superhighways, and mining. At the same time, there has been a militant resistance to it by the marginalised sections, in several places in India, for example, Singur and Nandigram in West Bengal, Dantewada in Chhattisgarh, in Narayanpet against POSCO in Orissa, in Sompeta against thermal plant and in Kovvada against nuclear plant in Andhra Pradesh, in Thane district against Reliance SEZ in Maharashtra, in Kundakulam against nuclear plant in Tamil Nadu, and so on. Several studies have shown that middle and big farmers are interested to give up their lands for a market price, while small peasants are trying to resist acquisition. Overall, one could still say that direct

<sup>4</sup> In irrigation-endowed regions, middle and big peasant continued to hold land under *benami* titles, land holding size eventually came down in the natural mutation.

<sup>5</sup> Even after the recent amendment, it still allows forcible acquisition of land for public sector use, dubbed as 'public use' at slightly negotiated market price.

primitive accumulation is still marginal, while it is practiced in indirect way through terms of trade. Given the lack of large scale primitive accumulation and political legacy of anti-colonial struggle, petty producers as a class seem prevail.

Fifth, Indian politics have undergone substantial change in the past six decades. The class coalition dominated by intermediate classes shaped the public policy in the early phase. The dominant coalition of bureaucracy, industrial bourgeoisie and agrarian landed classes is negotiated by the state, which led developmental process in the planning era [ Bardhan (1987)]. However, the dominance of Congress party in liberal politics has ended by late seventies and with the emergence of regional parties since early Eighties. Various social movement such as *dalit* movement, women's movement, anti-dam movements, anti-corruption movement, etc added new dimensions of politics to public policy. It would be incorrect to ignore the contribution of these social movements to the politics of self-assertion. Some of them are perhaps co-opted by the state through governmentality, like women's self-help groups. Lamia Karim (2007) has done an excellent work on microfinance enterprise in Bangladesh where she showed that by making the poor self-employed women to rally around for getting tiny loans, never sufficient to get out poverty, a suitable model for global finance with 100 percent recovery rates, which also keeps the neoliberal state happy for transferring its public responsibilities. Indian state in recent times managed to innovate several schemes which include MNREGA, health insurance models, many couched in language of rights to attract popular vote. These, at best have been continuously pushing the boundaries of public policies and petty producers could be the beneficiaries, which will supplement the income from their own enterprise.

Finally, the sixth is the current phase of neo-liberalism of the world capitalism. After colonialism, perhaps as never before the capital has globalised and pushed the ideology of economic nationalism behind. After the fall of Soviet Union, armed with the information technology, globalised capital has captured the twin-Brettonwood institutions, IMF and World Bank, to establish a new global hegemony over nations and compelled nations to change their domestic policies amenable for free entry and exit for the global capital in short and long term. This has created the new opportunities for nations like India to access global capital and accelerate its growth rates while on the other hand compelled to observe certain financial discipline required for the international solvency. While these are well known and well documented, I would further submit a point that did not receive enough

attention so far, is about the labour that this new global hegemony has reversed the project of formalising the informal sector. Through labour market flexibility and informalisation the labour market dualism is nearly ended, including the so-called new economy [Bremman(2002)]. Whatever rights working class has won have been pushed back pre-industrial revolution times. What is the future of petty commodity production under neoliberalism? If we assume that institutional support structures built during the planning era gave the essential viability of agriculture, can the petty producers survive under their absence. Part of Indian agriculture still receives support in terms of fertiliser subsidies, power subsidies, minimum support prices (for rice, wheat, and sugarcane), procurement of food grains, etc. Various studies have brought clearly the fact that in spite of such support, the viability of farming has been severely affected [Ramanamurthy and Mishra (2012)]. In fact, most agricultural households survive with kinship support. Therefore, the poor agricultural households, survive and subsist from multiple support structures such as direct state support to agriculture, kinship relations and social welfare support of the state such as MNREGA, public distributions, old age pensions, public education and public health. Therefore, the tenacity of the subsistence peasantry is rooted in complex social and political mechanisms.

## 6. Concluding Remarks

The growing number of small and marginal farmers – self-exploiting subsistence 'petty producers in a thriving capitalist system is perhaps the paradox to stay here for a long time to come. This is a result of a range of historical, political and economic factors that have shaped the trajectory of Indian development process. The present capitalist system has no capacity to transform this non-capitalist sector. However, the large section of people the sector supports makes them at best stakeholders in the liberal political process which earns them subsistence, besides their unrequited labour and kinship support mechanism. Capitalist liberal democracies often carry tendencies of displacing masses, while liberal state balances by producing subsistence. This is evident in Indian political economy too. A failure to do this balancing act in producing the hegemony can produce room for revolutionary politics, while until then 'passive revolutions' keep up with time. Whether the neoliberal capitalism indulges in such destruction beyond redemption, one should wait and watch. It is worthwhile to examine the alternative modes of political economy frameworks which give more scope to understand the political discourse, which is where transformative agenda lies.

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## Annexure

**Table.1. Distribution of Agricultural Operational and Ownership Holdings in India**

Size class (Hectares)	Operated Holdings			Operated Areas		
	1960-61	1982-83	2002-03	1060-61	1982-83	2002-03
<b>Marginal (&lt; 1)</b>	39.1	56.0	69.7	6.9	11.5	22.6
<b>Small (1.01-2.0)</b>	22.6	19.3	16.3	12.3	16.6	20.9
<b>Medium and Large (&gt; 2.0)</b>	38.2	24.7	14.0	72.9	51.9	56.5
<b>All Sizes</b>	100.0	100.0	100.0	100.0	100.0	100.0

<b>Size class (acres)</b>	<b>Ownership Holdings</b>			<b>Area Owned</b>		
<b>Marginal (0.01-2.49)</b>	48.3	55.3	69.6	7.59	12.2	23.1
<b>Small (2.5-4.99)</b>	15.07	14.7	10.8	12.4	16.5	20.4
<b>Medium and Large (5-25 &amp; &gt;)</b>	22.66	18.7	9.6	81.4	71.3	56.5
<b>All Sizes</b>		100.0	100.0		100.0	100.0

Note: \*values are in ratio; Source: 37<sup>th</sup>, 48<sup>th</sup>; and 59<sup>th</sup> Round on Landholdings, NSSS

## Horizontal Inequality in India: An Overview

Reshmi Banerjee<sup>1</sup>

### Abstract

The article raises the very important but often neglected issue of “horizontal inequalities” in India. It examines the discrimination faced by various vulnerable groups like the Dalits, the tribals, the ethnic groups in the Northeast etc. Group inequalities suffered over a long period can be instrumental in ushering people towards alienation and frustration, ultimately leading to violence. Democratic participation, inclusive decision making processes and governmental action in creating equitable and just economic and social opportunities can go a long way in tackling these problems.

### Introduction

India is a country of paradoxes. One sees pockets of plenty co-existing with extreme poverty. The gap between the rich and the poor are constantly widening. The political system of democracy is unable to solve the problems that a liberalised economy is bringing. Economic growth needs to be accompanied by increasing equity which still remains an elusive dream. This problem of economic discrimination is compounded by the social problems that we face in our society. The horrors of the caste system continues to affect our people, ethnic groups have to fight for their land and resources, the SC and ST population continue to face their lives with ever increasing challenges to their basic dignity, women still have to face exploitative situations and harassment on account of their gender etc. There seems to be two India's – walking in two different directions; one towards power, status, money and respect and the other towards deprivation, lack of opportunities and marginalisation. We seem to have lost touch with the latter – their hopes, aspirations and need to be a part of the so-called mainstream culture. They continue to remain on the margins with their voices not being heard.

Our Constitution guarantees to each and every citizen of this country certain fundamental rights which have to be respected by the Indian state. The failure to do so is the failure to live up to the principles of our own created ideals that we nurtured during the freedom struggle and gave shape in our Constitution. The “development paradigm” and modernity of India should not be at the cost of our basic goals of ensuring liberty, equality, justice and fairness to all. Sadly, our march to a more progressive India has excluded a vast number of people and this is reflected in the rise of social movements which are now centred on the simple issues of common people. The concerns of the

adivasis and tribals, landless labourers and marginal farmers, urban poor and small traders are showing us that in spite of being from different regions, they are united by their similar experiences. Alternative approaches are being suggested which needs to be examined if we need to tackle the ongoing problems in our country. There has been a lot of emphasis on inequality between individuals. But one needs to focus on group inequalities/ Horizontal Inequalities (between culturally formed groups) as the continuation of these group inequalities can be a source of major irreconcilable conflict.

### Horizontal Inequality

Frances Stewart has stated that “*horizontal inequalities* are the existence of severe inequalities between culturally defined groups” and is multidimensional- with political, economic and social elements. Since, networking is group based; a member of the relatively backward community has a disadvantage with economic and social implications which can and should be handled by group policies. Also an individual is adversely affected by group inequalities to which he/she belongs. Most often the boundaries of these groups where horizontal inequalities occur are very rigid and problematic. This further aggravates the situation as they are unable to move between groups to take advantages. Thus, over a period of time, group identities become so powerful that they become instruments of group mobilisation and action which sometimes includes violence. Thus, horizontal inequalities affect both individual welfare and social stability.<sup>2</sup>

Stewart argues that the coincidence of cultural and political/economic differences is what defines horizontal inequalities and there are various instances in the world where one can witness it. For example, in the state of Chiapas in Mexico, illiteracy rate is more than twice the Mexican rate; the proportion of people on incomes below the minimum wage is nearly three times greater than in Mexico as a whole, land has not been redistributed unlike the other parts of Mexico. This region has a lower economic growth, politically it has been excluded and culturally it is different with the Mayan culture. Thus, it is possible to mobilise people and have protests as the people in this region are united under this Indigenous umbrella. Fiji and Uganda are other countries who face horizontal inequalities in their systems. The Srilankan case also highlights that group inequalities can have major consequences. The British administration had favoured the Tamil minority but when the Sinhalese gained power, they sought to correct these inequalities. But from 1963 to 1973, the incomes of the Sinhalese rose while that of the Tamils fell. The Tamils were both politically and culturally excluded which led to emergence of extremist leaders who used these differences in society to garner support. The Srilankan case is an

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<sup>2</sup> Stewart, Frances (2002), “Horizontal Inequalities: A Neglected Dimension of Development”, *Working Paper Number 81, Queen Elizabeth House Working Paper Series*, pp. 1-8.

example to showcase the point that sharp changes in policy can create new conflicts.<sup>3</sup> There can be several factors triggering conflicts like the conflict over distribution of natural resources, need for cultural recognition by groups etc.

In India, group divisions have occurred on the basis of caste, class, gender, ethnicity, religion, region etc. *Caste discrimination* in India has resulted in exclusion of a vast section of our population from opportunities and benefits. Amartya Sen has made a distinction between situations where individuals are left out and circumstances of inclusion on unfavourable grounds. Both have adverse consequences. He also makes a distinction between active exclusion and passive exclusion. Active exclusion is when people of a particular caste group are not hired despite their qualifications while favouring other groups who are equally or less qualified. The result of this discrimination is indirect deprivation through passive discrimination in which there is poor performance as the person in that particular caste group feels a low self-confidence and low self esteem.<sup>4</sup> The Dalits in India have been denied political, economic and social rights. It has been found that Dalits suffer discrimination in every aspect of life: - education, health, nutrition, housing facilities, employment, promotions etc.

The World Programme of Action concerning persons with disabilities has chalked out various factors which cause disabilities. Amongst them are the following: social conflicts, resource constraints, poverty, unhygienic living conditions, physical and social barriers and psycho-social problems. Data in India shows that the proportion of Dalits with severe form of disabilities is higher than the upper castes. Visual disability is remarkably higher among Dalits and STs than upper caste groups. Low levels of nutrition causes the highest level of disability amongst women. Anaemia, pneumonia etc play an important role in disability of Dalits. 3.4% of the dalits are affected by low levels of nutrition thus causing disability as against 2.8% of upper castes. . Also 63.6% of the disabled Dalits are not literate whereas it is 45.5% for the upper castes.<sup>5</sup>

A study of the Indian corporate boards of a thousand top Indian companies accounting for four-fifths of market capitalisation of all companies has shown that the corporate boards are still based on caste affiliation. The average size of the board was found to be 9 members; nearly 88% of them were insiders and 12% were independent directors. Nearly 93% of them were from forward castes; 46% Vaishya and 44% Brahmin. The OBCs and SCs/STs were only 3.8% and 3.5% respectively. In the corporate

world, social networking really matters and this small world only interacts within their own caste kinship.<sup>6</sup>

The Dalits have themselves internalised the dominant caste rules in many rural areas in such a way that they simply repeat the dominant rationalizations of caste. The Dalits also have to face violence if they dare to oppose casteist behaviour and action.<sup>7</sup> One finds that the dalits are facing discrimination in Uttar Pradesh and Bihar where one-thirds of India's dalits live as their children are denied their entitlements under the Mid-Day Meal Schemes by simply the states refusing to implement the shared and cooked Mid-Day Meal. In other states, a functioning Mid-Day Meal scheme does not guarantee and assure the dalits their access to it. Andhra Pradesh's decision to hire dalit cooks and organizers has made a difference. Also the state has the highest percentage in terms of the Mid Day Meals being held in the dalit localities. All these have made a difference. Most of the times, the argument given against hiring a dalit cook was that the society was not prepared to accept a shared meal cooked by a dalit or that it will lead to caste tensions or schools will get paralysed or that the children of the dominant community would stop coming.<sup>8</sup>

There was discrimination even when it came to the Public Distribution System (PDS). Caste favouritism was reported in many places where the PDS dealers serviced their own caste communities while discriminating against the dalits. They were charged more for the same amount / quantity of product that the dominant castes purchased at a lower cost. Also in terms of location, the PDS centres were mostly concentrated in the upper caste/dominant caste areas.<sup>9</sup> There is also considerable debate now in the private sector about introducing reservations. But there is disagreement about the methods and the means that can be used to improve the conditions. There have been various suggestions from various quarters.

The Federation of Indian Chambers of Commerce and Indian Industry (FICCI) has suggested a three pronged measure which would include a) medium and long term plan for the educational and skill development through the means of private public partnership for the SC/ST b) development of entrepreneurship with well defined policy whereby the financial institutions have to supply capital for the vulnerable groups to set up their businesses c) some representation to the vulnerable communities in the private sector employment on a voluntary basis with the incentive that they would be provided the benefit of tax-breaks. The Calcutta Chamber of Commerce has suggested skill and educational development and the PHD

<sup>3</sup> *Ibid.*, pp. 14-22.

<sup>4</sup> Thorat, Sukhadeo and Newman, Katherine S (2007), "Caste and Economic Discrimination: Causes, Consequences and Remedies", *The Economic and Political Weekly*, October 13, pp.4121-4122.

<sup>5</sup> Pal, Gobinda C (2010), Dalits with Disabilities: The Neglected Dimension of Social Exclusion, *Working Paper Series*, Volume IV, Number 3, *Indian Institute of Dalit Studies*, pp. 7-10.

<sup>6</sup> Ajit, D, Donker, Han and Saxena, Ravi (2012), "Corporate Boards in India- Blocked by Caste?", *The Economic and Political Weekly*, August 11, p.42.

<sup>7</sup> Thorat, Sukhadeo and Lee, Joel (2006), "Dalits and the Right to Food- Discrimination and Exclusion in Food-related Government Programmes", *Working Paper Series*, Vol 1, Number 3, *Indian Institute of Dalit Studies*, p.6.

<sup>8</sup> *Ibid.*, pp.29-34.

<sup>9</sup> *Ibid.*, pp.40-45.

Chambers of Commerce and Industry has also suggested educational support, vocational programmes and incentives to those who provide employment to the downtrodden sections of society. The Confederation of Indian Industries (CII) has stressed on strengthening the self-sustaining ventures by increasing their enterprising capacities. In spite of these suggestions made, the corporate sector is silent on a number of crucial issues: it is silent about reservations in the private educational institutions; it talks about giving preference to the SCs/STs in supplying credit but this is not suggested for the private banks etc. The corporate sector also recommends that the government should give preference to the SC/STs in government contracts in purchases of materials and goods but such measures are also not extended to private sector purchases.<sup>10</sup>

Dalit children are constantly discriminated in schools as they are not allowed to use the drinking water which is stored in earthen pots, jars or served in glasses. The children of the dalits are considered for menial jobs like “sweeping” but not allowed for serving water and food to teachers belonging to higher castes. The Dalit children are also scared to ask questions and teachers also do not initiate the participation of the children of the vulnerable communities in cultural programmes.<sup>11</sup> Bruce P. Corrie in his article “A Human Development Index for the Dalit Child in India” tries to construct a Human Development Index for the dalit child in India following the methodology used by UNDP. There are three things that are crucial for the child’s survival and development outcomes. These are the child’s material environment (dalit poverty rates which are very high reflect the material environment of the dalit child), the child’s physiological environment (which is again very poor as one finds low calorie intake levels, poor sanitation, water and health facilities) and the child’s social environment (which is reflected in increasing crimes of assault, arson, rape and murder against the community).<sup>12</sup> Caste remains relevant as an identity, form of social organisation and basis of striking claims to resources. One finds that within a single caste, class identity may end up impacting the use of caste as a resource, also within a single class, the caste identity will impact the way people express their identity and dominance. This interplay of caste and class privileges what M.N.Srinivas has called “decisive dominance”.<sup>13</sup> Dalits face double exploitation as caste and class overlap.

Interestingly, in a state where class has been more important i.e. West Bengal, caste now has become important with the political assertion of the Matua Mahasangha which represents the voice and interests of the Namasudras. They have emerged in West Bengal politics first in the Panchayat elections in 2008, then in the Lok Sabha elections in 2009 and finally in the state assembly elections in 2011. The Mahasangha today has more than 7 million followers and they are in a position to influence electoral results in 74 constituencies. They have over the years held gatherings and organised rallies, published books and journals and have put forth their demands for social status, economic well being and has at the same time maintained its formal apolitical stance.<sup>14</sup>

One finds, that there have been regional variations when it comes to caste based mobilisation. In South India, lower castes had developed their own leaders and parties by the 1950s and 1960s whereas the mobilisation in north India was top-down with the lower castes in a clientelistic relationship with the upper castes. It was only in the 1980s and 1990s that one saw mobilisation on the basis of caste identity in north India. Vertically, there are internal differentiations and hierarchies within the lower castes and horizontally, each caste has only local or regional meaning, which makes it difficult to create and build extra-regional alliances. Thus, horizontal mobilisation tends to be state or region specific and not on a national level.<sup>15</sup>

Also, one finds that in UP, castes which have not developed their histories and identities are being deprived of political representation. Kanshiram had taken the initiative of forming committees at block levels of local historians to collect the local caste histories and these were all put together to create a grand history of oppression by the upper castes. The problem was that this creation of homogenous history caused competition within the various dalit castes. For example, in UP itself; the conflict arose between the Chamars and the Pasi groups. The former believed that the Pasis oppressed them under instructions from the upper castes, whereas the Pasi community feels that the Chamars are taking away their share in political and development pie. Also more than 50 numerically small dalit castes like the Tatwa, the Rangrej, and the Bharbhiya have not been noticed and the Nai, Dhobi and the Khatik etc have not got political representation and thus are being ignored.<sup>16</sup>

Moreover, the dalits who have converted to Christianity continue to suffer not only from

<sup>10</sup> Thorat, Sukhadeo, Negi, Prashant and Aryama (2006), “Reservations in the Private Sector-Issues, Concerns and Prospects”, *Working Paper Series*, Volume 1, Number 1, Indian Institute of Dalit Studies, pp.34-37.

<sup>11</sup> Nambissan, Geetha B (2009), “Exclusion and Discrimination in Schools: Experiences of Dalit Children”, *Working Paper Series*, Volume 1, Number 1, Indian Institute of Dalit Studies, pp. 25-26.

<sup>12</sup> Corrie, Bruce P (1995), “A Human Development Index for the Dalit Child in India”, *Social Indicators Research*, Vol 34, No 3, pp. 395-400.

<sup>13</sup> Jeffrey, Craig (2001), “A Fist is Stronger than Five Fingers: Caste and Dominance in Rural North India”, *Transactions of the*

*Institute of British Geographers*, New Series, Vol 26, No 2, pp. 231-232.

<sup>14</sup> Sinharay, Praskanva (2012), “A New Politics of Caste”, *The Economic and Political Weekly*, August 25, Vol XLVII, No 34, pp. 26-27.

<sup>15</sup> Varshney, Ashutosh (2000), “Is India becoming more democratic?”, *The Journal of Asian Studies*, Vol 59, No 1, February, p. 6.

<sup>16</sup> Narayan, Badri (2012), “In UP polls, local dalit histories vie with BSP’s grand storyline”, accessed on 5<sup>th</sup> October, 2012 from The Hindu, [www.thehindu.com/opinion/op-ed/in-up-polls-local-dalit-histories-vie-with-bsps-grand-storyline/article2872660.ece](http://www.thehindu.com/opinion/op-ed/in-up-polls-local-dalit-histories-vie-with-bsps-grand-storyline/article2872660.ece)

economic problems but they continue to face grave social discrimination. There are about 16 million Dalit Christians and they form over 60% of the total Christian population of 25 million. Caste identity continues to override the religious identity. In predominantly Christian villages, the dalit settlements are kept separate and they have separate church buildings and cemeteries for them. In Tamil Nadu, they live separately from the higher castes and in Kerala; they work for the Syrian Christians and other upper – castes. They are not allowed to inter-dine or inter-marry with the Syrian Christians and they continue to be landless. Thus, they face three kinds of discrimination today- by the state, by the church and by the non-dalit Christians. Many reports like the Kumara Pillai committee report of 1965, the Santhanam committee report of 1970, Chidambaram report of 1975, judgement given on December 14<sup>th</sup> 1993 by Justice Kanakaraj at Madras high court etc all reiterate the same argument that discrimination of various kinds continue to be prevalent even after conversion.<sup>17</sup>

M.N.Srinivas in his writings in the 1950s had mentioned that caste was experiencing “horizontal consolidation” as the educated leaders were setting up caste journals, forming caste associations and holding caste conferences. The 1980s and the 1990s witnessed the rise of new social movements which not only questioned the development agenda but as Yogendra Yadav argues that this period saw a shift in our Indian polity from the “politics of ideology” to the “politics of representation”. This period saw the Dalits as well as other marginalised groups articulate their identity much better. Talking about one’s caste or identity was that of defining one’s powerlessness, deprivations /discrimination and the rise of autonomous voices were articulating and giving shape to their respective community’s aspirations and identities. Sunil Ray discusses how solidarity economics appears to be paving the way for an alternative, new type of economic development.

According to him, an individual is facing instrumentalisation of everyday life and a “social fascism” is existing which is creating a lot of misery in the form of deprivation or loss of employment or impoverishment.<sup>18</sup> There is a process of unifying the global market with global capitalism which is going on which in turn is creating a violent process, what Barber, calls “retribalisation” which is setting one culture against the other, people against people and tribe against tribe. The principle of mutual inter-dependence is fast disappearing but at the same time there are increasing aspirations again of localised development, which is arising out of the need of local cultures to create a stable space for themselves to develop.<sup>19</sup>

Thus, the challenge is to basically create systems which are based on local people and local cultures, initiatives and knowledge systems. Sanjay Sangvai points out that the new movements’ development paradigm is very contemporary and they have made “distributive justice” – control over land, water, forests etc as the main basis for equality. Alternative development, he argues, is a process where one’s politics, ethics (personal) and aesthetics correspond with each other. Knowledge cannot be specific to one community or country. One needs to appreciate every community and group as this would lead to a plurality and a rich body of knowledge developed by our common masses existing in our country and which unfortunately is not being heard now.<sup>20</sup> Top down decision making structures have to be replaced by a bottoms-up approach.

The tribals in India for long have been at the receiving end of this top down decision making structure. The areas/ states affected by the extremist activities in India are one of the poorest regions of India and highly underdeveloped. They are also inhabited by the tribal population as is evident in Chhattisgarh, Odisha, Jharkhand and Andhra Pradesh. Parts of West Bengal and Maharashtra are also affected by it. Even in the northeast, tribal land alienation has been a critical factor for disputes. Tribal land and natural resource alienation has been one of the reasons for the Naxals to build their movement. One of the key slogans of the tribals has been to get their rights over ‘jal, jangal and jameen’. Large scale displacement of tribals has taken place over the years in both Central India and in the northeast by major hydroelectric projects and extensive mining in jungle areas. Misgovernance, sustained neglect and extreme exploitation are issues that need to be addressed immediately. There is a need for bringing about “inclusive development” and “tribal self governance” which is not happening.

As per statistics, it is estimated that from 1951-2005, some 50 million people were displaced in India and tribal societies were about 40% of this displaced population. This amounts to about 20-24 million out of a tribal population of 85 million.<sup>21</sup> The fifth schedule of the Constitution which is regarded as a ‘Constitution within the Constitution’ has a provision whereby the governors of the states can write an annual report to the president of India on the administration of the tribal areas and the giving of directions by the president but this provision does not seem to have been used much. The constitution of the Tribal Advisory Council has become extinct and PESA (Panchayat Extension to Scheduled Areas) Act 1996 along with the Forest Rights Act of 2006

<sup>17</sup> Michael, S.M (1996), “Dalit Christians in India”, *The Economic and Political Weekly*, December 14, pp.3243-3244.

<sup>18</sup> Ray, Sunil (2012), “Economics of Solidarity- Economics of the 21<sup>st</sup> Century”, *The Economic and Political Weekly*, June 16, Volume XLVII, Number 24, pp.39-40.

<sup>19</sup> *Ibid.*, p.44.

<sup>20</sup> Sangvai, Sanjay (2007), “The New People’s Movements in India”, *The Economic and Political Weekly*, December 15, pp. 111-115.

<sup>21</sup> Bakshi, G.D (2009), “Left Wing Extremism in India: Context, Implications and Response Options”, *Manekshaw Paper*, No 9, Centre for Land Warfare Studies, p. 17.



remains unimplemented in many states.<sup>22</sup> Subramanian argues that “the history of broken promises, predatory administration, co-optation through faulty development programmes and unconcern at the top” has resulted in massive displacement and multiplication of revolts.<sup>23</sup> The “we-they” distinction between the elite and the simple tribal people continues. The tribals on the other hand, as a collective unit have led their own struggle to improve their conditions. They have led movements for their social, cultural and environmental rights.

People from the Northeast also constantly face discrimination when they come to cities like Delhi or any metropolitan city for getting an education or for seeking employment. Their distinct physical features, inability to speak Hindi and different cultural traits (different food habits, costumes etc) leads to denial of equal treatment. Many a times, they are taken to be foreigners and their peaceful nature is taken to be helplessness. As they face these innumerable problems outside the northeast, they start living in close proximity which makes them feel more secure. They have “community neighbourhoods” which provides them with opportunities for social and cultural gatherings, authentic and ethnic cuisines and participation in church activities. Thus, one finds that people from the same regional or ethnic groups tend to be together as they feel that this is the only strategic way to handle group discrimination. Many women also face offensive remarks or sexual advances. The root cause of all this hardship is the fact that since the North easterners are from the tribal/community based societies, their social behaviour, customs, traditions are very different from the north Indian communities especially in Delhi. The tribal societies are egalitarian and do not have caste based discrimination.<sup>24</sup>

Also, ethnic groups in the Northeast itself are each trying to carve out their separate homelands and are constantly clashing with each other over the issues of land ownership, control over forests etc. The Nagas, the Bodos, the Kukis etc are all contesting the constructed definition of the “nation” by the state, which they find hegemonic and overpowering. They are each trying to create a new narrative and “nations from below” are based on ethnic lines, each trying to carve its own distinct space. Each is following the politics of difference and exclusion- they want to exclude the “outsider” from their respective area and there is competition between linguistic, regional or social groups over education, employment and housing facilities etc. Each ethnic group seems to be refusing to embrace each other’s cultural and political positions. The exclusion practiced by each group basically implies the strategy of the dominant group to control the smaller

communities and this creates the foundation for the emergence of smaller identities who also feel the need to carve out their own narrative of nations from below.<sup>25</sup> Thus, the insecurity and the resultant conflict go on.

A perfect example to understand the problem is the ethnic violence in Assam. Within Assam, the Bodos have been historically the marginalised community. They felt betrayed by the Assam Accord of 1985 and have consistently demanded the formation of a separate Bodoland. The Bodo accord of 1993 led to the formation of the Bodo Autonomous Council (BAC) but again there was ambiguity regarding the territorial limit. The territory was to be decided by the majority demography; areas with 50% or more Bodo population would be a part of BAC but some areas with less than 50% were also included to give BAC a contiguous area. This led to conflicts as non-scheduled tribal population and non-Bodo people were also in the area. The violence has been immense with Bodos attacking Bengali speaking Muslims, Bengali Hindus, conflicts have resulted between again Bodos and Santhals and thousands of people have been uprooted from their homes and displaced. Many continue to live in camps. Ethnic cleansing of the non- Bodos has continued to make the Bodos a majority in that region. Retaliatory violence has also followed. Politics of exclusion combined with politics of fear is a lethal combination.<sup>26</sup>

Ashis Nandy has stressed on the need for opening a dialogue with the oppressed and concerned cultures in India (dialogue amongst different cultures within the same nation state) as this will according to him, humanise our polity and make it a richer and informed democracy. He emphasizes the need to return agency to the communities who are at the receiving end of the system.<sup>27</sup> Urban, elitist and powerful India needs to urgently reach out to the poor and the vulnerable which live in rural and tribal Bharat. One needs to evolve an environment where different groups irrespective of their specific group interests can come on a common platform and discuss their problems in an uninhibited way and expect fair and just outcomes. Preconceived arrogant notions of power, culture, development, way of living etc needs to be eliminated and more open minded cultural spaces need to be created for understanding extreme ends/views of the social and economic spectrum. It is not going to be an easy task but this requires immediate attention as it is highly desirable and necessary in a diverse and plural country.

In addition to creating open cultural spaces, one also needs to keep in mind that globalisation in

<sup>22</sup> Subramanian, K.S (2010), “State Response to Maoist Violence in India: A Critical Assessment”, *The Economic and Political Weekly*, August 7, Vol XLV, No 32, pp. 25-26.

<sup>23</sup> *Ibid.*, p.26.

<sup>24</sup> Remesh, Babu P (2012), “Strangers in their own Land”, *The Economic and Political Weekly*, June 2, Vol XLVII, pp.37-39.

<sup>25</sup> Roy, Sanjay K (2005), “Conflicting Nations in North-East India”, *The Economic and Political Weekly*, May 21, pp. 2178-2179.

<sup>26</sup> Pathak, Suryasikha (2012), “Ethnic Violence in Bodoland”, *The Economic and Political Weekly*, August 25, Vol XLVII, No 34, pp. 20-21.

<sup>27</sup> Nandy, Ashis (2012), “Theories of Oppression and another dialogue of cultures”, *The Economic and Political Weekly*, July 28, Vol XLVII, No 30, p.43.

the past two decades has exposed the poor and the excluded people to the consumption patterns and rich lifestyles which is having huge demonstration effects. The aspirations and expectations of the people have increased but it is constantly clashing with the reality of unattainable dreams and goals which is leading to a lot of frustration and alienation amongst the vulnerable groups. This process is taking place along with the politics of segmentation which is arising out of the conflicts in the political process. The people who are excluded by the market are included in the politics of democracy. This is leading to conflicts in the interaction between economy and polity. Consensus building, conflict management, the need for mediation etc seem to be getting less importance and “short term goals” continue to drive our decision making in both economy and polity. Some groups seem to be getting all the attention whereas others are “silent observers” to the fast paced changes happening around them.<sup>28</sup> Thus as Deepak Nayyar says, “the economics of liberalisation and the politics of empowerment represent an unstable if not volatile mix”.<sup>29</sup> This conflict continues in India.

Group identity and group aspirations need to be recognised as it can be crucial in tackling social conflicts in India. In the public sphere, the politics of equal recognition is now playing a bigger role. Charles Taylor has observed that this has come to mean two different things:-politics of universalism which stresses equal rights and entitlements to all citizens and politics of difference which places importance on recognising the uniqueness and distinctness of the group.<sup>30</sup> Today we require a middle ground between the two and what needs to happen is what Gadamar would call “fusion of horizons”. Horizontal inequality can be tackled by only creating horizontal equity and inclusive policies at all levels-political, economic and social. Frances Stewart has pointed out three types of policies: - firstly, direct targeted policies which can be effective but they can also further deepen ethnicity and lead to opposition. Secondly, indirect policies which may be less effective but can generate less hostility and finally integrationist policies which will be long term but will be complementary to other policies.<sup>31</sup>

Democracy is considered as the most preferred mechanism to contain conflict as it is considered as an important tool of conflict management. Victor Azarya feels that democracy is the “art of conflict accommodation” and since conflict is natural, it cannot be eliminated but can

only be moderated and contained.<sup>32</sup> Ted Robert Gurr also argues that rebellions occur when there is a large difference between people’s legitimate demands and actual levels of material well being. All nations need to construct their citizenship identities in a just manner without discriminating against any ethnicity, religion, socio-economic status, geographic location etc.<sup>33</sup> The increase in movements by the marginalised groups against the state and increasing dissent is evidence of the widening gap between the state and the civil society. Members of groups on the margins of society have found it to their advantage to create alternative publics. These counter-publics expand the discursive space and are known by Nancy Fraser as “subaltern counter publics”.<sup>34</sup> The role of civil society in creating democratic consciousness will continue to be critical in the future. Social inequity and asymmetry issues have to be raised more by the vigilant civil society to get their rights from the state. We need policies which will create equal opportunities for people and enhance their capabilities.

### Conclusion

Horizontal inequalities are an important part of Indian reality today. They are also a source of conflict and tension in our society. As long as we continue to discriminate against our own fellow citizens and friends, the stigma of India being a highly unequal and caste ridden society will remain. The tribal societies will persistently get destroyed and people of one part of India will go on feeling alienated and cut off from the rest of the country. We need to open our hearts and reach out to people who face exclusion daily, not only through our affirmative and equal welfare policies but also through our everyday actions and behaviour. Sanjib Baruah in the context of subnationalism has argued that the crisis today is the crisis of modernity: we tend to give more relevance to “formal boundedness over substantive inter-relationships.”<sup>35</sup> We need to create a completely different narrative that gives inter-relationships, human dignity and community spirit more value than narrow rigid boundaries which seem to hold India back.

<sup>28</sup> Nayyar, Deepak (1998), “Economic Development and Political Democracy: Interaction of Economics and Politics in Independent India”, *The Economic and Political Weekly*, Vol 33, No 49, December 5-11, pp. 3129-3130.

<sup>29</sup> *Ibid.*, p.3130.

<sup>30</sup> Taylor, Charles , “ Politics of Recognition”, accessed on 5<sup>th</sup> October, 2012 from [http://elplandehiram.org/documentos/JoustingNYC/Politics\\_of\\_Recognition.pdf](http://elplandehiram.org/documentos/JoustingNYC/Politics_of_Recognition.pdf)

<sup>31</sup> Stewart, Frances , Horizontal Inequalities and Conflict, accessed on the 5<sup>th</sup> of October, 2012 from [www.undp.org.my/uploads/28072010francesstewart.pdf](http://www.undp.org.my/uploads/28072010francesstewart.pdf)

<sup>32</sup> McCoy, David, “Rectifying Horizontal Inequalities: Lessons from African Conflict”, accessed on the 5<sup>th</sup> of October, 2012 from <http://www.ajol.info/index.php/ajcr/article/viewFile/39422/29629-AfricanConflict>

<sup>33</sup> *Ibid.*

<sup>34</sup> Fraser, Nancy (1995), “Politics, Culture and the Public sphere: Toward a Post-modern Conception” in Nicholson and Seidman (eds), *Social Post Modernism: Beyond Identity Politics*, Cambridge, Cambridge University Press, p.291.

<sup>35</sup> Baruah, Sanjib (1997), “Politics of Subnationalism: Society versus State in Assam”, in Chatterjee, Partha (ed), *State and Politics in India*, New Delhi, Oxford University Press, pp.519-520.

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## India-ASEAN Free Trade Agreement: An Analysis of Trade flow to ASEAN Countries

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### Abstract

Objective of this paper is to analyze the trends of export and imports from the ASEAN countries and to analyze the future prospects for India-ASEAN FTAs. It is discovered from analysis that India export to and import from ASEAN has been increasing since the adopting of look-east policy of India. Moreover there has been consistent effort of both India and ASEAN to conclude the AIFTA since 1992, which is finally inked in 2009 and implemented in 1<sup>st</sup> January 2010. It is evident from the study that India has huge balance of trade deficit with ASEAN. The concern is that if India has already such a huge trade deficit, reduction of tariff may worsen the situation unless there is a significant export boost. It is also evident from the study that India's export to member countries of ASEAN is dominated by Engineering goods which include base products used for producing castings, forgings, industrial machinery, machine tools and automobile components. Because of overlapping character of sub-tropical agriculture, India's export of such products is likely to suffer instability in prices and may face stiff competition from ASEAN. Export of Textile products is likely to get tough competition from China in ASEAN market as is evident from a decline in Indian textile export to ASEAN during 2005-2010.

### A. Introduction

Regional trade agreements (RTAs), which have become far more conspicuous since early 1990s, play significant role in providing various static and dynamic gains to the concerned countries. WTO recognizes regional trading agreements 'as a half way house on the path leading to full benefits of trade liberalization and wider markets' and realizes complementarity between regional and multilateral integration in the sense that constitution of RTAs network acts as positive force for multilateral system (Nanda, 2004). As of 15 January 2012, some 511 notifications of RTA (accounting for goods and services separately) had been received by the GATT/WTO. Of these, 319 were in force. What all RTAs in the WTO have in common is that they are reciprocal trade agreements between two or more

partners. The proliferation of FTAs has led to fierce debate about the merits of these agreements. While some herald the FTAs as stepping-stones towards world-wide free trade, others suggest that preferential trading agreements may lead to trade diversion and welfare loss (Veeramani and Saini, 2005). Despite theoretical underpinnings that free trade is expected to increase production, improve specialization and lead to other welfare improvements in the long-run for consumers and producers alike, the practical experiences and lessons from the FTAs, that have been in place in other regions of the world, do not provide the necessary support to what is suggested by the theory of free trade (Ohlan, 2012). Further, as argued by Bhagawati (2008) that proliferating regionalism is ultimately a waste of scarce resources used in negotiating trade treaties among developing countries.

The Association of Southeast Asian Nations or ASEAN was established on 8 August 1967 in Bangkok by the five original Member Countries, namely, Indonesia, Malaysia, Philippines, Singapore, and Thailand. Brunei Darussalam joined on 8 January 1984, Vietnam on 28 July 1995, Lao PDR and Myanmar on 23 July 1997, and Cambodia on 30 April 1999. ASEAN's objectives are to accelerate economic growth, social progress and cultural development among its members, protect the peace and stability of the region, and provide opportunities for the member countries to discuss their differences peacefully. ASEAN covers a land area of 4.46 million km<sup>2</sup>, which is 3% of the total land area of Earth, and has a population of approximately 600 million people, which is 8.8% of the world's population. The sea area of ASEAN is about three times larger than its land counterpart. In 2010, its combined nominal GDP had grown to US\$1.8 trillion. If ASEAN were a single entity, it would rank as the ninth largest economy in the world, behind the United State, China, Japan, Germany, France, Brazil, United Kingdom, and Italy.

India remained out of stream of FTAs before the 1990 precisely because of the economic instability in the 1980s, which continued till 1992. Due to the economic instability in the Middle East and some other parts of the world, India consciously opted to gravitate towards the South-east Asia, resulting in India's 'Look East policy' in 1992. Since then the scope and density of relations between India and ASEAN has been steadily rising. India became a sectoral dialogue partner of ASEAN in 1992 with regard to sectors such as trade, investment, tourism and science and technology. Mutual interest in wider engagement led ASEAN to invite India to become a full dialogue partner of ASEAN during the fifth ASEAN summit in Bangkok in December 1995 (ASEAN Secretariat, 1995) and a member of the ASEAN Regional Forum in July 1996. India, after initial hesitation, started regional trade

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initiative to expand trade volume and regional economic cooperation. After initiating bilateral trade agreements with Sri Lanka, Singapore, Thailand and South Korea, signed RTA with ASEAN on 13<sup>th</sup> August 2009. India signed a framework Agreement on Comprehensive Economic Cooperation with ASEAN in October 2003. After six years of negotiations, the India-ASEAN Free Trade Agreement (FTA) was signed in Bangkok on August 13, 2009, and came into effect from January 1, 2010 amidst mounting skepticism from the business community in India regarding the asymmetric impact of this agreement on certain sectors of the Indian economy. The FTA, drafted after almost six years of tough negotiations, is expected to be implemented in phases with Malaysia, Thailand and Singapore implementing the agreement from January 1, 2010 in the first phase. The FTA, considered as the world's largest, covers a market of nearly 1.8 billion people and proposes to gradually slash tariffs for over 4,000 product lines over a staggered period, by 2016. However, certain specified products on both sides will be shielded to some degree. This FTA aims at opening a 1.8 billion consumer market to the member countries with a combined GDP of \$ 2.3 trillion. In addition, ASEAN-India bilateral trade has been growing steadily from 1993 and stood at US\$ 43.9 billion as of 2009-10 with ASEAN's export to India at US\$ 25.79 billion and imports from India at US\$ 18.1 billion as of the same year. As for foreign direct investment (FDI), the inflow from India to ASEAN member States was US\$ 476.8 million in 2008, accounting for 0.8 per cent of total FDI in the region. Total Indian FDI into ASEAN during 2000-2008 stood at US\$ 1.3 billion (FICCI, 2011). Under this agreement, commodities are grouped into five categories for tariff reduction namely Normal Track-1 (NT-1), Normal Track-2 (NT-2), Sensitive and highly sensitive track (ST), Special Products and Negative List (NT). Of the 12169 products with a 8 digit classification, 63.89 percent products are in NT-1, 1029 products are in NT-2, 14.83 percent in ST, 0.33 percent in SP and 10.66 in NL (Chandran, 2010). India's economic relation with the members countries of the association of ASEAN are set to undergo major changes with ASEAN-India Free Trade Agreement (AIFTA) came into force on 1<sup>st</sup> January 2010. Until the early 2000s, India and south-east Asian countries were not significant trade partners, except for Singapore. This was fundamentally because all the bigger South-east Asian economies had been following a foreign direct investment (FDI)- driven export growth-led growth strategy since the mid-1980s, while India's trade and investment policy remained quite conservative ( Francis Smitha, 2009).

AIFTA has unquestionably boosted up the bilateral trade between the two regions. ASEAN is a major trading partner of India and it accounted for 9.27 percent of India's global trade in 2008. In 2008-09, bilateral trade between India and ASEAN was worth almost US\$ 45 billion (Dash, 2010). India's trade with ASEAN is mainly concentrated in Indonesia, Malaysia, Singapore and Thailand. These four countries remain the largest market for Indian exports in the ASEAN region as well as the largest sources for India's imports from the ASEAN region. Among them, Singapore is the largest destination for Indian goods (45.6% of total exports to ASEAN in 2008) and the largest source of imports for India (31.1% of India's total imports from ASEAN in 2008) followed by Malaysia, Indonesia and Thailand.

## **B. Review Of Literature**

The negotiations between India and the ASEAN representatives during the past few years have created considerable interest among researchers across the world. Ohlan, R. (2012) investigated India's trade prospect with ASEAN countries by analyzing the pattern and trends in India's bilateral merchandise trade with ASEAN countries and their revealed comparative advantage in different goods. The study reported that India's trade intensity in ASEAN has deteriorated from 14.78 in 1980 to 4.60 in 1990, which further declined to 4.37 in 2008, indicating rising importance of the rest of the world as a destination for India's exports. . It is observed that in case of India for 27 product groups, India does not enjoy comparative advantage in these products namely animal/vegetable fats, oils, cleavage products, edible vegetables, certain roots, tubers, electrical and electronic equipments, mineral fuels, oils and distillation products. Francis Smitha, 2011 study found that ASEAN members will gain significantly increased market access in India in several semi-processed or processed agricultural products. Both, the reduced demand for local agricultural products and the increased imports of close substitutes could lead to a fall in the prices of local crops thus adversely affecting the domestic agricultural sector. Further, the study revealed that Indian smes in agriculture-related products and food products, as well as in some intermediate goods and light manufacturing products are also likely to be adversely affected due to the drastic tariff liberalization under the AIFTA. Ahmed (2010) investigated the sectoral dimensions of the India-ASEAN FTA as a result of tariff liberalization. The study revealed that, in the case of India, the processed food products, grain crops, textiles and wearing apparel, light manufacturing goods and heavy manufacturing sectors were likely to be significantly affected. ASEAN's exports of processed food items, and agricultural and fisheries products were likely to

increase, which could have an adverse impact on employment and wages in India. Veeramani and Saini (2010) carried out a quantitative assessment of the impact of AIFTA on selected plantation commodities, i.e., coffee, tea and pepper, in India. A partial equilibrium modelling approach (SMART and gravity models) was used to simulate the likely increase in imports of the plantation commodities by India under the proposed tariff reduction schedules of the India-ASEAN FTA. The results suggested that AIFTA would lead to a significant increase in such imports by India, driven mainly by trade creation rather than trade diversion. Harilal (2010) studied the impact of India-ASEAN agreement on the economy of Kerala state which does have many features in common with the South-East Asia. This is especially true in the case of the agricultural and allied sectors and the agro-based industries. The study concluded that AIFTA would be prejudicial to the interests of tropical commodity producers in Kerala. This is due to the competitive nature of the production structure of Kerala vis-à-vis the ASEAN members. Free trade in tropical commodities under the provision of AIFTA is likely to add to the already existing problem of severe price instability with regard to these products, in addition to pushing down the share of the producers in the value chain. Pal and Dasgupta (2009) studied the tariff schedule of India and made a preliminary evaluation of the India-ASEAN FTA. By analyzing India's commitment schedule, and by studying the production structure of the ASEAN members, the study concluded that sectors such as tea, spices, coffee and rubber will be adversely affected. The marine products, textiles and garments, and auto components industries are also likely to face increased competition.

On the back ground, objective of present paper is to analyze the trade flow of India to ASEAN countries and to draw some conclusion. Accordingly the paper has been divided into three sections. Section A discusses the introduction, section B deal with review of literature and section c deal with the pattern of trade.

### **C. Pattern of Trade**

#### **(i) Share of ASEAN in India's Global exports**

It is reflected from Table 1(annexure) that share of ASEAN-5 countries in India's global exports is highest, which varies from 2.5 percent to 10 percent during the period 1980 to 2011. In 2011, share of ASEAN-5 was 10 percent of India's global exports, out of which Singapore has 5 percent share. On the other hand, there are no single countries in ASEAN-other which has 1 percent share of India's global export and also as a whole ASEAN-other have less than 1 percent share in India's global export. ASEAN as a whole had 4 percent share in 1980, which rose to 7.7 percent in 1995. This

further rose to 11 percent in 2011. So, it is observed from the table that ASEAN share in India's global export has been increasing since 1992, in which year India looked towards the east and followed the 'East – Look Policy'.

#### **(ii) India's Exports and ASEAN**

The total trade of India with ASEAN has registered a dramatic growth during the last decade. As is evident from Figure 2 (annexure), India's total export to ASEAN countries which was just at \$380.4 million in 1980, rose to the level of \$ 2749.3 million by 2000. After this, it recorded an exponential growth rising from \$9915.0 million in 2005 to \$ 23015.3 million and \$ 33430.2 in 2010 and 2011 respectively. In this regard, the agreements signed by India, first with Thailand in 2003 and then with Singapore in 2005 appeared to have played greater role. Looking at the trade balance, Figure 4 points out that it has been in favour of ASEAN members for the whole period considered for this study.

Table 2 (annexure) shows that India's exports to ASEAN members are mostly concentrated in ASEAN-5 (Singapore, Indonesia, Thailand, Malaysia and Vietnam), claiming for 96.20 percent of total exports to ASEAN in 1980s with Singapore on the top and Thailand at the bottom of the pyramid. The share of other ASEAN members was almost negligible at just 3.80 percent in 1980. The situation did remain more or less same even till 2011.

Notably, Singapore, Indonesia, Thailand and Malaysia were the most important markets for India within ASEAN during the whole period of 1980-2011. Of all, the share of Singapore in India's exports rose faster especially after signing of Comprehensive Economic Cooperation Agreement (CECA) in 2005 which was further reinforced by their liberalising trade after the trade opening pact with ASEAN was signed which saw the elimination of duties on over 2,700 product lines. The data clearly showed that the freeing of trade through CECA helped Indian exporters. On the other hand, the share of India's exports to Thailand declined after 2002 and has remained around 1.1 per cent despite the Early Harvest Programme (EHP) of the India-Thailand FTA coming into force since 2004 which ensured abolition of the duties on 82 items. Figure 6 highlights the overwhelming share of ASEAN 5 in the total exports from India to all the ASEAN countries in general.

#### **(iii) Compound Annual Growth Rate of Real Export**

To Analyze the growth in Indian exports to ASEAN, compound annual growth rates have been worked out for the three periods of time i.e. 1981-90 (pre-reform

period), and post reform period divided into two parts 1991-2000 and 2001-10 and for a period of 1981-2010.

As is evident from Table 3 (annexure), except for the period 1991-2000, India's trade with ASEAN countries has been growing up steadily. Incidentally, the decade of 1991-2000 was also the time when East Asian melt-down took place. The value of India's export to ASEAN in 2010-11 grew up to US \$ 33430.20 million from a mere US \$ 380.44 million in 1980. During the period 1981-90, India's export to ASEAN experienced a positive growth rate of 9.11 percent. However, India's export to countries like Indonesia, Vietnam, Myanmar, Brunei had experienced negative growth rate during the same time period. During 1991-2000, growth rate of export to Singapore, Thailand had decreased, which indicated a deterioration in India's competitiveness vis-à-vis other countries exporting similar products to these economies. But growth rate of export to all the member countries is improved a lot during 2001-10, which shows that competitiveness of India's export to ASEAN.

#### **(iv) Compound Annual Growth Rate of Real Import**

India's imports from the ASEAN countries have been growing at a faster rate as compared to exports. For instance, in 2011, India's import from ASEAN stood at US \$ 41357.88 million as compared to merely US\$887.15 million in 1980. India recorded about 20.1 percent annual average growth of imports from ASEAN since the year 2000. Overall annual growth rate of import is about 6.5 percent per annum, as is shown in Table 4 (annexure).

As is shown in Table 4, Brunei, Vietnam and Laos are the emerging import partners of India. Energy resources in ASEAN member states as a whole are rich in various number and forms ranging from the oil reserved, natural gas, and coal to the large potential in renewable energy; particularly wind, hydro, and geothermal but unevenly distributed. Indonesia, Malaysia and Brunei export crude oil, but the others have to import oil products and/or crude oil. This is the reason that India's export from this region has increased significantly. On an average, competitiveness of ASEAN exports to India has improved during 2001-02.

#### **(v) India's Balance of Trade Position vis-a-vis ASEAN**

India's stance during the negotiations indicates a somewhat defensive position in the goods sector. This is not surprising because India runs a fairly large trade deficit vis-à-vis ASEAN, as is evident from Table 5 (annexure).

According to the Direction of Trade Statistics (DOTS) published by the International Monetary Fund

(IMF), India had a trade deficit of \$ 866.91 million in 1985 with ASEAN. For individual members, India's trade pattern shows that for the years (1980 to 2000), it had a trade deficit each year with Singapore, Malaysia and Myanmar. India runs a trade surplus with other ASEAN members including Vietnam and Philippines. However overall trade balance is significantly negative. The concern is that if India has already such a huge trade deficit, reduction of tariff rates may worsen the situation unless there is a significant export boost. It is notable here that among the ASEAN members, India already has preferential trade agreements with Thailand, Myanmar and Singapore. India, Myanmar and Thailand are part of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) trade group. India also has a separate FTA with Thailand. India and Singapore have signed a Comprehensive Economic Cooperation Agreement (CECA) few years back. India's trade deficit has been continuously rising with ASEAN countries, which rose to the level of \$4066.38 million in 2005 to \$ 39226.16 in 2011. Among all the ASEAN countries, India has accumulated a trade deficit for almost all the years with Indonesia, Malaysia and Myanmar, and with Thailand. More recently, India has earned trade surplus with Singapore, Vietnam, Cambodia and the Philippines. However, India's overall trade balance with the ASEAN-10 is significantly negative. According to the ASSOCHAM STUDY (2009), India's trade balance with the 10-member ASEAN countries has deteriorated sharply over the last eight years, despite a six-fold increase in total trade. Part of this increase could be attributed to increasing purchase of oil and coal by India from this region, especially from Malaysia. India is also importing oil from Brunei and coal from Indonesia.

#### **(vi) Sectoral Analysis of India's Export to the ASEAN Countries**

It is observed from the **table 6** (see appendix A) that India's export to all the ASEAN individual countries has improved during the period 2005-10. In case of agriculture and allied activities, there has been a steep rise in export to Cambodia, which rose to US\$ 7.0 million in 2010 from US\$ 0.2 million in 2005. If we talk about the Leather and leather manufactures, there has not been much improvement in export (except Malaysia). India has a huge export of chemicals and related products with Indonesia, Laos, Malaysia, Singapore and Thailand. It is also evident from the table that exports of chemical sector made drastic improvement to ASEAN. There is a great demand (due to prolonged war in Cambodia and Vietnam) for an artificial one through prosthetic surgery as it is too costly. A low cost option is the "Jaipur foot" made in India. Jaipur foot costs US\$ 30 and is as good as or



even better on 28 parameters than an artificial foot that cost US\$ 9000 in the US (Smitha, 2008). There has been great improvement of export, in case of engineering goods also. After the slump year 2009 when demand fell because of domestic downturn in local markets, India's exports of engineering products dramatically surged to the ASEAN region, including Malaysia. India attaches great significance to Malaysia which has emerged as a very important market within the ASEAN region for India's engineering products. Malaysia is an important market for Indian engineering goods which are characterized by a high level of sophistication." "Malaysia, which has a good industrial base, also provides access to a large hinterland market, thanks to its well-developed infrastructure and a robust distribution network," While Malaysia's imports of Indian engineering products in the 2009-10 fiscal amounted to \$985.63 million, India's exports of these products to Malaysia in the six-month period from April to October in the fiscal 2010-11 jumped to \$1.237 billion. In fact, Malaysia became the largest importing nation within the ASEAN region of Indian engineering goods. Malaysia's imports surpassed that of Singapore (\$1.197 billion) and Indonesia (\$600.9 million) in the April-October 2010 period. It is also evident from the study that India's export to member countries of ASEAN is dominated by Engineering goods which include base products used for producing castings, forgings, industrial machinery, machine tools and automobile components. Engineering goods exports alone amounted to \$57 billion annually, and include base products used for producing castings, forgings, industrial machinery, machine tools and automobile components. The share of engineering goods in India's overall exports has increased from 20-25%, with the United States as the biggest market, followed by the European Union and ASEAN region (Business Standard, April 8, 2011). Textile sector performance is not satisfactory during 2005-10. Textile and Readymade garment export to ASEAN has not risen rather there has been a sudden fall in export to Malaysia, Philippines, Singapore, Thailand, and Malaysia. The main reason may be signing of China-ASEAN FTAs in 2005. The No.1 exporter of textiles, China, has a share of more than 10 per cent followed by Korea with 8.1 per cent; India's hovers at 3.5-4 per cent. In clothing exports, China holds a share of 18.5 per cent followed by Italy (6.7 per cent) and India (3 per cent). India's share may look small but in monetary terms it is large. In case of other manufacturing goods, there has been drastic improvement in export to Indonesia, Malaysia, Singapore and Thailand. But India export of petroleum and crude product concentrated to Malaysia, Indonesia, Singapore and Thailand.

***India's Export to the ASEAN Countries: Share by Sectors to Total ASEAN Sectoral export (in per cent)***

**Table 7** (see appendix B) shows that export share of agriculture and allied products to individual member countries of ASEAN has declined during 2005 to 2010. To Vietnam and Thailand, share of export rose to 21.1 and 2.3 percent respectively during 2005-10. In case of Leather and leather manufacture, share of Malaysia and Vietnam has increased marginally. Share of Indonesia in total export of this sector to ASEAN was 33.3 per cent in 2005, which falls to 24.8 per cent of total export of this sector to ASEAN. In case of chemical and related products, share of ASEAN member has increased during 2005-10 (except Indonesia). Share of engineering goods has increased to Indonesia, Malaysia, and Singapore. Singapore and Malaysia occupied the greatest share in engineering goods. The share of Singapore and Malaysia rose by 3.9 and 6 percent during the period of 2005 and 2010. There has been drastic fall in the share of textile. This may be due to the signing up of China-ASEAN FTAs in 2005.

***India's Export to the ASEAN Countries: Share by Sectors, 2010 (in per cent)***

After the slump year 2009 when demand fell because of domestic downturn in local markets, India's exports of engineering products dramatically surged to the ASEAN region, including Malaysia. India attaches great significance to Malaysia which has emerged as a very important market within the ASEAN region for India's engineering products. Malaysia became the largest importing nation within the ASEAN region of Indian engineering goods. Malaysia's imports surpassed that of Singapore (\$1.197 billion) and Indonesia (\$600.9 million) in the April-October 2010 period. It is evident from the table 8 (see appendix C) that Share of engineering goods is highest in portfolio of all the member countries of ASEAN (except Vietnam). Vietnam import agriculture and allied products from India, which is accounted for 60.8 percent of total import from India. Share of textile and readymade garments, member countries of ASEAN contributed very less percentage in India's total export of these sectors to ASEAN.

**D. Conclusion**

Trade on several occasions has proved to be the engine of growth in many regions. It is evident from above analysis that India export to and import from ASEAN has been increasing since the adopting of look-east policy of India. Moreover there has been consistent effort of both India and ASEAN to conclude the AIFTA since 1992, which is finally inked in 2009 and implemented in 1<sup>st</sup> January 2010. Further India had signed a FTA with Thailand and CECA with Singapore in 2003 and 2004 respectively, which boost the bilateral



trade between the countries. It is also evident from the study that India has huge balance of trade deficit with ASEAN. The concern is that if India has already such a huge trade deficit, reduction of tariff may worsen the situation unless there is a significant export boost. It is also evident from the study that India's export to member countries of ASEAN is dominated by Engineering goods which include base products used for producing castings, forgings, industrial machinery, machine tools and automobile components. Because of overlapping character of sub-tropical agriculture, India's export of such products is likely to suffer instability in prices and may face stiff competition from ASEAN. Export of Textile products is likely to get tough competition from China in ASEAN market as is evident from a decline in Indian textile export to ASEAN during 2005-2010. According to the global consultancy firm Deloitte FTA will increase the flow of goods and the net benefit for India will be positive in the long run. There is going to be benefit for India, but asymmetrically ASEAN will benefit more than India (FICCI, 2011). Presently, India has FTA in good only and discussions are underway for an agreement on services sector. A large part of the future benefits of trade will be enhanced if we include services in trading basket.

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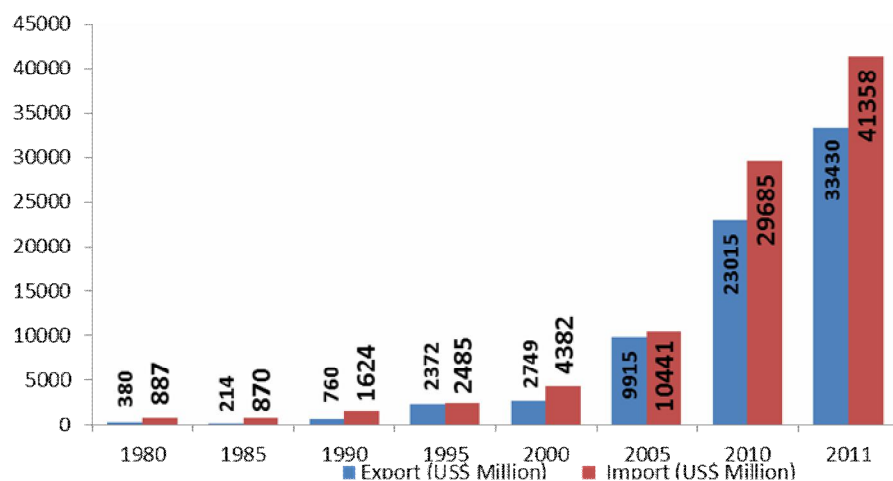
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**Annexure**  
**Table 1: Percentage Share of ASEAN in India's Global Exports**

Country	1980	1985	1990	1995	2000	2005	2010	2011
Singapore	1.50	1.25	1.73	2.64	1.94	5.16	4.08	5.33
Indonesia	0.60	0.13	0.52	1.64	0.91	1.39	2.05	2.07
Thailand	0.55	0.26	1.13	1.51	1.20	1.05	0.96	1.07
Malaysia	0.80	0.72	0.70	1.16	1.33	1.16	1.59	1.38
Vietnam	0.88	0.16	0.05	0.32	0.49	0.67	1.11	0.96
<b>ASEAN-5</b>	<b>4.34</b>	<b>2.52</b>	<b>4.13</b>	<b>7.27</b>	<b>5.86</b>	<b>9.44</b>	<b>9.80</b>	<b>10.81</b>
Philippines	0.10	0.05	0.12	0.40	0.44	0.48	0.36	0.34
Myanmar	0.06	0.02	0.01	0.07	0.11	0.11	0.12	0.15
Cambodia	0.01	0.00	0.01	0.01	0.02	0.02	0.03	0.03
Brunei	0.00	0.00	0.00	0.02	0.01	0.03	0.01	0.01
Lao, P.D.R.	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
<b>ASEAN-Other</b>	<b>0.17</b>	<b>0.07</b>	<b>0.14</b>	<b>0.49</b>	<b>0.59</b>	<b>0.66</b>	<b>0.52</b>	<b>0.53</b>
<b>ASEAN</b>	<b>4.51</b>	<b>2.59</b>	<b>4.27</b>	<b>7.77</b>	<b>6.45</b>	<b>10.10</b>	<b>10.32</b>	<b>11.34</b>
<b>World (US\$ million)</b>	<b>8441.1</b>	<b>8265.4</b>	<b>17813.1</b>	<b>30538.8</b>	<b>42627.3</b>	<b>98212.1</b>	<b>222925.8</b>	<b>294800.9</b>

Source: Calculated from DOT, IMF

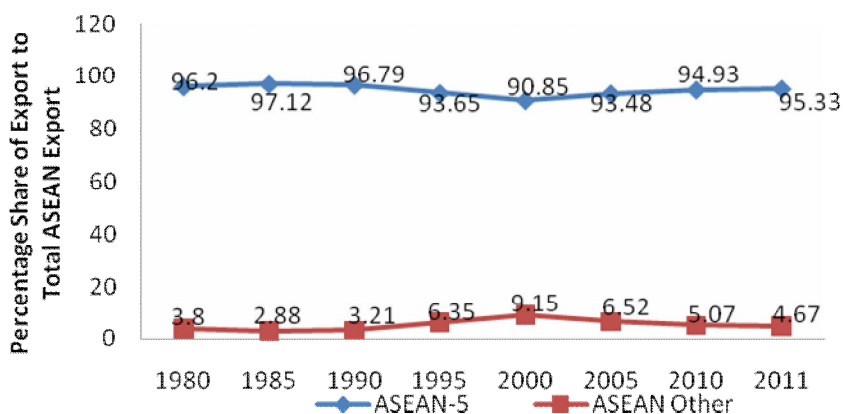
**Figure 1: Export to and Import from ASEAN (US\$ Million)**



**Table 2: Percentage Share of Member Nations in Total Exports of India to ASEAN**

Country	1980	1985	1990	1995	2000	2005	2010	2011
Singapore	33.34	48.11	40.57	34.01	30.04	51.13	39.51	47.03
Indonesia	13.24	5.01	12.14	21.11	14.03	13.80	19.87	18.29
Thailand	12.26	10.05	26.46	19.44	18.55	10.41	9.32	9.42
Malaysia	17.80	27.88	16.53	14.98	20.66	11.52	15.43	12.15
Vietnam	19.56	6.07	1.09	4.10	7.57	6.63	10.80	8.44
<b>ASEAN-5</b>	<b>96.20</b>	<b>97.12</b>	<b>96.79</b>	<b>93.65</b>	<b>90.85</b>	<b>93.48</b>	<b>94.93</b>	<b>95.33</b>
Philippines	2.29	1.97	2.81	5.16	6.83	4.78	3.49	2.96
Myanmar	1.25	0.81	0.19	0.90	1.75	1.12	1.19	1.32
Cambodia	0.21	0.06	0.17	0.08	0.29	0.23	0.27	0.25
Brunei	0.01	0.04	0.04	0.21	0.10	0.34	0.09	0.10
Lao, P.D.R.	0.05	0.00	0.01	0.01	0.18	0.05	0.04	0.05
<b>ASEAN Others</b>	<b>3.80</b>	<b>2.88</b>	<b>3.21</b>	<b>6.35</b>	<b>9.15</b>	<b>6.52</b>	<b>5.07</b>	<b>4.67</b>
<b>ASEAN (US\$ Million)</b>	<b>380.4</b>	<b>214.1</b>	<b>759.9</b>	<b>2371.9</b>	<b>2749.3</b>	<b>9914.9</b>	<b>23015.3</b>	<b>33430.2</b>

Source: Calculated from DOT, IMF

**Figure 2: Percentage Share of Export to Total ASEAN Export****Table 3: Real Export CAGR**

Countries	1981-1990	1991-2000	2001-2010	1981-2010
Singapore	12.22	-4.49	22.35	9.31
Indonesia	-4.73	0.96	18.21	11.80
Thailand	17.94	-1.77	10.09	8.89
Malaysia	8.91	1.82	16.54	8.71
Vietnam	-36.15	24.67	24.81	18.02
<b>ASEAN-5</b>	<b>9.06</b>	<b>-0.82</b>	<b>18.79</b>	<b>9.67</b>
Philippines	17.87	4.33	7.27	13.13
Myanmar	-36.08	19.34	12.73	17.03

Cambodia	-13.25	63.12	14.42	25.26
Brunei	-9.80	13.73	21.62	20.05
Lao, P.D.R.	5.10	52.20	18.36	34.70
<b>ASEAN-Other</b>	<b>10.21</b>	<b>6.50</b>	<b>8.84</b>	<b>13.09</b>
<b>ASEAN</b>	<b>9.11</b>	<b>-0.30</b>	<b>18.02</b>	<b>9.84</b>

Source: Calculated from DOT, IMF

**Table 4: Real Import CAGR**

<b>Countries</b>	<b>1981-1990</b>	<b>1991-2000</b>	<b>2001-10</b>	<b>1981-2010</b>
Singapore	4.5	5.8	18.6	4.6
Indonesia	16.5	27.3	22.7	16.8
Thailand	9.7	14.2	25.3	9.2
Malaysia	4.3	11.0	17.0	4.4
Vietnam	12.4	-28.1	45.9	11.7
<b>ASEAN-5 Total</b>	<b>6.4</b>	<b>10.1</b>	<b>20.6</b>	<b>6.4</b>
Philippines	8.0	6.9	11.3	8.5
Myanmar	8.7	1.9	11.5	8.3
Cambodia	37.2	35.9	26.6	37.9
Brunei	36.8	-35.6	165.7	33.5
Lao, P.D.R.	28.3	0.0	80.4	26.3
<b>ASEAN Others</b>	<b>8.6</b>	<b>1.7</b>	<b>15.1</b>	<b>8.4</b>
<b>ASEAN</b>	<b>6.5</b>	<b>9.5</b>	<b>20.1</b>	<b>6.5</b>

Source: Calculated from DOT, IMF

**Table 5: Balance of trade Deficit/Surplus with Member Countries of ASEAN**

<b>Countries</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2011</b>
Singapore	-348.33	-218.36	-380.75	-159.14	-655.53	1890.94	1824.10	4883.45
Indonesia	25.77	-27.16	-80.69	117.02	-536.55	-1542.22	-5146.61	7909.44
Thailand	22.40	-46.00	138.83	314.95	174.60	-93.33	-1803.82	2003.55
Malaysia	273.99	343.58	-419.96	-414.31	-820.68	-1244.04	-2446.39	3910.90
Vietnam	72.13	7.45	-51.22	81.96	195.85	536.83	1488.50	1530.74
<b>ASEAN-5</b>	<b>502.02</b>	<b>627.65</b>	<b>-793.80</b>	<b>-59.52</b>	<b>-1642.30</b>	<b>-451.82</b>	<b>-6084.23</b>	<b>7409.69</b>
Philippines	-2.84	-4.38	17.11	107.58	126.53	250.59	407.33	612.57
Myanmar	-2.85	-24.03	-88.71	-139.22	-131.13	-384.63	-847.74	-646.56
Cambodia	0.79	0.12	1.31	-27.04	6.88	22.03	53.40	71.91
Brunei	0.02	-0.15	0.26	4.93	2.63	32.68	-186.16	-547.05
Lao, P.D.R.	0.19	0.00	-0.30	0.33	5.00	4.68	-11.81	-8.87
<b>ASEAN-Others</b>	<b>-4.69</b>	<b>-28.44</b>	<b>-70.34</b>	<b>-53.42</b>	<b>9.90</b>	<b>-74.66</b>	<b>-584.99</b>	<b>-517.99</b>
<b>Overall trade deficit</b>	<b>-866.91</b>	<b>-862.13</b>	<b>-1596.5</b>	<b>-2305.8</b>	<b>-4066.4</b>	<b>-9622.9</b>	<b>-28152.8</b>	<b>39226.2</b>

Source: Calculated from DOT, IMF

**Appendix A**

**Table 6: India's Export to ASEAN Members, 2005, 2010 (in US\$ million)**

Source: CMIE Trade Data Base

Industry/Country	Years	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
Agricultural & allied products	<b>2005</b>	1.8	0.2	180.4	0.0	326.0	11.9	92.5	131.0	94.1	158.2
	2010	6.5	7.0	403.8	0.0	658.0	9.7	215.0	210.1	342.5	1086.1
Leather & leather manufactures	<b>2005</b>	0.1	1.8	10.2	0.0	16.5	0.6	1.9	8.3	11.1	24.4
	2010	0.1	3.0	10.1	0.0	35.7	1.2	2.8	9.6	7.9	40.7
Chemicals & related products	<b>2005</b>	0.3	9.7	360.0	0.2	165.5	25.1	54.1	214.0	137.8	115.4
	2010	0.3	20.5	464.9	1.8	374.9	65.4	123.5	287.4	279.7	259.3
Engineering goods	<b>2005</b>	1.0	2.1	289.7	2.1	293.3	62.8	120.9	762.6	297.7	143.5
	2010	15.4	3.0	951.1	14.5	1065.4	82.4	243.8	2511.1	571.7	232.2
Textiles (excluding readymade garments)	<b>2005</b>	0.6	3.1	66.3	0.3	108.6	1.2	19.5	88.9	23.2	17.7
	2010	0.6	9.7	63.0	0.2	71.0	8.2	33.9	65.5	41.1	64.4
Readymade garments	<b>2005</b>	0.2	0.0	7.1	0.0	49.9	0.4	2.2	40.3	1.8	0.1
	2010	0.2	0.1	1.3	0.0	67.4	2.5	2.1	66.6	8.1	0.3
Other manufactured goods	<b>2005</b>	0.2	1.0	68.6	0.1	62.2	9.0	78.7	624.4	312.6	87.1
	2010	0.5	1.6	121.0	0.6	124.3	22.6	94.1	706.4	376.9	96.1
Petroleum & crude products	<b>2005</b>	0.0	0.0	297.3	0.0	19.6	0.9	30.6	1856.6	4.0	1.7
	2010	0.0	0.0	765.8	0.0	315.7	12.6	5.0	2719.7	66.3	6.2

**Appendix B**

**Table 7: India's Export to the ASEAN Countries: Share by Sectors (in per cent)**

<b>Industry/Country</b>	<b>Years</b>	<b>Brunei</b>	<b>Cambodia</b>	<b>Indonesia</b>	<b>Laos</b>	<b>Malaysia</b>	<b>Myanmar</b>	<b>Philippines</b>	<b>Singapore</b>	<b>Thailand</b>	<b>Viet Nam</b>	<b>Total</b>
Agricultural & allied products	2005	0.2	0.0	18.1	0.0	32.7	1.2	9.3	13.2	9.4	15.9	100
	2010	0.2	0.2	13.7	0.0	22.4	0.3	7.3	7.1	11.7	37.0	100
Leather & leather manufactures	2005	0.1	2.3	13.6	0.0	22.0	0.8	2.5	11.1	14.8	32.6	100
	2010	0.1	2.7	9.1	0.0	32.2	1.1	2.5	8.6	7.1	36.7	100
Chemicals & related products	2005	0.0	0.9	33.3	0.0	15.3	2.3	5.0	19.8	12.7	10.7	100
	2010	0.0	1.1	24.8	0.1	20.0	3.5	6.6	15.3	14.9	13.8	100
Engineering goods	2005	0.0	0.1	14.7	0.1	14.8	3.2	6.1	38.6	15.1	7.3	100
	2010	0.3	0.1	16.7	0.3	18.7	1.4	4.3	44.1	10.0	4.1	100
Textiles (excl. readymade garments)	2005	0.2	1.0	20.1	0.1	33.0	0.4	5.9	27.0	7.0	5.4	100
	2010	0.2	2.7	17.6	0.1	19.9	2.3	9.5	18.3	11.5	18.0	100
Readymade garments	2005	0.2	0.0	6.9	0.0	48.9	0.4	2.1	39.5	1.8	0.1	100
	2010	0.2	0.1	0.8	0.0	45.4	1.7	1.4	44.8	5.5	0.2	100
Other manufactured goods	2005	0.0	0.1	5.5	0.0	5.0	0.7	6.3	50.2	25.1	7.0	100
	2010	0.0	0.1	7.8	0.0	8.0	1.5	6.1	45.7	24.4	6.2	100
Petroleum & crude products	2005	0.0	0.0	13.4	0.0	0.9	0.0	1.4	84.0	0.2	0.1	100
	2010	0.0	0.0	19.7	0.0	8.1	0.3	0.1	69.9	1.7	0.2	100

Source: Calculated from CMIE Trade Database

**Appendix C**

**Table 8: India's Export to the ASEAN Countries: Share by Sectors, 2010 (in per cent)**

<b>Industry/Country</b>	<b>Brunei</b>	<b>Cambodia</b>	<b>Indonesia</b>	<b>Laos</b>	<b>Malaysia</b>	<b>Myanmar</b>	<b>Philippines</b>	<b>Singapore</b>	<b>Thailand</b>	<b>Viet Nam</b>
Agricultural & allied products	27.6	15.6	14.5	0.0	24.3	4.8	29.9	3.2	20.2	60.8
Leather & leather manufactures	0.5	6.7	0.4	0.0	1.3	0.6	0.4	0.1	0.5	2.3
Chemicals & related products	1.1	45.6	16.7	10.7	13.8	31.9	17.2	4.4	16.5	14.5
Engineering goods	65.0	6.6	34.2	84.7	39.3	40.3	33.9	38.2	33.7	13.0
Textiles (excl. readymade garments)	2.7	21.7	2.3	1.1	2.6	4.0	4.7	1.0	2.4	3.6
Readymade garments	1.0	0.2	0.0	0.0	2.5	1.2	0.3	1.0	0.5	0.0
Other manufactured goods	2.1	3.6	4.4	3.5	4.6	11.0	13.1	10.7	22.2	5.4
Petroleum & crude products	0.0	0.0	27.5	0.0	11.6	6.2	0.7	41.4	3.9	0.3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Calculated from CMIE Trade Database

## Opportunities in INDO-US Merchandise Trade

Abhey Godara<sup>1</sup> and Sneha Nanda<sup>2</sup>

### Abstract

Trade pattern in India is more likely to be governed by comparative advantage, with the improving foreign trade policies. This paper tries to identify the opportunities in exports and imports of India with USA on the basis of Revealed Comparative Advantage (RCA), section relative percentage share in exports and imports of trade and compound annual growth rate by using matrix method. The paper analyzes the changes in trade performance of India over 13 year period and taking custom tariff classification as the basic unit of classification. According to this classification all the commodities are taken in 21 sections. The paper also goes a step ahead to compare the rank of these commodities in exports. The data as per the HS classification is used to compute the index of RCA and a time-series study provides information and opportunities in sections, which have displayed a continuous trend in comparative advantage.

**Keywords:** Opportunities, International Trade, Revealed Comparative Advantage, compound annual growth rate

### Introduction

India and the US are two of the world's biggest democracies sharing many values and attributes of an open society. Economic relations have been the backbone of the rapidly strengthening strategic relationship between India and United States. Both the countries play a major role in shaping the global economy and they account for about 27 per cent of the world production. India is one of the most important and promising emerging markets in the world. India is increasingly becoming a significant trading partner having climbed from the 32<sup>th</sup> to 17<sup>th</sup> largest export market and from the 25<sup>th</sup> to 16<sup>th</sup> largest source of import market for USA from 1996-2008. Indo-US trade relations have undergone a massive change in the recent years. Once perceived as a less developed country, India had transformed itself into the fastest growing economies of the world currently. It is not hidden that India is world's fourth largest economy in purchasing power parity terms and US is the largest in GDP dollar terms. So both these Economic powers are poised to grow in terms of trade and investment.

Despite the slowdown in international markets, India has been exhuming confidence. India has economically and industrially advanced to a level from where further development can be accelerated even more. Within three decades, India is projected to have the world's third largest economy and more people than China.

Rising incomes in India will result in a strong growth of middle class consumer, thus creating opportunities for exporting US firms. The growth of India will benefit US with cheaper goods for its consumers, new markets for exporters and faster growing investments for its savings. India will also be able to leverage its good relations with the US to access its huge market.

The economy of India is as diverse as it is large, with a number of major sectors including manufacturing industries, agriculture, textiles and handicrafts, and services. Agriculture is a major component of the Indian economy. At the same time, the service sector is greatly expanding and has started to assume an increasingly important role. India is expected to experience progressive growth rates include manufacturing, construction of ships, pharmaceuticals, aviation, biotechnology, tourism, nanotechnology, retailing and telecommunications. So there are lots of opportunities for India-USA trade.

### Methodology

The study is based on export and import data on Custom Tariff Classification (Sections-21) and HS Classification (1-99) commodities HS –Code wise. The study utilizes the Growth Share Matrix Method and Revealed Comparative Advantage (RCA) and the details of this formula are as under:

### Growth Share Matrix

To use the chart, plot a scatter graph to rank the section wise commodities on the basis of their relative market shares, relative growth rates and RCA rank. The critical aspect to note here is that all percentages are relative and not absolute. Here, Market Share (MS) is the ratio of total exports/imports of commodity section to that country to total exports/imports of the country. Relative market share is the ratio of respective commodity section to one that has highest market share. And, Market growth rate is the CAGR growth rate over the studied period and relative growth rate is the ratio of CAGR of particular commodity section to the one with highest growth rate.

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Matrix		Relative Market Share	
		High	Low
Relative Growth Rate	High	Stars	Question Marks
	Low	Cash Cows	Dogs

Cash cows are units with high market share in a slow-growing commodity section. These units typically generate cash in excess of the amount of cash needed to maintain the trade.

Dogs, or more charitably called pets, are commodity types with low market share in a mature trade market. These units typically "break even", generating barely enough cash to maintain the market share. Dogs, it is thought, should be got rid of.

Question marks (also known as problem child) are growing rapidly and thus consume large amounts of cash, but because they have low market shares they do not generate much cash. A question mark has the potential to gain market share and become a star, and eventually a cash cow when the market growth slows.

Stars are units with a high market share in a fast-growing commodity type. The hope is that stars become the next cash cows. The balanced portfolio has: "Stars" - whose high share and high growth assure the future; "Cash cows" - that supply funds for that future growth; and "Question marks" - can be converted into stars with the added funds.

### Revealed Comparative Advantage Formula

The study utilizes the Balassa (1965) measure of computing the RCA index. The details of this formula are as under:

#### RCA for Exports

$$RCA_j^i = \frac{\left[ \frac{X_j^i}{X_j^w} \right]}{\left[ \frac{X^i}{X^w} \right]} \quad \dots (1)$$

Where,

$X_j^i$  =  $i^{\text{th}}$  country's export of commodity  $j$

$X_j^w$  = world exports of commodity  $j$

$X^i$  = total exports of country  $i$

$X^w$  = total world exports

#### RCA for Imports

$$RCA_j^i = \frac{\left[ \frac{M_j^i}{M_j^w} \right]}{\left[ \frac{M^i}{M^w} \right]} \quad \dots (2)$$

$M_j^i$  =  $i^{\text{th}}$  country's import of commodity  $j$

$M_j^w$  = world imports of commodity  $j$

$M^i$  = total imports of country  $i$

$M^w$  = total world imports

Revealed Comparative Advantage (RCA) is basically the ratio of a country's share of a commodity export in its total exports and the world's share of exports. Measuring of revealed comparative advantage has been used to help assess a country's export potential for a particular commodity. The RCA indicates whether a country is in the process of extending the products in which it has a trade potential, as opposed to situation in which the number of products that can be comparatively exported is static. It can also provide useful information about potential trade prospects with new partners.

#### Sources of Data

The source of data has been UNCOMTRADE and Dept. of Commerce Export Import Data Bank and covers 13 year period from 1996 to 2008

#### Analysis of Data

The data has been analyzed with help of average, percentage, ratio, tables and matrix method.

#### Findings of the Study

##### The Opportunities of Indo-US Trade

This section is divided into two sub sections:

- Analysis of the Opportunities in Exports Sections
- Analysis of the Opportunities in Imports Sections

##### Analysis of Opportunities in Exports Sections

Analyzing percentage market share vis-à-vis growth rate of particular commodity type gives better perspective on their high potential growth opportunities in exports. The overall goal of this analyses is to help economists and policy makers decide which of the commodity types needs to be funded, and how much; and which commodities to stop trading.

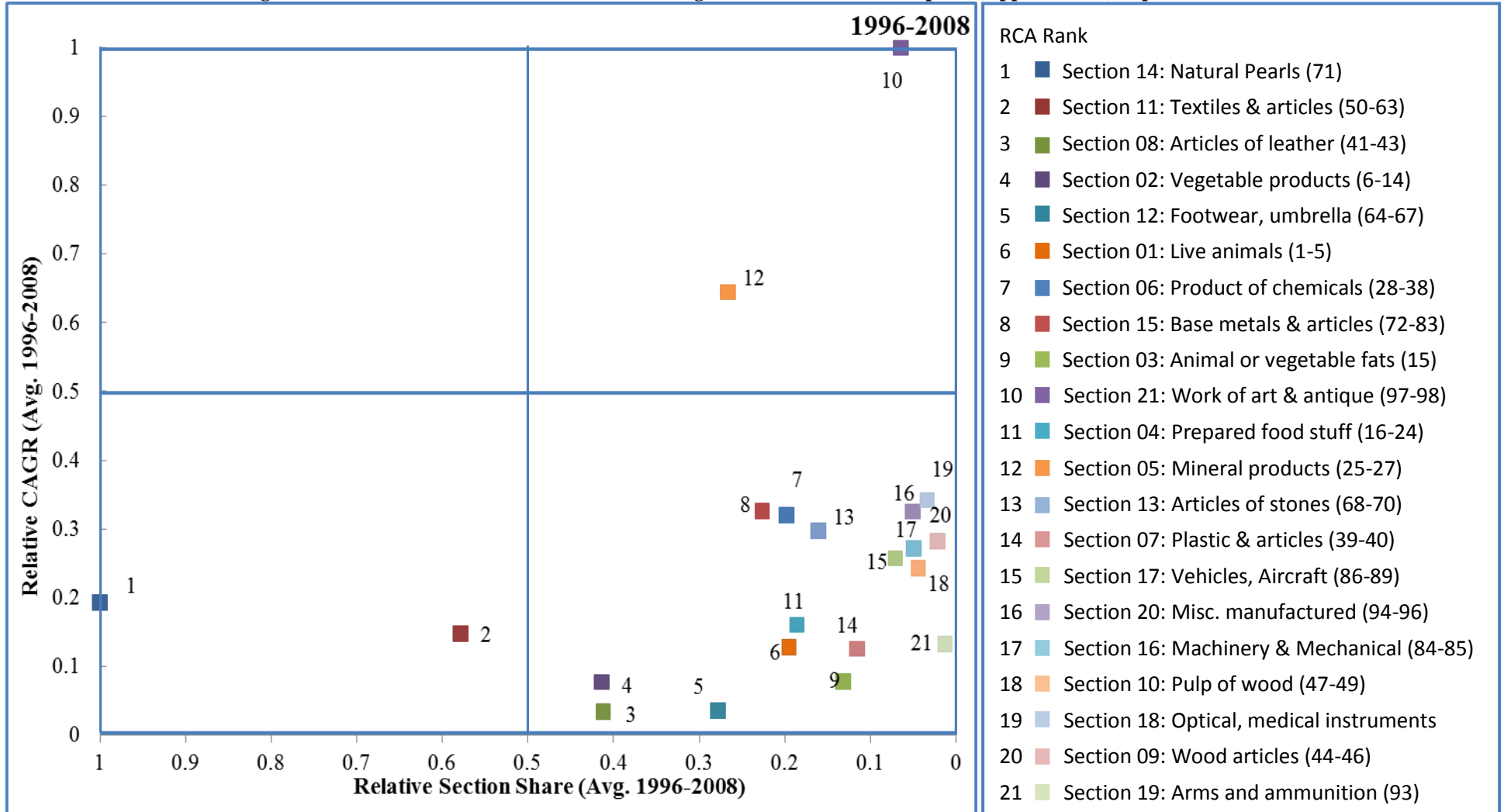
Relative market share is the ratio of respective commodity section to one that has highest market share and relative growth rate is the ratio of CAGR of particular commodity section to the one with highest growth rate. Thus, matrix gives a better graphical overview of current location of the commodities and hence gives an insight to policy makers on investment analysis.

**Table 1: Growth Share matrix for Sections with High Potential Growth in Exports (Opportunities)  
(1996-2008)**

<b>Section No</b>	<b>Name of the Section</b>	<b>Relative market share (Avg.)</b>	<b>Relative CAGR (Avg.)</b>	<b>RCA Rank in 2008</b>
<b>Section 14</b>	Natural/cultured pearls, precious stones (71)	1.000	0.192	1
<b>Section 11</b>	Textiles & articles (50-63)	0.579	0.147	2
<b>Section 08</b>	Articles of leather (41-43)	0.412	0.034	3
<b>Section 02</b>	Vegetable products (6-14)	0.414	0.077	4
<b>Section 12</b>	Footwear, umbrella etc.(64-67)	0.278	0.036	5
<b>Section 01</b>	Live Animal & Animal products (1-5)	0.195	0.128	6
<b>Section 06</b>	Product of chemicals (28-38)	0.197	0.319	7
<b>Section 15</b>	Base metals & articles thereof (72-83)	0.226	0.326	8
<b>Section 03</b>	Animal or vegetable fats and oils (15)	0.132	0.077	9
<b>Section 21</b>	Work of art & antique piece (97-98)	0.065	1.000	10
<b>Section 04</b>	Prepared Food Stuff (16-24)	0.185	0.160	11
<b>Section 05</b>	Mineral products (25-27)	0.266	0.644	12
<b>Section 13</b>	Articles of stones, cement (68-70)	0.161	0.297	13
<b>Section 07</b>	Plastic & articles thereof (39-40)	0.116	0.125	14
<b>Section 17</b>	Vehicles, Aircraft, vessels & transports (86-89)	0.071	0.257	15
<b>Section 20</b>	Misc. Manufactured articles (94-96)	0.050	0.325	16
<b>Section 16</b>	Machinery & mechanical appliance (84-85)	0.049	0.271	17
<b>Section 10</b>	Pulp of Wood (47-49)	0.044	0.243	18
<b>Section 18</b>	Optical, medical, surgical & musical instruments(90-92)	0.034	0.342	19
<b>Section 09</b>	Wood Articles (44-46)	0.021	0.282	20
<b>Section 19</b>	Arms and ammunition (93)	0.012	0.132	21

Source: UN COMTRADE, Department of Commerce, Export-Import Data Bank

Figure1: Growth Share matrix for Sections with High Potential Growth in Exports (Opportunities) in period 1996-2008



Source: UN COMTRADE, Department of Commerce, Export-Import Data Bank

Table 1 and Figure 1 shows that out of total 21 sections, 2 sections are question marks, 2 are cash cows and remaining 17 are dogs. Hence India has a very poor export basket. India needs to invest in new technologies to increase the growth rate of commodity types that will help in long term to increase its market share of exports. This will help to generate the balanced and sustainable portfolio.

Further, India needs not only to invest in technology but also needs to invest in better management of export basket. It can be seen from figure 1 that India has two sections which comes under question marks i.e. Section 5 (Rank 12, Mineral products) and Section 21 (Rank 10, Work of Art). They have better market share and growth than other few others which are more focused (Better rank, such as Rank 6, Live Animals etc.). But if proper policy reforms are not targeted to improve its trade, then soon they will enter the 'dogs' zone from 'question marks'.

#### ***Analysis of Opportunities in Imports Sections***

As discussed above in Section 1 Analysis of opportunities in Export Commodities, RCA and percentage share methods will be used to analyze the

upcoming opportunities in import sections. Growth share matrix will be used to identify commodities on the basis of percentage share. Similar methodology is followed by plotting a scatter graph in 2\*2 matrixes to rank the section wise commodities. X-axis is their relative market shares and Y-axis is the relative growth rates and data is labeled with their respective RCA ranks.

Using the above guided methodology, the table and figure 2 shows that out of total 21 sections, 1 section has a profound opportunity in the near future, 13 are ambiguous in terms of their direction, and remaining 7 are struggling heavily in gaining a significance percentage of share and growth. Though India has a relatively better import basket as against its export, it needs to take care of its 'question marks' because they need to be guided towards being a 'Star' product that can generate 'Cash cows' for the time to come. A careful evaluation and neglecting the negative growth, the scenario changes completely; now India has 1 Cash Cow, 8 'Question Marks' and 12 'Dogs'; hence India demands a better management of its trade basket with USA.

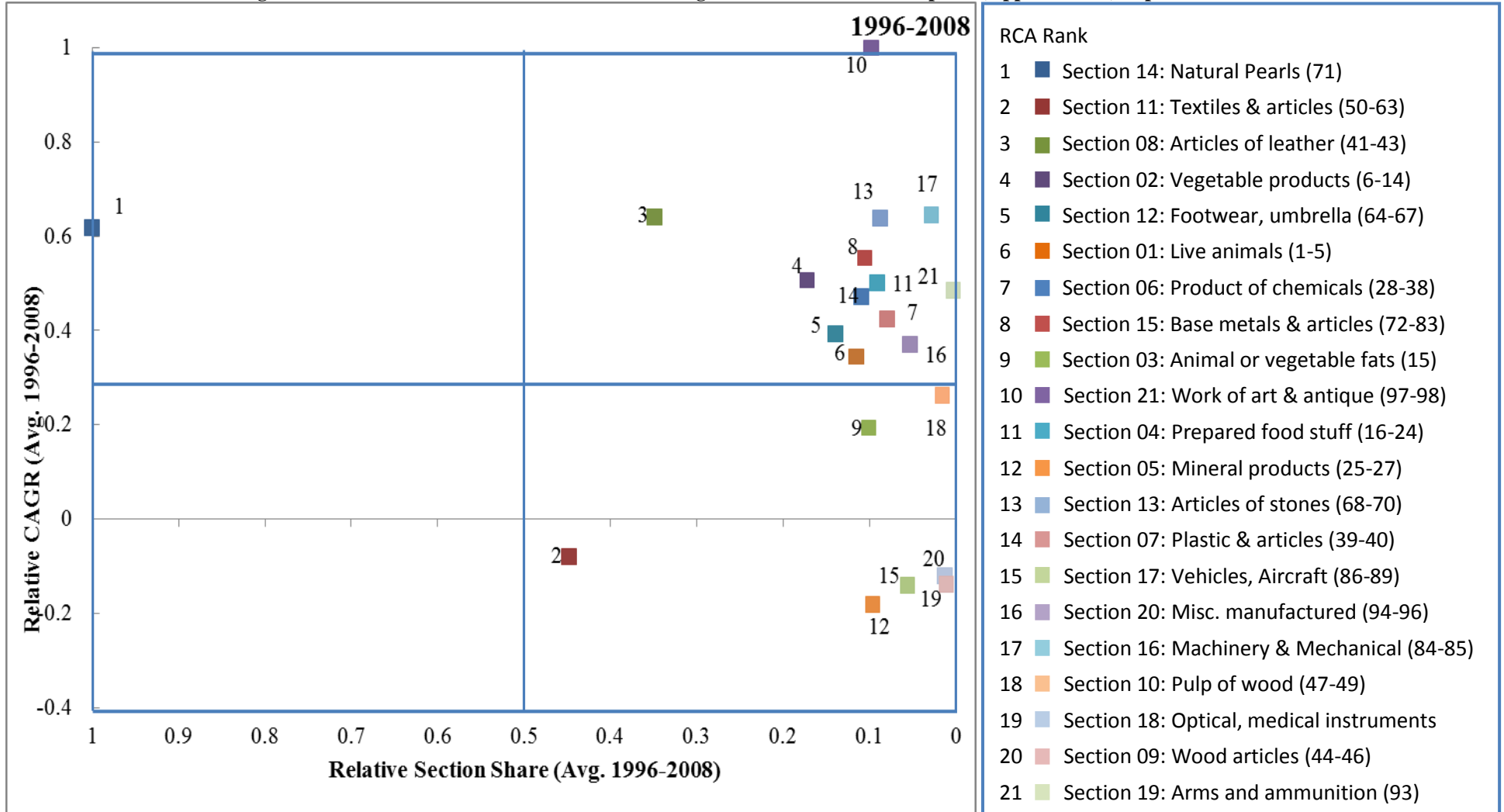
**Table 2: Growth Share matrix for Sections with High Potential Growth in Imports (Opportunities) (1996-2008)**

Section No	Name of the section	Relative market Share (Avg.)	Relative CAGR (Avg.)	RCA Rank in 2008
<b>Section 14</b>	Natural/cultured pearls, precious stones (71)	1.000	0.62	1
<b>Section 03</b>	Animal or vegetable fats and oils (15)	0.448	-0.08	2
<b>Section 05</b>	Mineral products (25-27)	0.348	0.64	3
<b>Section 06</b>	Product of chemicals (28-38)	0.172	0.51	4
<b>Section 15</b>	Base metals & articles thereof (72-83)	0.139	0.39	5
<b>Section 10</b>	Pulp of Wood (47-49)	0.115	0.34	6
<b>Section 16</b>	Machinery & mechanical appliance (84-85)	0.109	0.47	7
<b>Section 02</b>	Vegetable products (6-14)	0.105	0.55	8
<b>Section 09</b>	Wood Articles (44-46)	0.101	0.19	9
<b>Section 17</b>	Vehicles, Aircraft, vessels & transports (86-89)	0.098	1.000	10
<b>Section 07</b>	Plastic & articles thereof (39-40)	0.091	0.50	11
<b>Section 21</b>	Work of art & antique piece (97-98)	0.097	-0.18	12
<b>Section 18</b>	Optical, medical, surgical & musical instruments (90-92)	0.088	0.64	13

<b>Section 13</b>	Articles of stones, cement (68-70)	0.079	0.42	14
<b>Section 08</b>	Articles of leather (41-43)	0.056	-0.14	15
<b>Section 11</b>	Textiles & articles (50-63)	0.053	0.37	16
<b>Section 20</b>	Misc. Manufactured articles (94-96)	0.029	0.65	17
<b>Section 12</b>	Footwear, umbrella etc.(64-67)	0.016	0.26	18
<b>Section 04</b>	Prepared Food Stuff (16-24)	0.0128	-0.12	19
<b>Section 19</b>	Arms and ammunition (93)	0.011	-0.14	20
<b>Section 01</b>	Live Animal & Animal products (1-5)	0.003	0.48	21

Source: UN COMTRADE, Department of Commerce, Export-Import Data Bank

Figure.2: Growth Share matrix for Sections with High Potential Growth in Imports (Opportunities) in period 1996-2008



Source: UN COMTRADE, Department of Commerce, Export-Import Data Bank

As can be seen from figure 2 Section 14 (Rank 1, Natural Pearls) is the only Star product that India has, and absence of 'Cash cows' also increases the burden on Indian Import basket. Hence Natural Pearls signify a great potential of opportunity for India. But the advantage that India has is the presence of many question marks which shows some promising future for Indian import basket. What needs to be addressed is the increase of Vegetable products (Section 2) and stop importing Textile and Articles (Rank 2, Section 11) as India overall doesn't has much advantage there and the commodity as of now is the 9th largest imported good. Similarly Section 16, Machinery and Mechanical needs more support from government in terms of duty, because the Section has been showing highest positive growth consistently over the studied period.

## Conclusion

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After analyzing the Indian Export basket for USA, using two different methodologies, Relative comparative advantage (RCA) over other countries and percentage share over other sections, the study identifies top 5 sections in exports are Natural/ Cultured Pearls (Section 14); Textiles& articles (Section 11); Footwear, umbrella (Section 12); Mineral Products (Section 5) and Work of Art (Section 21).

In the same way, after analyzing Indian Import basket for USA ,the study identifies top 5 sections in imports are Natural/ Cultured Pearls (Section 14); Articles of leather (Section 08); and Machinery and Mechanical Appliances (Section 16). Hence the analysis tools help to analyze and to identify the trade sections that the government should focus to improve Indian trade basket. Economists and policy makers can use it as a useful tool to make policies that help the government to earn better revenue in long run.

## **Latin American Experience of Equity and Inclusion: Policies and Lessons for the Third World**

Ash Narain Roy<sup>1</sup>

### **Introduction**

Latin America has, for long, remained a laboratory for social and political change. At a time when China and India are the flavour of the Western world, many developments in Latin America have failed to attract attention. The empowerment of women and the indigenous people, deepening of democracy and inclusive politics have begun to change the political face of the region that was for long considered the backwater of the US. Latin America is no more under the shadow of the US and it no more suffers from a sense of geographic fatalism.

The understanding of the Latin American situation in many parts of the world including India is very lop-sided. The emergence of social democratic regimes in Venezuela, Bolivia, Ecuador, Brazil, Uruguay, Nicaragua and certain other countries has been explained in ideological terms. Describing Latin America's transformation as 'leftist' does not pass a rigorous analysis.

It is not so much the leftist forces that have swept power; it is the deepening of democracy which has seen for the first time the indigenous and other marginalized groups occupying levers of power. Till recently, the natives did not have voices, faces and even names. They did not have their tomorrow. Thus they went to the mountains and forests. They covered their faces to have a visage. They decided to protect their past so that they could have a tomorrow. The rise and empowerment of the natives have begun to change that narrative.

The outside world looks at Latin America with US-centric eyes. This view is primarily romantic. There is a perception that Latin America is peculiar, a place where politics and prose are often entwined, where tragedy and comedy co-exist and where truth can perhaps be stranger than fiction.

### **The Early Narrative**

Latin America was earlier seen as synonymous with debt bomb, military coups, stagflation and guerrilla violence. It has also been looked upon as US backwater. Much worse, it was dismissed as a "land of tomorrow".

Latin America's colonial experience was distinctive. Gold and silver and other mineral resources contributed to a get-rich-quick mentality, and its economy was caught up in the vortex of the international capitalist system. Things did not change much in the post-independence era. To a large extent the Latin American economies still remained oriented towards producing for the world market and not basic

foodstuffs to feed its own populations. Revolutions merely succeeded in replacing one caudillo with another.

The economic and political history of Latin America's ties with the US can be likened to Gabriel Garcia Marquez's novel, *One Hundred Years of Solitude*. In the novel, events follow irregular and magical cycles of fear and frustration. US-Latin America's ties too followed Marquez's baleful cycle. Neither Franklin Roosevelt's 'Good Neighbour Policy', nor John Kennedy's 'Alliance for Progress' broke this melancholy sequence.

### **New Paradigm**

With the entrenchment of democracy, today, new paradigms of governance are emerging in Latin America. Some would say, a new Latin America is emerging, with a new trajectory of growth, stability and confidence. It is not Cuba's Fidel Castro or Nicaragua's Daniel Ortega but Venezuela's Hugo Chavez, Bolivia's Evo Morales, Argentina's Cristina Kirchner, Brazil's Luiz Inacio Lula da Silva and many others who have shown that another world is possible. The unmistakable message from Latin America is that there is a world beyond neoliberalism. The past one decade or so has witnessed the emergence of viable alternatives to market liberalism. The region is moving into a post-neoliberal era of development.

Today, Latin America is a continent of change. The post-neoliberal paradigm, exemplified by Latin America, seeks not only to contest the technocratic monopolisation of the political space but also to promote the expansion of the national state, particularly in the economic realm. Latin America is in the process of deepening democracy. The spread of democracy has increased the political legitimacy of governments including those that dislike the United States. Social movements have reappeared with a force that has no parallel in the region. Latin America has also seen the rise of popular movements, often led by the indigenous populations. It is primarily a fight for asserting their control over their lands, water and other natural resources. The poor and marginalised people perceive globalisation as a euphemism for "second colonisation".

### **Farewell to Arms**

Over the past few years, several former Marxist guerrilla leaders have given up arms and joined the politics of ballot. Uruguay President Jose Mujica waged war against state as Tupamaro guerrilla and served a 14-year jail term. El Salvador President Mauricio Funes, belonged to former guerrilla movement, FMLN. Bolivia's Vice-President Alvaro Garcia was a leader in the Tupac Katari Guerrilla Army that bombed 48 pipelines and electric pylons in the late 1980s and early 1990s. Vice-President of El Salvador fought along the FMLN guerrillas against the country's military dictatorship. President Dilma Rousseff of Brazil joined a guerrilla movement against Brazil's military dictatorship and spent nearly

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three years in prison before becoming an economist. There are several Senators and Mayors who were once part of guerrilla movement.

### **Democratising Democracy**

In most countries the institutions of democracy have struck roots. Even the outcome of close elections is now accepted. As Jorge Castaneda says, "Today, democratic elections in Latin America are better organized, more transparent, and more legitimate than when transitions to democracy first began in the 1980s and 1990s." Former American President Jimmy Carter said recently, "Of the 92 elections that we have monitored, I would say the election process in Venezuela is the best in the world." If someone other than a former president of the United States of America had said this it would have been dismissed as propaganda at best, a crazy rant at worst.

In Mexico there is a limit of \$24 million on election expenses per candidate in choosing a president, all of which is provided through public funds. A Mexican president serves only one term in office. He is also prohibited from campaigning on behalf of a successor belonging to his party so that there is a level playing field for all candidates. Mexico has also banned any negative campaigning. Several Latin American countries offer better practices that can benefit us all. Brazil, Mexico, Chile, and many other countries regulate television advertising.

By contrast, in this year's American presidential election, \$6 billion are being raised and, thanks to a US Supreme Court ruling, donors of most of this money do not have to be identified.

### **Liberal Democracy vs. Direct, Participatory and Communitarian Democracy**

As Alain Touraine says, "The public space is emptying at the top and filling up at the bottom". Today one sees empowered citizens and weakened leaders. There is also a withering away of institutional politics and dominance of everyday concerns in people's lives. This transformation of democracy is most profound in Ecuador and Bolivia. In Ecuador, for instance, the 2008 Constitution is the result of citizens' revolution. Significant changes have been brought about in the architecture of state.

Besides 4 constitutional branches—legislative, executive, judiciary and electoral, a new legal framework is now in place—the Transparency and Social Control Council.

### **Inclusive Democracy**

For the first time significant powers have been conferred on the indigenous and other minority groups. To put an end to exclusion, subordinate groups are contesting and redefining dominant imagery and power structure. Catherine Walse calls it 're-founding' of the state. Luz de la Torre, indigenous Ecuadorian intellectual, stresses the importance of increased self-esteem. The indigenous have begun to imagine themselves through their own eyes.

Ecuador is the first country to incorporate rights of Nature in the constitution. The Nature has "the right to exist, persist, maintain and regenerate its vital cycles, structures, functions and its processes in evolution." By granting nature equal rights with humans, there is an effort to establish a new relationship between man and nature. Bolivia too has taken similar steps. Bolivia now has a Ministry of Mother Earth. This harmony is to be preserved as a guarantee of its regeneration. *Pachamama* (Mother Earth) is at the centre of all life and hence it needs to be protected. Today, new relationship is being created between man and nature.

The indigenous people in many countries are, today, well-organised at the grassroots, regional and national levels. Indigenous groups advocate for indigenous rights, access to land, autonomy, basic services, environmental protection and political representation. They are also advocates of direct participation and holding movement leaders and representatives accountable.

### **New Left or Populist?**

The election of half a dozen left-leaning presidents in Latin America is evidence of democracy in action, and not an invitation to communist tyranny. The traditional, mainstream parties of the social and Christian democrat types that ruled the region in the 1980s and 1990s, did little to reduce poverty and failed to provide effective governance. Besides, power remained concentrated in the hands of the elite. It is in this context one needs to see the region's turn to the left. While elections were mostly free, many of the other pillars of democratic life were found notoriously frail. The courts, for instance, were often seen as tools of the ruling elite. Legislative seats were often divided up among a clutch of political parties. Politicians often treated parties as flags of convenience, flying the colours of the highest bidder. The rise of the left is a vote of no-confidence in such brand of politics.

The origin of the Latin American left is distinctly Latin American. It is not Castro, but the legacy of Peru's Victor Raul Haya de la Torre, Colombia's Jorge Gaitan, Mexico's Lazaro Cardanas, Brazil's Getulio Vargas and Argentina's Juan Domingo Peron.

The new left is very different from the traditional left. Hugo Chavez seems to be the most radical of the lot. And yet, even Chavez is no Castro. He has held largely credible elections and has used the vast energy resources to promote his agenda. Jorge Castaneda calls him a "Peron with oil". That may or may not be true. One does not agree with all that he does. But no leader has in recent years made an impact as he has on Latin America. The resurgence of left owes a great deal to Chavez and his radical agenda. The left in Brazil and Uruguay and in Venezuela and Bolivia is as different from one another as day and night. Neither the rhetoric nor the worldviews of Chavez, Lula, Morales, Mejica and Correa are similar. What is of course common among them is their opposition to the neoliberal reforms and

policies that emanate from the Washington consensus.

Marcos Novaro of the University of Buenos Aires sees two models of the left in Latin America. The first is primarily “populist, anti-imperialist, anti-US and anti-neoliberal”. The second is “moderate social democrat” Chavez and Morales fit in the first category. The second category accommodates the rest. Morales is closer to Chavez because he too is engaged in the “refounding of the nation” like Chavez and Correa. Here again, while Chavez comes from a faction in the military that established strong ties with the poor, Morales has identified himself with Bolivia’s indigenous majority who were denied their due for 500 years.

In pure academic term, describing Latin America’s transformation as “leftist” does not pass a rigorous analysis, since the new presidents have not emerged from socialist movements aimed at social equality and the collectivization of the means of production. There are at best governments with leftist roots, as in the case of the Broad Front government in Uruguay, which is made up of communists and socialists. Vazquez, former Uruguayan president no doubt restored Uruguay’s relations with Cuba, but he also negotiated an investment protection agreement with the US. Interestingly, he refused to attend Morales’ inauguration as President of Bolivia. In Brazil, Lula’s Workers Party is mainly made up of leftists, including Marxists, but they don’t exercise hegemonic control over the government.

Latin America has also seen a phenomenal rise in popular movements, often led by indigenous people. They have forged strong national movements and built alliances with other progressive groups, highlighting principally their land rights and cultural specificities. It is primarily a fight for asserting their control over their lands, water and other natural resources. The poor and marginalized people perceive globalization as a euphemism for ‘second colonization’.

#### **Demand for Right to Prior Consultation**

Peru has passed the law for right to consultation. It is now a vigorous demand in Ecuador and Bolivia. However Ecuadorian President Correa has called the *consulta* illegitimate. This demand is now gathering momentum elsewhere including Chile and Brazil.

The poor and indigenous are asserting their rights and taking to the streets in big cities and small towns to defend their right to education, protect their lands from road and mining projects.

Latin America is facing a recurring dilemma. Mines, roads and other projects promise economic growth and development but people are asking uncomfortable questions about unsustainable growth.

#### **Participatory Model in Ecuador**

The political system in Ecuador has opened up new channels for the citizens’ participation through constitutional mechanisms. Participatory democracy

is broad, based on dialogue, consensus and the power of people to revoke authority.

**Participatory Mechanisms** --All elected offices are revocable (Art. 105). All citizens may summon a referendum to revoke laws and presidential decrees (Art. 103 and 104).

**Popular Accountability**--The citizens and social organizations select members for the Citizen’s Participation and Social Control Council to oversight all levels of government (Art. 207, 209 and 210).

**Legislative Initiative**--Citizens may propose legislation, constitutional amendments and summon a Constitutional Assembly (Art. 103, 104, 135 and 444).

Ecuadorians abroad have the same prerogatives (Art. 102).

**Co-management Mechanisms**--Guarantees the participation of representatives from civil society in the discussions and deliberations of sub-national governments (Art. 101).

Citizens may participate in the National Planning Council, responsible for the National Development Plan (Art. 279 and 280).

#### **Cotacachi Participatory Model**

- Won UNESCO 2002 Cities for Peace Prize
- UN and Habitat’s 2000 Dubai International Award for Best Practices AukiTituana Males, Cuba-trained economist and mayor has promoted
- Innovative process of democratic and participatory municipal management
- It is citizen participation approach
- Alternative Local Governments
- Assembly of County Unity where representatives of organisations come together to make policy recommendations and creating agendas for year’s work
- Mayor presents public accounting of budgetary income
- Participatory budgeting
- Organised citizens prepare development plan.

#### **Final Words**

Latin America, today, is a continent of change. Unlike much of its history, the forces that seem to have the upper hand are those that have been historically shut out. The region has shown that liberal democracy and market economics are neither the only nor the preferred model of development. And yet, it will be a folly to underestimate the power of market economy. Not all countries have rejected market economy. There is need to have a nuanced view. The movement beyond neoliberalism differs from country to country. (While some are advancing democracy, peace and economic progress, others are reckless and authoritarian.) It is too early to talk of a Latin American model. What several countries are attempting are at best experiments. It is not all lilies white.

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## Euro Area Debt Crisis and its Impact on the Economy of India

Amit K. Giri\* and Babita Sinha\*\*

### Abstract

The world's economy is in the turmoil over the last four years with the outburst of the sub-prime mortgage crisis in the US in 2008. The financial crisis turned into the real sector and then the world witnessed an unprecedented fall in output, trade and employment for over two years. It was being apprehended that the downturn will be short lived and soon the world's economy will be on the growth trajectory. While the recovery was well within the sight, the outbursts of the euro area sovereign debt crisis played the spoilsport. Like the rest of the world, the economy of India too is feeling the slowdown which is perceptibly evident from the deceleration in the rate of growth of the output, exports and employment.

This article poses two fundamental questions: does the slowdown in India's output and growth is the result of the exogenous shocks of the US and the euro area or is it the fallout of the policy paralysis and the developments in the domestic economy which have build up in the recent years?

The article with the help of the secondary sources of data finds that although the developments in the politico-economic sphere in the euro area and in the other major advanced countries have indeed pulled down the growth rate as the exports as well as imports to these regions have declined phenomenally in the recent years. This has added more numbers of unemployed workforces to the already stagnated growth in the employment in India.

But the other endogenous factors too have added to the faltering Indian economy. The low rate of capital formation thereby impacting investment, secular decline in the rate of services sector growth and almost stagnancy in the private consumption expenditure have also brought down the growth momentum of the India's economic growth rate. But the most important reason is the policy paralysis which India is witnessing over the couple of years which has led to the deceleration of India's growth rate.

As the triad of the European Central Bank, the IMF and the European Commission are trying to revive the faltering euro area economy, it is high time for the policy planners of India to act to rev up the economic growth rate of India.

**Keywords:** euro area sovereign debt crisis, contagion effect, vulnerable employment, scarring effect.

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### I. Introduction

The world economic crisis which has its roots in the mismanagement of the financial system soon turned into the economic crisis engulfing the whole economies of the world. The major stock index of all the countries around the world plunged and soon the financial crisis turned into the real sector and the world came into the grip of recession led by the United States of America with real GDP contracting in 2009 by more than 4 percent on average in both the Euro zone and US. The researchers were not enthused with the subprime mortgage lending as the only cause, they ascribed as many as 25 causes for the present economic crisis (Jickling, 2010), including imprudent mortgage lending, housing bubble, global imbalances and securitization. Nevertheless, the 'housing bubble' or subprime crisis played the key role in instigating the crisis as it was actually the greatest money and credit excess in the history of the world (Cook, 2011). There are some other factors which have been put succinctly by Shahrokhi (2011): "...corporate greed fostered by asymmetry of gains and losses, and unregulated markets precipitating abuses and manipulations, market structures '*Too Big to Fail*' mentality and policies funded by a few oligarchs, crony capitalism, and corporate welfare system. This has widened the gap between rich and poor and the inequality in the distribution of resources and power".

This observations brings forth here the Principle of Marxism which underlines the fact that all the economic ill prevailing in this world is bring forth here by the capitalists in pursuit of earning more and more profits and in the process halting the growth of the developing and the poor countries. Basically this crisis could be interpreted in Marxist terms as a crisis of over-accumulation of capital that ensues from the very anarchy of production, and leading to a pressure on the tendency for the rate of profit to fall when countering tendencies-including the new ones, linked to new financial instruments-have dried up. This over accumulation manifests itself through an excess of saleable production, not because there are not enough people who need or desire to consume, but because the concentration of wealth tends to prevent an increasingly large proportion of the population from being able to buy the merchandise. However, instead of it being a question of a standard overproduction of goods, the expansion of the credit system makes it possible for capital to accumulate if money capital which can take forms that are increasingly abstract, unreal, and fictitious (Herrera, 2012).

Mundell (2012a) outlined four phases in the present prevailing economic crisis in the world: The first part of the crisis was the sub-prime mortgage crisis, the second-the soaring dollar and the Lehman Brothers crisis. The US and global recession was the third part of the crises as the strong dollar weakened the economy, and the Euro Area sovereign debt crisis is the fourth part of the series. The beginning of the US

economy recovery in 2010 seemed that all is over with the crisis, but the beginning of the European sovereign debt crisis defied the optimism eschewed by many an economist and the policy planners around the world.

Unlike the first phase of the economic crisis which has its root in the weak monetary policy of the US, the Euro Area sovereign debt crisis is fallout of the economic meltdown the world witnessed beginning in the year 2008.

To contain the crisis, European national governments injected massive capital in financial institutions (e.g.; Hypo Real Estate, Fortis, Anglo-Irish, etc.) and undertook fiscal stimulus measures, albeit independently. The single currency, euro, proved vulnerable to the crisis because of the heterogeneous fiscal and monetary policies pursued by each nations of the European Monetary Union without having a single supranational government above it to control tax, spending and transfers between the euro area's richer and poorer economies. Consequently, the countercyclical fiscal policy and financial markets distrust some of the European governments resulted in a sovereign debt crisis (Grammatikos and Vermeulen, 2012). The newly joined countries, Portugal, Italy, Ireland, Greece and Spain (referred to as PIIGS) mainly socialist, went into a fiscal binge on the expectation that their fiscal profligacy will be well guarded by the major nations of the Euro region and a strong currency, euro (Mundel, 2012b). This corroded the fiscal health of the euro area economies. Consequent to this the economy got bust with spiraling and unsustainable fiscal debt and unemployment around.

As the European sovereign debt crisis is deepening and its contagion effect is being felt around the world through four channels: (i) trade linkages; (ii) financial linkages, (iii) underlying vulnerabilities and financial structure; and (iv) and the overall policy framework (Berkmen et al; 2012), this paper tries to analyse the fallout of the euro area sovereign debt crisis on output, trade and employment in the major regions of the world, more specifically on India as the 'decoupling hypothesis' has failed in the context of Indian economy during the first stage of the crisis. The faltering euro area economies are bound to impact the economy of India as India has very close economic ties with this region. Given the sovereign debt crisis in the euro area, this article also poses the question, is the exogenous factor only the sole region of India's subdued economic growth? Does macroeconomic structure of India is very sound as was in the recent past? And is the economic policy of the incumbent government do augurs well for the economy?

The approach of the study is primarily analytical in nature. In the present study, the impact of the economic meltdown on output, exports and employment has been analysed on the basis of data collected through the secondary sources by a simple method of calculating cumulative and average annual growth rates and comparing the same for the pre-

slowdown and slowdown periods. While the pre crisis period, as analysed by others, has been taken as periods prior to 2007-08 and the post crisis period, thereafter.

The rest of the section has been divided as follows. Section II reviews some studies pertaining to the economy of India associated with the contemporary economic crisis. Section III highlights the impact of the crisis on the major economic regions of the world primarily on output, trade and employment. Section IV analyses the impact of the euro area sovereign debt crisis coupled with the internal policy framework of India on the output, trade and employment on the economy of India. Section V concludes.

## **II. Reviews of Studies on Global Economic Meltdown and its Impact on India**

There is no dearth of literature on the impact of global economic crisis on India. Ever since the economic meltdown occurred in the economy of the US and subsequently spreading to the rest of the world including India, many commentators shed some light onto it. Bhaduri (2009), Crotty (2009), Semmler and Bernard (2009) and Vasudevan (2009) tried to understand the genesis of the financial crisis which ultimately turned into the economic crisis. They contended that the crisis had its root in the weak regulatory and financial system of the US which resulted in the current crisis. Rakshit (2009) analysed that the weak government policy of India prior to the crisis led into the deceleration of primary sector, gross investment, exports of goods and services and the rapid decline in the index of industrial production as the government relied more on private funding of infrastructural projects through the provision of grants. Airing the similar view, Nachane (2009) found that apart from deceleration in the macroeconomic indices of the country, employment in some specific sectors did receive a major jolt. He questions the government support provided during the first phase of the crisis as he believes that the poorer section of the society barely received any help. Nayak (2009) echoed the concern of Nachane and suggested that the stimulus package to fight the crisis ought to be in terms of long run solutions addressing the needs of the poor.

Corroborating the views of Rakshit, Mohan (2009), refuted the 'decoupling hypothesis' and contends that the emerging countries did not remain immune to the developments in the US and across the Atlantic, although the downturn in the emerging nations including India were moderate relative to the developed world.

The multilateral agencies like United Nations Conference on Trade and Development (UNCTAD) (2009) also analysed the impact of economic slowdown on the economy of India. The study confined itself only on the external sector and it showcased a pessimistic picture for India's exports along with the rest of the world. The International Labour Organisation (ILO) (2009) focused on 'decent work' implications of the

present crisis and explores the issues related to vulnerable workers in detail apart from detailing that the present crisis has its effect more on the youth than the elderly in the whole world. Sharma and Rothboeck (2009) adopted a macroeconomic framework to assess the impact of economic slowdown on output and employment in India. The study highlighted tendencies like reduced employment creation, job losses particularly in export sectors, higher vulnerability of migrant and contract workers, and deterioration of the quality of employment across different sectors in India in the wake of the crisis.

In a similar study Sasikumar and Karan (2010) estimated employment for the year 2008-09 could be approximately 512 million as against a potential employment (presuming the slowdown had not hit the economy) of 519 million, reflecting approximately 7 million loss in potential employment.

Veeramani (2012) analysed the growth and pattern of India's merchandise exports during the post-reform period (1993-94 to 2010-11). The findings shows that in this decade beginning 2002-03 to 2010-11, India's trade growth witnessed an impressive growth of over 21% a year comparative to 8% recorded from the beginning of the reforms period to 2001-02. The composition of exports has undergone consistent changes in favour of capital and skill intensive products. The study underscores the fact that India has achieved tremendous progress in making inroads into the emerging markets of Asia and Africa apart from strengthening the ties with its traditional partners in the developed economies.

All the above studies listed above presumed that the slowdown in the world economy will be of a shorter duration and once the US economy recovery starts, the macroeconomic imbalances will taper off. The major shortcomings of all these studies have been that all of them analyzed the fallout of the US economic crisis in the initial stage before the full blown crisis appeared on the horizon. Barely there is any study which has tried to analyse the impact of the second phase of the crisis, when the whole of the euro area is witnessing one of the worst periods in their economic history, on the economy of India. Also, all the observers studied the exogenous impact on the economy of India presuming that all is well within the domestic economy.

In the backdrop of the recent developments which has engulfed the whole of the economy of the world, the present study analyses its impact on the economy of India. Keeping in view that the Indian economy is closely knit with the economy of US and euro area, the major aim of this study is to see the impact on those sectors of India economy which are in one way or other integrated with the economy of the US, the euro area and the rest of the world. To this effect, the present study sees the impact of the ongoing economic crisis on India's output, trade and employment. The next section gives a snapshot of the

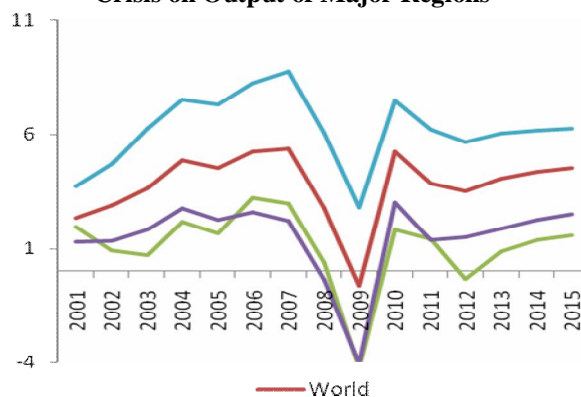
euro area sovereign debt crisis on the major regions of the world.

### III. Fallout of the Euro Area Sovereign Debt Crisis on Output, Trade and Employment in the Major regions of the World

#### III (A). Impact on Output

“Contagion occurs when the transmission channel intensifies or, more generally, changes after a shock in one market” (Pericoli and Sbracia, 2003). The recent developments in the world economy are one of the best examples of contagion effect. By and large, all the economies around the world were in the prime of growth until the subprime mortgage crisis raised its ugly head in 2008. The crisis wiped off global output by 2.2% in 2009 (World Bank, 2010; WTO, 2010). The second wave of the crisis, although not severe as the previous one in magnitude is also having its impact felt all around the world. The second wave of the ongoing crisis is pulling down the output growth of almost all the economies of the world (Figure 1). After having a revival for two years consequently, it is being seen that the output growth of the world as well as the emerging and developing economies have plateau up and it is going to maintain the inertia in the years to follow.

**Figure 1: Impact of Euro Area Sovereign Debt Crisis on Output of Major Regions**



Source: Compiled by the authors from the World Economic Outlook Database of IMF

Like the first phase which led to heavy contraction in the output growth of the developed and the underdeveloped nations alike, the second phase of the slowdown, although not as severe as the first phase, the deceleration on output, trade and employment had been perceptible. The world's output witnessed significant buoyancy when the output grew at a significant rate of over 5.2 percent in the year 2010-11 (IMF, 2012), The plummeting of the euro area by 0.5 %, the epicenter of the present crisis, has send the shock waves around the world. The crisis in the euro area has pulled down the world's growth rate to fewer than 4 % in the year 2011-12.

The downturn that began in the smaller periphery members of the 17-nations bloc is now sweeping through Germany and France, the savior of the falling Euro zone economies and the situation remained dire in the region's third and fourth biggest economies of Italy and Spain (Business Standard, Sept. 4, 2012).

After contracting for two consecutive years in 2008 and 2009, the US economy did witness a turnaround in the year 2010, but the turnaround seem to be short lived, as the US economy has again started to decelerate. In fact, the third tranche of Quantitative Easing (QE's) is being planned to rev up the US economy (Business Standard, August 31) in addition to the injection of \$ 203 trillion of debt through Quantitative Easing from 2008 through 2011 in two rounds. The US economy is poised to grow at the rate of 1.7 percent compared to 3.03 % it clocked in the year 2010.

The emerging and the developing economies, where more than three-fourth of the world population resides and its growth is very much contingent to the growth rate of the advanced economies of the world, is too feeling the deceleration in their economy. Showing great buoyancy, after the first phase of the crisis, these economies, led by two populous countries of the world, India and China, bounced back to their pre-crisis growth rate of near to 8 %. In the recent years, the economies of these countries are experiencing a slower growth rate of below 6 percent. The deceleration in the growth trends had led the IMF (2012) to lower the growth projection of the world, slightly higher than 4 % in the years to follow (Fig. 1), which the Kucera et al; have termed as 'scarring effects'. It means that the menace of the crisis will not be short lived but will continue to linger for some more years (Kucera et al; 2012).

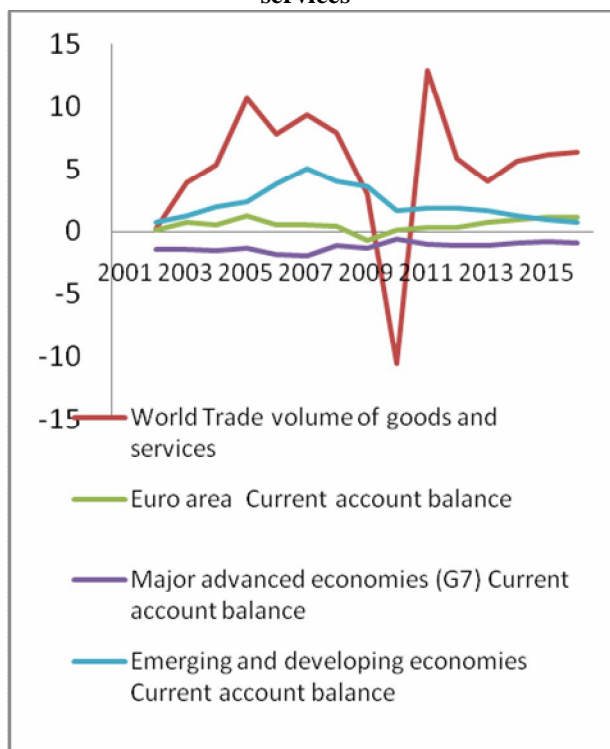
### III (B). Impact on Trade

Out of the four channels through which the contagion effect occurs, the impact of trade is more pronounced. The first phase of the present economic crisis saw real global trade to have declined by 12.2 percent over the year 2007 (World Bank, 2010; World Trade Organisation, 2010). The decline in global trade by over five times over the global output had lead Baldwin to call the recent global economic crisis as "The Great Trade Collapse" (Baldwin, 2009). However, with the onset of economic recovery around the world, The World Bank projected that the world trade will begin to recover in the beginning of 2010 and it might be growing by over 9.5 percent (WTO, 2010), thus growing at the pre-crisis level. The positive outlook of the WTO proved true as the trade volume of the goods and services around the world increased by a robust 12.8 percent compared to the negative growth rate of 10.5 percent recorded in the year 2009, when the world trade witnessed a greatest fall than ever. Both the merchandise trade of exports and imports grew by an

impressive 13 and 14 percent respectively. (WEO Database, June 2012). There was a surge in import of goods and services as well as merchandise trade alike. With the onset of debt crisis, almost all the Euro area countries including some countries of euro zone (the United Kingdom), are showing a decelerating trend in both the export and import of goods and services. In the year 2012 it is expected that the volume of import of goods and services will decline by 0.48 % over the previous year figure of 3.78 %. The decline in merchandise import by 0.847 % was much more profound than the volume of import of goods and services. The trade data also shows that the decline in merchandise import is much more severe than the merchandise exports. The same trend is observed in the other major advanced countries including the US.

The declining imports figure of the major advanced regions including the US and the EU is clearly reflecting on the export's figure of the emerging and the developing countries as the major exports of these country groups are destined to these euro zone and the other major advanced countries.

**Figure 2: The Crisis Impact on trade of goods and services**



Source: Compiled by the authors from World Economic Outlook Database of IMF

After the first phase of economic meltdown, the current account balance of these emerging and developing countries improved marginally but after the second phase of the current meltdown, the current account surplus, the emerging and developing countries were enjoying, is expected to secularly decline from 1.8

% in the year 2010 to 0.75 % by the year 2015. It clearly reflects that the developed countries are trying to vigorously push up their exports in order to narrow up their current account deficit in order to have a positive dent on the fiscal health of their economy which is creating mayhem around the world. This pattern is clearly perceptible from the trade data. While the current account deficit of the euro area was hovering around 0.30 % at the end of 2010, presently it stood 0.74 % (Fig. 2) and is expected to increase secularly until 2015 (IMF, 2012).

### **III (C). Impact on Employment**

Of all the linkages, the impact of trade on employment has the greatest impact. The linkage of trade with employment has been the central theme in many neo-classical trade theories. The Heckscher-Ohlin-Samuelson (H-O-S) identifies that trade will lead to increased demand of skilled and unskilled labour from less developed countries if the less developed countries participate in international trade. The theory stresses upon the more liberalized trade regime and participation of the less developed economies in international trade as the greater openness increases the relative demand and the prices of unskilled labour and lead to more equal distribution of wages in low-skilled-labour-abundant countries (Meschi and Vivarelli, 2009). As a corollary from the above statements, the reverse will also be equally true.

The contraction in output and trade has led to one of the largest increase in the 'industrial reserve army of labour' in the recent decades. One significant aspect of this crisis has been that apart from the employment loss in that country which is the epicenters of the present crisis; the crisis has exogenously impacted the labour force of the other countries which had trade relations with the US and the euro zone Countries. The data shows that the unemployment has exacerbated due to the onset of the crisis. In the year 2007, about 5.5 percent of the workforce was without work and by the end of 2012, the scenario remains bleak as more and more people are expected to remain unemployed, with a figure of around 6.2 percent (ILO, 2012). In absolute terms, the present crisis is expected to cut jobs of 9 million workers by the end of 2015 if the present situation continues (Table 1, refer annexure).

The situation for the workers is expected to remain grim in the euro Area. Most of the euro zone countries are facing the worst unemployment situation of their labour force in their labour history. In some of the worst hit countries like Greece and Spain, unemployment is more than 20 %, mainly comprising the youth of 15 to 35 years of age. The joblessness rate in the economy of the 17 nations using the euro was 11.3 % in July (Business Standard, September 1) which has already led to social unrest and political upheavals. There has been no perceptible decline in the joblessness in the other crisis affected countries like the US and the

United Kingdom. The Joblessness in US is still around 8.5 percent and so is the situation in the United Kingdom. Another alarming scenario the present crisis has posed upon to ponder is the high increase in the vulnerable employment (ILO, 2012). The high global uncertainty and probable risk has increased the entrepreneur's appetite for such workers, as they can be fired at will at any time and they can also save costs. It is expected that by 2015, more than 10 million workers will join the ranks of vulnerably employed person than the present figure (Table 2, refer annexure), mostly in South Asia and Sub-Saharan Africa.

### **IV. The Euro Area Sovereign Debt Crisis and its Impact on India**

The fallout of the euro zone sovereign debt crisis is bound to impact the economy of India as India has historically close economic and political ties with the region's economy. In what follows, we analyse the impact on India's output, trade and employment due to faltering euro zone economies.

#### **IV (A). Impact on Output**

The US slow economic recovery and the euro area sovereign debt problems have continued to weigh on the global recovery. Its impact on India had not been a milder one either. The growth rate of India has received a severe jolt due to the global economic ramifications. The pace of growth we were witnessing since the beginning of this decade of over 8 percent has slowed up. While the economy of India recorded a spectacular growth of 8 percent during the US economic turmoil, it was unable to sustain this rate of growth in the current period. The growth rate of only 6.5 % (economic Survey, 2012), India recorded, was even lower than the Reserve Bank of India's modest projection of 7 percent. In fact, growth decelerated over four successive quarters from 9.2 percent in the fourth quarter of 2010-11 to 5.3 percent in the fourth quarter of 2011-12, while improving marginally to 5.5 percent in the first quarter of this fiscal (Table 3).

In this section, we try to figure out the predominant cause of India's economic slowdown. India is passing through a tumultuous phase. On the one hand, the global economic situation is facing an uphill task to recover from stagnation while on the other we have to see the developments occurring in the domestic economy of the country to get the real picture of the deceleration in the economy of India.

The most worrisome trend which is being witnessed is the underperformance of the core sector of our economy: mining and quarrying, electricity, gas and water supply. The manufacturing sector, which has 77 % weight in the industry group, too has slide down incessantly over the last five quarters. The constant underperformance of these sectors has pulled down the growth momentum of the economy which has been built over the last decade (Table 3, refer annexure).



The performance of the industrial sector in the economy of India has not been so worse even in the first stage of the crisis. In the period 2008-09, the industry clocked a growth rate of 4.4 percent and rebounded with 8.5 percent in the following year. In the previous fiscal year, the subdued growth rate of 3.4 percent has remained a cause of concern. The manufacturing sector within the industry has had one of the worst performances in the history of India's economic growth as the industry clocked a negative growth of -0.3 percent in the fourth quarter of the last fiscal year (Table 3). The other core components; mining and quarrying, construction too did not present a satisfactory performance during the entire previous year. In this fiscal year, during the first quarters, the scenario is not too encouraging. The poor performance of manufacturing growth has been compounded by the recent slowdown in the fixed rate of capital formation. The rate of growth in fixed capital formation witnessed a near continuous decline from 14.7 % in Q1 of 2011-12 to a meager 0.7 % in Q1 of 2012-13.

The bulwark of India's growth, the services sector too has slowed down in the past quarters on a sustained basis. A closer look of the services sector performance, since 2009-10 Q1, reveals that the growth of this sector has been on a decline from 10.2 % in 2009-10 Q1 to 10% in 2010-11 Q1, then to 6.9 % in the first quarter of this fiscal.

Apart from the negligible growth in industry and services sector, the stagnancy in the growth of private consumption expenditure also explains the slowdown in the growth rate of India's economy. The private consumption expenditure has 59.5 % say in the GDP of India. It is felt that the India's economy is domestic demand driven. A mere growth of 3.9 % in the first quarter of this fiscal over the corresponding quarter of 2011-12 does not augur well for the economy.

The deceleration in the domestic demand, consequently decline in manufacturing and the services sector, sends a strong signal to the policymakers that it is not only the industrial sector, but the combined effect of industrial, services sector and domestic demand which has brought down the growth rate of the economy in the recent years.

The above discussion reveals that the macroeconomic structure of the economy is not in fine shape. The economic reforms of 1991 and the major policy changes which were initiated by the government subsequently were very much instrumental in pushing up the growth rate of India's economy. In the recent years, such initiatives is not are not forthcoming. The lackadaisical attitude of the government had put all the policy initiatives in the hindsight. The inward looking policies of the government too had lowered the investors' confidence. It's not only the poor performance of the domestic sectors of our economy but also the major policy initiatives which have stifled the growth rate. The actual growth recorded in the

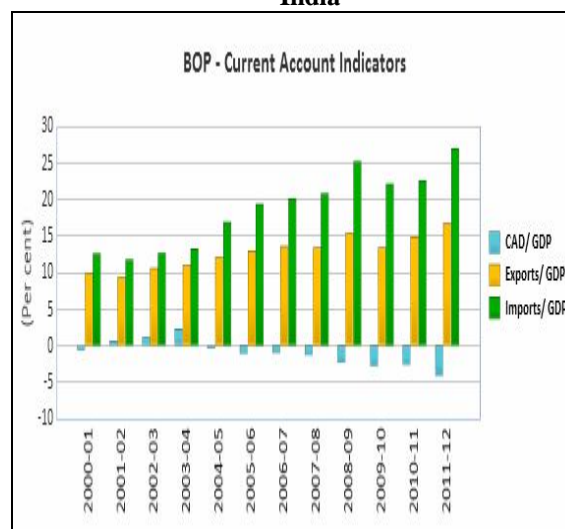
recent years had significantly deviated from the potential growth rate of the country which had been estimated to be around 8 %.

#### IV (B). Impact on External Sector

In the globalised world, no country can remain decoupled with the developments happening around the world. India too has been affected severely in the external front. With the opening up the economy, especially to the major advanced economies and its accession in the World Trade Organization, Indian economy has become very much vulnerable to the vagaries of the developments in any part of the world. On the one hand, it has gained immensely as its share in the international trade of goods and services has increased phenomenally since the opening up of its economy in 1991. The flip side is that the growth in international goods and services has become highly unpredictable and unsustainable. With the full current account and partial capital account convertibility on the balance of Payments of India, the inflow and outflow of capital has become very much susceptible to international and domestic monetary and fiscal policy change.

But much more importantly, it is the inflow and outflow of the goods and services which are having impact on the real sectors of the economy of India, which are the major focus of our discussion here.

**Figure 3: Trends in CAD, Exports and Imports of India**



Source: Reserve Bank of India, 2012.

With a contraction of 3.5 percent in the exports of India's merchandises during 2009-10, due to the fall in global demand; mostly in the European and American regions; the following year trade data shows a turnaround by growing 40.5 percent in the year 2010-11. The impressive growth performance continued in the year 2011-12. The developments in the Euro Area in the recent years is expected to turn the tide against



India as the decline in trade is expected to be more severe than the period of 2009-10, since in the first quarter of 2012-13, the growth in trade is expected to decline by 5.1 percent. In the present fiscal year the export is on a continuous decline month by month as the euro area problems aggravated (Table 4). The month of July proved to be disastrous year for India's export as the decline in export is almost 15 % lesser than the corresponding period of the last year.

**Table 4: India's External Trade**

Months (2012)	Exports (Growth %)	Imports (Growth %)
April	3.23	3.83
May	-4.16	-7.36
June	-5.45	-13.80
July	-14.80	-7.78

Source: Authors Compilation from Ministry of Commerce and Industry, Sept. 5, 2012.

The depreciation in the India Rupee by more than 20 % did not provide any succor to the declining India's exports. The waning of global demand of India's merchandise goods and more than 20 % depreciation of Rupee against the dollar had led to the phenomenal increase in India's imports bill, resulting into an unsustainable current account deficit of 4.2 percent of India's GDP. Apart from decline in merchandise exports, the services exports of India too had felt the brunt of economic slowdown. Services exports (net) at US \$14 billion in Q1 of 2012-13, have declined by about 12 percent year- on- year.

Apart of fall in the trade, one of the major thrust areas of the government of India over the years has been the stimulation of foreign direct investment in India. The Indian economy had a slow start in attracting FDI in India with the initiation of reforms beginning in 1991; however the growth in FDI picked momentum in 2006-07 and it grew by over 146 % over the previous year of 2005-06. A major overhaul in the policy paradigm related to foreign direct investment played all important roles in attracting foreign direct investment in India (Rao and Dhar, 2011). The growth momentum built continued till 2008-09, but the economic crisis played the spoilsport in dampening the inflow of FDI in India. In the year 2009-10 and 2010-11, the growth in FDI showed a decline of respectively 10 and 8 %. However, the buoyancy in the Indian economy continued as the FDI inflow in India registered a growth of over 11 % over the highest growth rate recorded in the year 2008-09. As the Euro Area crisis worsened, a perceptible decline started to occur in the FDI of India. The concerns about corruption, lack of political stability at the centre and the uncertainties on the various economic policies like allowing FDI in multi brand retail sector, general anti avoidance rules, GST are holding the investor's sentiments to invest in

India. The consequences of this is that for the first quarter (April-June) of the current financial year, total FDI dropped by 67% compared to same period last year to USD 4.43 billion.

High external debt, deterioration in the net international investment position and a moderate decline in the foreign exchange reserves of the country have weakened the resilience to external shocks (RBI, 2012).

#### **IV (C). Impact on Employment**

The fall in output around the world and deceleration in global demand for goods and services produced in India is bound to have its immediate impact on the curtailment of employment and lowering of wages of the workers in the domestic territory. India having close economic ties with all the advanced economies of the world did feel the impact of waning demand. However, the magnitude of the crisis on the job cuts, unlike the US and the euro area, could not be estimated very precisely. The National Sample Survey Organisation (NSSO), in its 2009-10 report has reported a very low rate of growth of employment (0.5 %) per year during the period 2004-05 to 2009-10 despite a fall in unemployment with a rise in the workforce (NSSO, 66<sup>th</sup> round). These anomalies seem to be not palatable to many an observers and they questioned the reliability and validity of the report (Chandrasekhar and Ghosh, 2011; Himanshu, 2011; Kannan and Ravendran, 2012 and Hirway, 2012). In order to assess the impact of global economic crisis on employment, the Government of India constituted a task force to assess the impact on employment scenario of India. The first report on Employment and Unemployment Survey, 2009-10 which reference period was April 1, 2009 to March 31, 2010 estimated the unemployment rate at 9.4% of the labour force at the Usual Principal Status (UPS), while the second report of 2012, which reference period was July 1, 2010 to June 30, 2011, in marked contrast to the first report presented a very palatable unemployment figure of 3.8 % in line with the NSS-2010, figure. It means that in the interim almost 5.6 % of the India's workforce were looking for job.

The first Report on Effect of Economic Slowdown on Employment in India covered the period October – December 2008. Drawing on a sample of 2581 units across the export intensive sectors of mining, textiles, metals, gems and jewellery, automobiles, transport and IT/BPO, the study estimated that about half a million workers have lost their jobs during October-December, 2008. Apart from decline in employment, the total earnings of the workers have also declined by 3.45 percent compared to the pre-crisis period. The job lost continued in the second round. The rate of decline in employment has increased from 1.01 percent during Oct-Dec, 2008 to 1.17 percent during the January, 2009. Based on thin sample of 682 sample units, the study estimated that about 1 lakh jobs

are estimated to be lost in the month of January, 2009 apart from worsening of living conditions of workers as the average monthly wages declined by 0.26 % in the study period. By the end of January, 2009, about 5, 89,020 workers were out of the job. The quarterly report of Jan-March, 2009 proclaims that a quarter million jobs have been added to these sectors. The third 'Quick employment Survey' covering the period April-june, 2009 found out that the employment has declined by 1.3 lakh during this period over the previous quarter of Jan-March, 2009 thereby worsening the situation. The most affected sectors were the export oriented textiles and gems and jewellery. According to the fourth quarterly quick employment survey, in the second quarter of 2009-10, about half a million workers regained their jobs. After this period, due to better global recovery, more and more workers were added into the job markets in each successive quarter. However, with the outbursts of euro area debt crisis, the otherwise optimistic growth of the factor market of India started sliding. In the fourth quarter of 2010-11, 1.5 lakhs workers were laid out from textiles, leather, gems and jewellery and from handicrafts sectors (Table 5, refer annexure). The matters remained grim in the fiscal year 2011-12. Apart from IT/BPO, all the sectors show reduction in employment, showing a bleak picture of already stagnant India's employment growth trend. The distressing thing is that of all the workers laid out, a huge proportion comes from the informal sector with a very low wage and a very high decent work deficit as is evident from the above sectors.

## V. Conclusions and Discussions

It is amply clear from the aforementioned trends that the world economy is passing through one of the worst phases in the recent times. The slowdown which has primarily started from financial mismanagement soon turned into the real sectors of the world economy and as the world began to feel some glimmer of hope with the recovery of US economy, the euro zone sovereign debt crisis played the spoilsport. The world output has slowed up and so is the world trade. The deceleration in the world's output and trade have resulted into fewer job avenues for the workforce and job cuts around the world. The brunt of the crisis has mostly been felt by the vulnerable workforce around the world as their situation has deteriorated and it is expected that if the prevailing situations in the world at this pace continues, the world will add up more unemployed workforce into the economic system, thereby increasing poverty around the world and failing to achieve the objectives set forth in the Millenium Development Goals (MDG).

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India too has not remained immune with the sequences of developments in the major advanced regions of the euro zone. The macroeconomic parameter of India in recent times shows that the economic situation of India is deteriorating. The deceleration in output from 8 % to 5.5 % in the recent quarter, and the GDP figure of 6.7 % in the last fiscal very much signifies that the momentum which had been built prior to 2007-08 is fast disappearing. The trade figure too depicts a sorry figure for the India economy. India's trade growth has been expected to decline by 2 % in the first quarter of the last fiscal. But the more worrisome trend which has been observed in the recent decade is almost negligible growth rate in employment. India has become a republic for the persons of vulnerable employment and unemployed. While the more developed nations do provide social security benefits in the times of crisis, the fiscal constraint of India hinders the economy to provide similar benefits to the vulnerably employed persons. The social security programmes being run, in the country like the Mahatma Gandhi National Rural Employment Programme (MGNREGA) is too inadequate to provide relief to the unemployed and the underemployed persons.

Unlike the happenings in the Euro zone which has its roots in the US economic crisis and heavy fiscal expenditure, the slowdown of the economy of India is explained by the external as well as the domestic factors. We have to factor into the developments occurring within the domestic sector of our economy. The fast declining private consumption expenditure, negligible rate of capital formation in the domestic economy, huge decline in the core sectors of the economy, in mining and quarrying and negligible growth rate of the manufacturing sector are also the important factors apart from euro area slowdown which are playing a predominant role in pulling down the rate of growth of India's economy. The growth of services sector at a diminishing rate explains the rest. But most importantly, it is the inward looking economic policies of the government of India which is hampering to sustain the growth momentum the economy has built in the pre-crisis period.

As the triad of International Monetary Fund (IMF), The European Central Bank (ECB) and the European Commission are busy in reviving the beleaguered euro area economy along with the respective state governments, India expect similar, effective and strong role of the government at the helm along with the monetary institutions of the country to rev up the growth rate.

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#### Annexure

**Table 1: Unemployment (in Millions)**

Region	2007	2008	2009	2010	2011	2012	2015
World	170.7	176.4	197.7	197.3	197.2	200.2	206
Developed and EU	29.1	30.8	42.5	44.7	43.5	43.6	40.9
Central and South- eastern Europe and CIS	14.5	14.7	18.1	17	15.5	15.5	15.6
East Asia	31.6	35.8	36.7	35.6	35.5	35.9	36.7
South-East Asia and the Pacific	16.1	15.7	15.5	14.6	14.9	15.6	15.8
South Asia	23.6	23.3	24.5	25	25	25.5	27.7
Latin America and the Caribbean	18.4	17.9	21.2	20.2	20.5	21	22.3
North Africa	6.6	6.4	6.5	6.7	7.8	8	8.3
Sub-Saharan Africa	24.5	25.2	26	26.7	27.6	28.3	-

Source: ILO, 2012

**Table 2: Vulnerable employment by sex, world and regions (millions)**

Region	2000	2005	2006	2007	2008	2009	2010	2011
World	1379.7	1484.2	1499.4	1509.4	1493.9	1493.2	1505.6	1515.9
Developed and EU	48.2	47.4	47	47	46.2	45.5	46.3	46.1
Central and South- eastern Europe and CIS	37.8	34.9	34	32.7	32.7	32.6	33.7	33.8
East Asia	431.5	440.1	443.6	442.5	423.6	414	407.4	4.2.9
South-East Asia and the Pacific	158	165.3	167.9	171.2	174.2	175	181.4	182.7
South Asia	414.3	471.5	477.4	480.9	477.5	476.3	480.5	486.5
Latin America and the Caribbean	74.5	79.6	79.1	79.5	80.1	82.2	83.1	84.6
North Africa	19.8	23.1	22.8	23.8	24.1	24.3	23.8	23.8
Sub-Saharan Africa	181.6	205.6	210.7	214.7	218.5	225.5	231.2	236.9

Source: ILO, 2012.

**Table 3: Quarterly Growth of India's GDP at 2004-05 Prices**

Items	2008-09				2009-10				2010-11				2011-12				2012-13
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
<b>1. Agriculture, forestry and fishing</b>	4.8	2.6	-1.3	3.8	1.6	2.5	-1.4	3.3	3.1	4.9	11	7.5	3.7	3.1	2.8	1.7	2.9
<b>2. Industry</b>	6.8	6	1.9	3.2	5.3	7.7	9.7	11	8.3	5.7	7.6	7	5.6	3.7	2.5	1.9	3.6
2.1. Mining and Quarrying	1	0	1.2	-1.8	7.5	7	5.4	8.8	6.9	7.3	6.1	0.6	-0.2	-5	-3	4.3	0.1
2.2. Manufacturing	6.4	6.3	1.9	2.5	5.4	8.9	11	13	9.1	6.1	7.8	7.3	7.3	2.9	0.6	0	0.2
2.3. Electricity, gas and water supply	5.1	6.2	5.9	6	5.9	7	4	6.7	2.9	0.3	3.8	5.1	7.9	9.8	9	4.9	6.3
2.4. Construction	9.7	7.2	1.1	5.6	4.4	5.8	9.2	8.4	8.4	6	8.7	8.9	3.5	6.3	6.6	4.8	10.9
<b>3. Services</b>	9.7	10	10	8.9	10	13	9.3	8.8	10	9.1	7.7	11	10	8.8	8.9	7.9	6.9
3.1. Trade, hotels, transport and communication	10	10	4.3	7	8.4	10	11	11	13	11	9.7	12	14	9.5	10	7	4
3.2. Financing, insurance, real estate and business services	10	9.8	11	13	11	11	8.3	6	10	10	11	10	9.4	9.9	9.1	10	10.8
3.3. Community, social and personal services	8.3	9.4	23	7.8	13	19	8	8.4	4.4	4.5	-0.8	9.5	3.2	6.1	6.4	7.1	7.9
<b>GDP<sub>Fc</sub></b>	<b>8</b>	<b>7.8</b>	<b>5.6</b>	<b>6.4</b>	<b>7.5</b>	<b>9.8</b>	<b>7.4</b>	<b>8.6</b>	<b>8.5</b>	<b>7.6</b>	<b>8.2</b>	<b>9.2</b>	<b>8</b>	<b>6.7</b>	<b>6.1</b>	<b>5.3</b>	<b>5.5</b>

Source: Compiled by the authors from [www.mospi.nic.in](http://www.mospi.nic.in)**Table 5: Changes in Employment During the Slowdown Period ( in Lakh)**

S No.	Industry/ Group	Oct-Dec 2008	Jan-Mar 2009	Apr-June 2009	Sept, 10 over Sept, 09	March, 11 over Dec, 10	June, 11 over March, 11	March, 12 over Dec, 11
1	Textiles including apparels	-1.07	2.08	-1.52	0.79	-1.21	-0.33	0
2	Leather	0.06	-0.33	-0.04	0.34	-0.08	0.01	-0.03
3	Metals	-1	-0.29	-0.01	0.99	0.16	0.53	-0.07
4	Automobiles	-1.69	0.02	0.05	1.15	0.13	0.18	-0.01
5	Gems and Jewellery	-1.59	0.33	-0.23	0.39	-0.02	0.13	-0.03
6	Transport	0.04	-0.04	0	-0.12	0.06	-0.02	0.16
7	IT/BPO	0.66	0.92	-0.48	9.36	2.87	1.64	1.04
8	Handlooms/Powerlooms	-0.16	0.07	0.57	0.07	-0.18	0.01	-0.26
	<b>Overall</b>	<b>-4.75</b>	<b>2.76</b>	<b>-1.66</b>	<b>12.97</b>	<b>1.73</b>	<b>2.15</b>	<b>0.8</b>

Source: Compiled by the Authors from the Various Quarterly Reports on the Effect of Economic Slowdown in Selected Sectors, Labour Bureau, Govt. of India.

## **THEME III**

**RE-EXAMINING INDIA'S DECADES  
WITH NEO-LIBERALISM: EMPIRICAL  
AND THEORITICAL ISSUES**

## Extent of Inequality in the Level of Living in Uttar Pradesh: Evidence from 61<sup>st</sup> and 66<sup>th</sup> NSS Rounds

Akarsh Arora<sup>1</sup> and S. P. Singh<sup>2</sup>

*“Growth for the sake of growth is the ideology  
of the cancer cell.”*

— Edward Abbey, *The Journey Home: Some Words in  
Defense of the American West*

### Abstract

*This paper examines the gap in terms of ‘opportunity of consumptions’ between different social and religious group across regions and districts of State Uttar Pradesh for the period 2004-05 to 2009-10. The study is based on the unit level data collected from ‘Consumer Expenditure Survey’, 61<sup>st</sup> (2004-05) and 66<sup>th</sup> (2009-10) NSS rounds on monthly per capita consumption expenditure (MPCE), using uniform reference period (URP). To study the extent of inequality in the average MPCE, the State is divided into four officially classified economic regions, namely, Western Region (WR), Central Region (CR), Southern Region (SR), and Eastern Region (ER). Inequality in the MPCE is estimated using Lorenz Curve, Gini Coefficients and Peitra ratios. The regional analysis in terms of change in average MPCE from 2004-05 to 2009-10 reveals that SR achieved the highest increase in the average MPCE, whereas CR and ER recorded moderate increase in the average MPCE in both rural and urban areas over the period of study. Among the social group, the ‘others’ category obviously has excelled over Scheduled Castes (SCs) and the other backward classes (OBCs), whereas among religious group, Hindus has outperformed Muslims in the level of living, as measured in terms of average MPCE. Also, the Lorenz curve (LC) shows that the society has become more egalitarian in the rural areas; while in urban areas, inequality in the MPCE has slightly exacerbated. Among the groups, maximum decline in the inequality has been observed in the ‘others’ social group and Muslim religious group. The paper underscores some critical areas which are essentially required to remove these regional, social and religious inequalities in the level of living in the State.*

**Keywords:** inequality, consumption expenditure, Lorenz and Gini coefficient, NSS, Uttar Pradesh

### 1. Introduction

India, after six decades of British rule, has emerged as one of the fastest and dynamic economies of the world, where the process of globalization and corporative

economic reforms is moving very rapidly. The last decadal growth trends observed in India are even very surprising to rest of the world. Indian Economy is among the least affecting economy from European recession in terms of growth. The relatively modest slowdown in the face of an exceptionally sharp contraction in output in the industrialized world has established the resilience of the Indian economy in terms of its ability to manage a downturn, despite greater openness (Government of India, 2011). In short, economic indicators are, at least, not showing the negative sign relative to other economies of the world. Also, availability of large number of low-cost and skilled young workforce makes India an attractive destination for global business houses. However, contrary to this bright side of picture, the other side seems to be quite gloomy. There are larger numbers of poor, illiterate and unemployed persons still surviving and waiting for growth process to respond them. The UNDP Report, 2011 highlights, “Even as India continues to record impressive growth rates, poverty remains widespread and disparities deeply entrenched”. World Bank (2011) also argues that although India’s impressive economic growth has brought significant economic and social benefits and its high-income states have successfully reduced the poverty levels comparable to the richer Latin American countries; India’s seven poorest states still house more than half of total poor people of the country. This indicates that benefits of economic growth have not evenly spread across states, regions, and sections of the society.

Uttar Pradesh is one of the poorest states of India. Starting from independence, Uttar Pradesh is considered on various fronts as among the lagging states of the country. But from 1980 onwards, at least on economic fronts, its economy grew at roughly the same rate as India overall (Government of Uttar Pradesh, Annual Plan-UP, 2010). However, unfortunately, its growth rate decelerated over the 1990/95 period (3% per annum). The recent comparative growth trend reveals that the growth rate in the State remained lower than the All India average till 2007-08 but in 2008-09, U.P. with GSDP growth of 7.2 percent outpaced the growth performance of the nation. The per capita income (PCI) at current prices is encouraging as it improved from 6.4 percent in 2004-05 to 13.8 percent in 2008-09, which is also more than national growth of 12.6 percent in 2008-09 (Government of Uttar Pradesh, Annual Plan-UP, 2010). There is, however, regional variation in the growth rates. The gross district domestic product (GDDP) in the Central Region (CR) is recorded the highest annual growth rate among all the regions of the state during 2004-5 to 2009-10, followed by the Western Region (WR). This implies that there exists a regional variation in the growth of the GDDP which creates regional economic disparities. Plan-wise sectoral growth rate in the state also shows some level of inequality among

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different sectors of the economy (Government of Uttar Pradesh, Annual plan- UP, 2010, Annexure).

Fortunately, the spillover effect of growth process and government schemes in Uttar Pradesh seems to have some positive impact at least on certain social and religious groups in the recent time. That is why the State reports some declining trend in poverty rates and inequality. There has been a visible improvement in living standard of relatively poor people. However, still a larger proportion of vulnerable and deprived people are still waiting for the growth process to respond them. When we concentrate on the coherent and complex social and caste structure of the state and absolute number of poor among them, we came across some undesirable signs and facts. On July 3<sup>rd</sup>, 2009, the Ministry of Rural Development GOI, declared UP, Bihar and Maharashtra among the list of states with large number of people living below poverty line. The latest estimates released by the Planning Commission for the year 2004-05 reveals that Uttar Pradesh has the largest BPL population with 590.03 lakh people living below the poverty line. The rural development department of UP, on the basis of survey conducted on 2002-03, divulge that the 60% of the SC population are living below poverty line and also, the highest number of BPL families' reside vulnerably in Unnao district. This is in this background that this study is carried out to examine the extent of inequality in the level of living, as measured by change in the average MPCE, across regions, districts, social and religious groups. By disaggregating district-wise average MPCE, the paper intends to find out critical areas for the policy decision-making processes, which would help in achieving the 'inclusiveness' in the economic growth process.

## **2. Distribution of Population by Region, Social and Religious Groups**

Uttar Pradesh comprises 16.2 percent of total population of the country, while its share in total area of the country is only 7.3 percent. Due to the formation of new state, Uttarakhand, the area of the State is reduced by 18 percent as against only 5 percent reduction in population. Thus, the State has lost its area more than transfer of population which is a matter of great concern (Government of Uttar Pradesh, Annual Plan-UP, 2010). Table 1 and 2 present the proportion of population among different social and religious group across various regions of Uttar Pradesh, estimated from the 61<sup>st</sup> and 66<sup>th</sup> round of NSS unit level data. Table1 shows that the ER consists of the highest proportion of rural population (43% of total rural population of the state), while in case of urban population, it is the WR that has the highest share. In 2009-10, WR consists of 53 percent of total urban population of the State. This reveals that WR is more urbanized than the ER. As is evident from the data shown in Table1, other two

regions (CR and SR) are also more urbanized than the ER.

Table 1 is mentioned in the annexure. It is obvious from the table that a majority of the population in the state belongs to two main religious groups, that is., Hindus and Muslims. The population belonging to other religious groups is negligible (less than 1.0% percent of the total) and therefore, not included in the analysis. At the State level, the percentage shares of Hindus and Muslims in the total population were 85.8 and 14.1, respectively in 2009-10. However, distribution of population by religious groups varies significantly across regions. The proportion of population belonging to Hinduism was highest in the rural area of ER and urban area of WR and the lowest in the SR (rural and urban) region, whereas the population belonging to Islam was highest in the WR (rural and urban) and lowest in the SR. It is interesting to note that more than 56 percent of total urban Muslim population of the State resides only in the WR, while the corresponding percentage of Hindu urban population was lower at 51.3. In case of rural population also, WR has the highest percentage share of Muslim population in the total Muslim population of the State, while the percentage share of Hindu population was estimated to be highest in ER. A perusal of Table 1 further reveals that although, share of ER in the total population of the State is highest among all the regions, in case of Muslim population, it is the WR which has the highest share in the total rural and urban population of the State.

Among the social groups, majority of the population belongs to OBCs (Other Backward Cates), though its percentage share varies across regions. At the State level, percentage share of OBC in the total rural population has declined from 54.64 in 2004-05 to 52.41 in 2009-10, whereas the corresponding percentage share of SC has increased from 25.40 to 27.72 during the same period. Similar pattern is also observed in the urban population.

Table 2 is mentioned in the annexure. Region-wise rural and urban distribution of population by social group shows that the ER constitutes the highest percentage share in the total SC rural population of the state, followed by the WR. Similarly, the share of ER in the total OBC rural population of the State is observed highest, followed by the WR. Contrary to this, WR constitutes the highest share of rural population under 'others' category. A perusal of Table 2 reveals that a majority of the SCs population lives in the urban WR and rural ER of State. More or less similar pattern is also observed in case of other categories. It can be concluded from the above analysis that although WR and ER are having almost same size of area and population; there is marked difference between them in terms of percentage distribution of rural and urban population across all social groups. WR has the highest



concentration of urban population, while the ER has highest concentration of rural population.

### 3.Theoretical Underpinning and Methodology

#### 3.1 Theoretical Underpinning

Factor endowments and political commitment may be considered the key drivers of economic development. The variation in them may be the root cause of inequality. If inequality is correlated with growth or income (per capita) , then we came across Kuznets[1955,1963] and Oshima [1962] inverted-U hypothesis which states that economic progress measured by per capita income, is initially escorted by rising inequality, but these disparities ultimately go away as the benefits of development permeate more widely (Ray, 2012). A plotting of these two variables will suggest an upside-down “U” curve. Hirschman and Rothschild (1973) by its tunnel effect describe the tolerance for inequality in income distribution along with the path towards economic development. There are a number of studies being carried out to empirically test the inverted U hypotheses by distinguished data sets and regression models. One of the earliest examples based on cross-section analysis is evaluated by Paukert (1973). He measures GDP and inequality on the basis of Gini coefficient and found the similar kind of relationship as observed by Oshima and Kuznets. On the other hand, a study based on data set compiled by Deininger and Squire (1996 a, b) found that Kuznets inverted U hypothesis largely vanishes. It can be concluded that at least inequality falls over the course of development.

Social aspects on inequality can be traced out by Karl Marx’s literature (Das Kapital). Karl Marx believes rising inequality among workers and capital class is rooted by the capitalist’s lust of converting labour surplus into profit, which is the main cause of decay of capitalism also. ‘Marx tracks the source of value to exploited labour power and historically capitalist commodity production emerges when labour power becomes a commodity on a large scale. This requires separating labour power from any private or common ownership of the means of production. Forced to sell their labour power to survive they meet the owner of the means of production, the capitalist, in the market place on very unequal terms’ (Mike Wayne, 2012).

Regional aspect of inequality can be brought out by Lipton (1977) literature as ‘it is urban biased in the development approach that increases the gap between the two regions’. Recent literature favours egalitarian and inclusive growth process as spill-over effect of growth towards poor is not seen visible in major parts of the world. Also, High inequality has implications for political stability and social cohesion needed for sustainable growth (ADB, 2007).

#### 3.2 Research Methodology

This study is based on the unit level data collected from the National Sample Survey (NSS) Consumer Expenditure Survey held in 2004-05 (61<sup>st</sup> round) and 2009-10 (66<sup>th</sup> round). Data from the earlier consumer expenditure surveys could not be included due to non-availability of district-wise data and therefore long term trends in inequality across districts and regions could not be estimated. It is from the 61<sup>st</sup> round that the sample design had taken districts as strata in both the rural and urban sectors. This makes it possible to get unbiased estimates of parameters at the district level. The survey design was the usual stratified multi-stage sampling scheme and districts were taken as strata for selection of first stage units (FSU) in both the rural and urban sectors. Also, sub-stratification was done within the strata (district). The region-wise sample size used by the NSSO for estimation of MPCE in the State is shown in Table 3. In order to study the regional inequality in the average MPCE, the State is divided into four economic regions, as shown in the table. For Uttar Pradesh, 5906 and 3087 households were surveyed in rural and urban areas, respectively in 2009-10 and 7868 and 3346, respectively in 2004-05. Thus, sample size in 2004-05 was higher than that in 2009-10. Sample size by religious group is shown in Table 3 and by social group in Table 4.

Table 3 is mentioned in the annexure. Table 3 shows that in 2009-10, in rural areas, out of total 5906 sample households, 5083 sample households are Hindus and 812 Muslims, while in urban areas, out of total 3087 sample households, Hindus constituted 2155 households and Muslims 894 households. If we look at the sample distribution by social group, we observe that in both rural and urban areas, OBC comprises the highest number of sample households, followed by others (Table 4). In fact, sampling distribution of households across social and religious categories is in consistent with the total size of households under these categories.

Table 4 is mentioned in the annexure. The present paper uses Lorenz curve along with Gini coefficient and Pietra Ratio (Ricci-Schutz index) to measure the extent of inequality in average MPCE in State. It may be stated that picture often speak more than words. *Lorenz curve (LC)*, given by Max Otto Lorenz (1905), is the graphical presentation of the distribution of income along with the population proportion in the society. To draw a Lorenz curve, we take the decile-wise cumulative percentages of the population (61<sup>st</sup> and 66<sup>th</sup> rounds) and their corresponding shares in the total consumption expenditure of all households in rural and urban areas of Uttar Pradesh. On x-axis, we represents households shares in population and on y-axis their corresponding shares in total consumption expenditure. The resultant graph is named as Lorenz curve (Red and Blue). The straight line (45 degree black colored line) represents

the line of complete equality that's why it is known as egalitarian line. It is the Lorenz curve for an economy when all consumption expenditure is distributed equally.

In general, closer the Lorenz curve (LC) is to the line of perfect equality, lesser the inequality and vice-versa. Also, Lorenz curves of two distributions do not cross, i.e.  $L(p; Rural_{2004-05}) \leq L(p; Rural_{2009-10})$  for any cumulative population share p (and the two Lorenz curves are not identical), then one can conclude unambiguously that inequality is higher in distribution Rural<sub>2004-05</sub> than in distribution Rural<sub>2009-10</sub>. Also, Distribution Rural<sub>2009-10</sub> is said to Lorenz-dominate distribution Rural<sub>2004-05</sub>, that is., if a curve draw on one period lies completely within the other all through the range of values, then one LC dominates the other. It is called Lorenz domination.

The Gini coefficient given by Corrado Gini, is an aggregate numerical measure of inequality, ranging from zero for perfect equality to one for perfect inequality. It can be measured graphically by dividing the area between egalitarian line and the LC by the total area lying to the right of the egalitarian line.

Let the incomes of P individuals in the society be  $Y_1, Y_2, \dots, Y_i, \dots, Y_p$ , where  $Y_i$  is the income of the  $i^{th}$  individual in the population. The means income (M) of all the individuals will be

$$M = (\sum Y_i) / P.$$

The gini coefficient (GC) can be written as:

$$GC = (\sum \sum |Y_i - Y_j|) / (2P \times P \times M),$$

where the summation is done first with reference to  $j=1, 2, \dots, P$  and then with reference to  $i=1, 2, \dots, P$ .

*Ricci-Schutz index (Peitra ratio)* is defined as the largest difference between the Lorenz curve and the perfect equality line, and it can be interpreted as the proportion of total income that would have to be redistributed from those above the mean (basically rich) to those below the mean (poor) in order to achieve perfect equality. The *Peitra ratio* (Pr) can be written in general form as:

$$Pr = \sum (D_i > 10\%) - [10\% \times (N_i)]$$

Where,  $D_i$  is the percentage share of deciles and  $N_i$  is the number of deciles summed.

Both GC and Pr can be viewed from LC, GC includes the area between the LC and egalitarian line, whereas Pr is equivalent to the maximum vertical distance between the LC and egalitarian line.

#### 4. Level of Living in Uttar Pradesh

##### 4.1 Regional Variation in Average MPCE

At current market prices, average MPCE (URP) in rural areas of Uttar Pradesh has increased from Rs. 533 in 2004-05 to Rs. 829 in 2009-10, a net increase of 55.5

percent, while in urban areas, it has increased from Rs. 857 in 2004-05 to Rs. 1365 in 2009-10, thus registering a net increase of 59.3 percent. This shows that MPCE grew slightly faster in urban areas than in rural areas. Consequently, the ratio of MPCE in urban areas to rural areas has increased from 1.61 in 2004-05 to 1.65 in 2009-10, suggesting that disparity in average MPCE between rural and urban areas has slightly increased in 66<sup>th</sup> round over the preceding round. However, there is large variation across regions of Uttar Pradesh in this regard (refer, Table 5).

A comparison of average MPCE of two NSS rounds across regions reveals that in rural area, percentage increase in the average MPCE in 2009-10 over 2004-05 is observed highest in SR (72.67%), followed by the ER (68.71%). It is estimated to be lowest in the CR (32.02%). The findings clearly show that the level of living in rural areas, measured in terms of average MPCE, has relatively deteriorated in the CR region, while it has significantly improved in the SR and ER. However, in absolute term, average MPCE in 2009-10 is estimated to be highest in SR, followed by WR. In case of urban areas, the highest increase in the average MPCE is again observed in the SR (107.43%), which is distantly followed by the WR (63.73%) and the ER (57.29%). In urban areas also, the net increase in the MPCE is observed lowest in the CR (44.06%). However, absolute value of the MPCE in 2009-10 is found highest among all the regions. A high percentage increase in the MPCE in ER and SR may partly be attributed to the base effect, as in 2004-05 average MPCE was lowest in ER in rural areas and in SR in urban areas. Table 5 is mentioned in the annexure.

##### 4.2 District-wise Comparison of Average MPCE

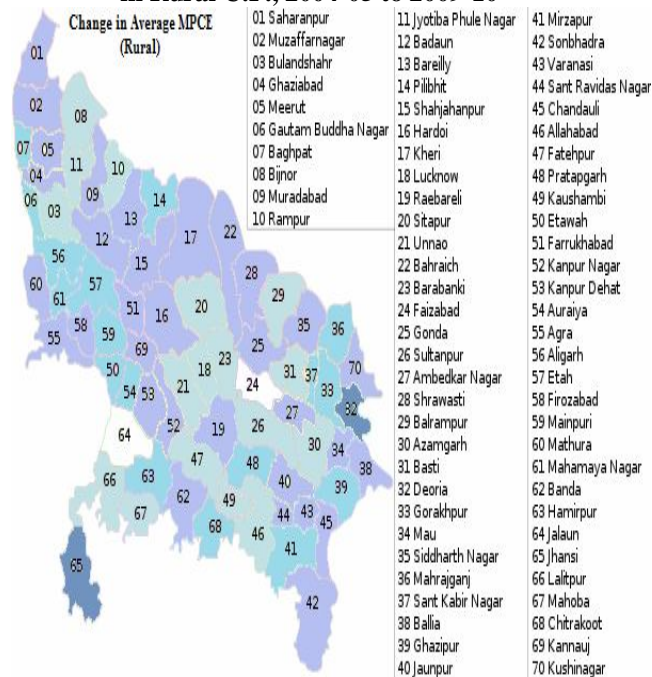
A closer look at Figures 1R and 1U demonstrates the change in the distribution of level of living (as measured by MPCE) in rural and urban Uttar Pradesh between 2004-05 and 2009-10. There are total nine district (2 in rural and 7 in urban) in which absolute value of average MPCE has declined in 2009-10 over the preceding period. These are the districts where the level of living of the people has deteriorated and therefore are critical areas which required appropriate policy interventions. Some other districts can also be highlighted where there is moderate improvement in the level of living, such as:

1. In rural UP, Jalaun district of SR has average MPCE of Rs. 817 in 2004-05 which has decreased to Rs. 655 in 2009-10, a decline of Rs. 162 in five years. Similarly, in Faizabad district, it has declined by Rs. 135. All other districts show an improvement in the average MPCE in 2009-10 over the preceding period.
2. On the urban side, three districts of WR, namely Moradabad, Bijnor and Agra, one district in SR, that is., Chitrakoot and three districts in ER, viz., Pratapgarh, Azamgarh and Ghazipur show absolute

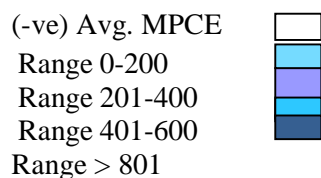
decrease in the average MPCE between 2004-05 and 2009-10.

- Besides decrease in average MPCE, two districts in Rural UP show a very slight increase in their average MPCE. For instance, net increase in the MPCE was only Rs. 82 in Bijnor district and Rs.97 in Barabanki district as against net increase of Rs. 296 at the State level.

**Figure 1R: District-wise change in average MPCE in Rural U.P., 2004-05 to 2009-10**

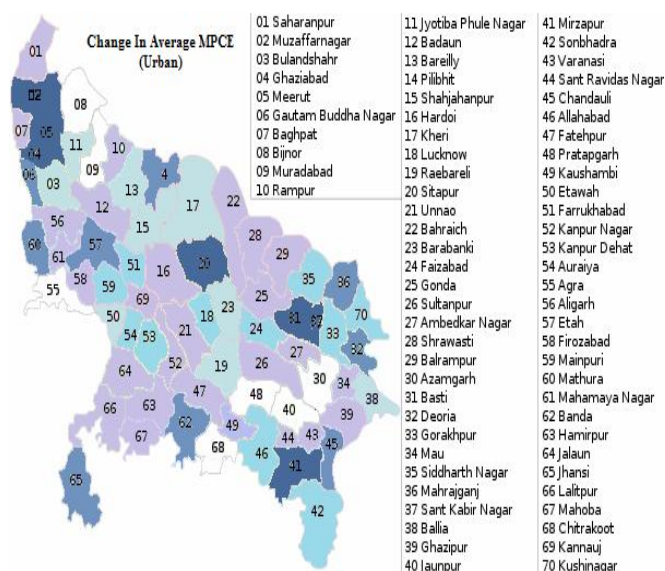


Range defines the change in absolute value of Average MPCE (Rs.) from 2004-05 to 2009-10

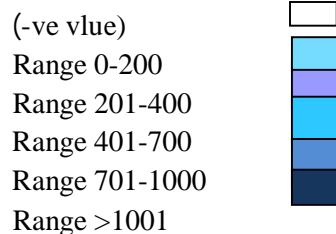


District-wise average MPCE data shown in the Figures 1R and 1U clearly demonstrate that there exists significant inequality in the MPCE across districts in rural and urban areas both. However, in rural areas, the severity of inequality in the average MPCE is lesser than that in the urban areas.

**Figure 1U: District wise change in average MPCE in Urban U.P., 2004-05 to 2009-10**



Range defines the change in absolute value of Average MPCE (Rs.) from 2004-05 to 2009-10



It can be concluded from the data shown in these two figures that Uttar Pradesh has a progressive but scattered growth in terms of average MPCE between 2004-05 and 2009-10. Table 6R and 6U gives a view of best and worse districts in different regions of the State, which is calculated from the unit level data 61<sup>st</sup> and 66<sup>st</sup> rounds. These tables exhibit that there exists intra-regional inequality in the average MPCE in rural and urban areas both. Identification of best and worst performing districts in terms of average MPCE in each region may be useful in district planning process of State. A perusal of Table 4R and Table 4U reveals the following facts:

- Rae Bareilly continues to be the worst district in terms of MPCE in rural areas of CR region between 2004-05 and 2009-10;
- Jalaun district of SR which was considered as best in 2004-05 stands in the worst category in 2009-10;
- Also, Chitrakoot, which was under worst category in 2004-05, has shown improvement in 2009-10 and Jalaun replaced it;
- In rural ER, the best performing in 2004-05 was Faizabad which was replaced by Deoria in 2009-10, whereas the worst performing district was Siddhartnagar in 2004-05 and Kaushami in 2009-10.

Table 6R mentioned in the annexure. In case of urban areas, Agra was the best performing district in 2004-05, whereas it was replaced by Meerut in 2009-10. Kannauj was worst district in 2004-05 and Moradabad in 2009-10. In the CR, Lucknow, which was best performing district in 2004-05, was replaced Sitapur in 2009-10. Similarly, under worst category, Unnao has improved and its position was taken by Rae Bareli district. In SR, Chitakoot in 2004-05 and Jhansi in 2009-10 were the best performing districts, while Banda in 2004-05 and Chitrakoot in 2009-10 were the worst performing districts. The level of living, measured in terms of average MPCE has significantly deteriorated in the urban areas of Chitrakoot district. Table 4U shows that Basti is the only district in urban ER which continues to transcend in 2009-10 also.

Table 6U mentioned in the annexure. Also, all the districts are not competitive enough in providing opportunity of consumption to all the religious and social groups in Uttar Pradesh. Some of the lacking districts in this respect are highlighted as: [Refer table 1(a),(b),(c),(d), 2(a-1),(a-1),(a-3),2(b-1),(b-2) and (b-3) in appendix]

1. District Rae Bareli records the lowest average MPCE in rural areas of CR among Hindus in 2004-05 which continue to be lowest in 2009-10 also.
2. Lucknow, the capital of Uttar Pradesh, is reported as the worse average MPCE for Muslims in rural areas in 2009-10,
3. Also, Jalaun (SR) which is dominating the rural SR for Muslims in 2004-05, now retiring towards worse side of rural SR for Muslims in 2009-10.
4. District Bijnor is recorded as worse average MPCE holder for Hindus in both rural and urban WR in 2009-10. Similarly, Chitrakoot district located in SR recorded lowest average MPCE for Muslims as well for Hindus in urban areas in 2009-10.
5. Among social groups, Rae Bareli holds lowest average MPCE for all social groups in rural areas, which continue to be in 2009-10 for SCs in rural areas of Uttar Pradesh.
6. In urban areas of Uttar Pradesh, Chitrakoot district of SR is reporting lowest average MPCE district for all social groups in 2009-10.

### 5. Estimation of Inequality in the Consumption Expenditure

For measuring inequality, gini coefficient and Ricci-Schutz index (Peitra ratio) based on Lorenz curve are used. Level of living (measured in terms of MPCE) of entire size distributions can be illustrated on the basis of non-intersecting Lorenz curves, provided that the means are the same. In case, average values are not the same or Lorenz curves intersect, the Lorenz curve fails

to rank the distributions in terms of welfare. But, in case of Uttar Pradesh we got non-intersecting Lorenz Curve for both rural and urban areas, as illustrated in Figures 2R and 2U. The Figures show how inequality of consumption expenditure (Level of living) is changing from 2004-05 to 2009-10 in Uttar Pradesh.

Since the Lorenz curve is below the line of absolute equality (egalitarian line demonstrated as black coloured 45 degree linear line), it is clear that distribution of consumption is unequal. The area or gap between the line of absolute equality and the Lorenz curve shows the deviation from absolute equality in the distribution of consumption expenditure. Thus, larger the gap between egalitarian line and LC, greater will be inequality in the distribution of MPCE. On the other hand, closer the LC is to the egalitarian line, the less is the inequality and the smaller is the gini coefficient.

In short, the curvature of the Lorenz curve summarizes inequality: if everyone had the same MPCE (egalitarian line), the Lorenz curve would lie along a 45 degree linear ray from the origin and, if all MPCE were held by just one person (complete inequality), and the curve would lie along the horizontal axis.

Figure 2R mentioned in the annexure.

In Rural Uttar Pradesh (refer Figure 2R), the LC for 2009-10 lies completely within the LC of 2004-05 all through the range of values, thus LC-2004-05 dominates LC of 2009-10. In other words, there is decline in inequality between the two periods. It may be due to the Islamic and Hinduism religious group that shows massive decline in inequality rate in the state between these two periods.

Figure 2U mentioned in the annexure. On the other hand, there was eventually no change in the LC of Urban UP (Fig. 2U), but there is slight increase in the inequality among urban areas of Uttar Pradesh as evinced by minute increase in the gini coefficient from 2004-05 ( $G_{c-2004-05}=.356$ ) to 2009-10 ( $G_{c-2009-10}=.360$ )

Table 7 is mentioned in the annexure. Also, Rishi-schultz index indicate that the proportion of consumption expenditure that would have to be redistributed from those above the mean (basically, rich) to those below the mean (poor) in order to achieve perfect equality, is declining between 2004-05 and 2009-10. But, the gap between the top and bottom decile of households measured in terms of MPCE has increased substantially. The bottom decile received 4.4 percent and 3.3 percent of overall MPCE in rural and urban areas of Uttar Pradesh in 2004-05, decreased to 3.27 percent in 2009-10 in urban whereas there is slight rise in the proportion among rural households (4.62 percent). Meanwhile, the share of consumption expenditure going to the top decile descends from 26 percent (rural) and 30 percent (Urban) in 2004-05 to 24 percent (rural) and 29 percent (Urban) in 2009-10. No doubt, average MPCE grows over the time, but the growth is unequal between deciles also.

### 5.1 Regional Inequality in Rural Uttar Pradesh

Since there is no significant difference in the urban inequality part of UP, if measured in terms of MPCE, so we are concentrating on the rural part of the state. Table 8 presents comparison in value of Gini coefficient for consumption inequality among various regions of rural UP from 2004-05 to 2009-10. In Rural areas, inequality has actually declines as shown by LC stated above. Table 7 also concludes that maximum decline in this inequality is contributed by CR (23%) and WR (11%), whereas the SR is moving other way from the state, where inequality increases by 26 percent from 2004-05 to 2009-10. Table 8 is mentioned in the annexure.

### 5.2 Inequality among Religious Groups

Table 9 illustrates the comparison of Gini coefficient of consumption inequality between different religious group in UP. In Rural areas, inequality decreases for both religious groups in Uttar Pradesh. But, Rural Islamic group witnesses a very sharp decline in inequality (26%) whereas Hinduism groups relatively less by (3%). Also in urban areas, both groups show declining trends in consumption inequality coefficients but decline of Islamic consumption inequality is again greater than that of Hinduism group (1%) in urban areas. It may be because of international migration of Rural Muslims and government affirmative policy actions. 'In India, remittances account for about one-third of annual incomes of poor and landless households (Deshingkar, 2006)'. Some part of positive effect in uplifting the poor's is also contributed by MGNREGA besides other central and state government policies, however answering this question conclusively is beyond the scope of this paper. We would not be able to comment anything about other religious group in the state as their number in sample is too small to do any rigorous analysis. Table 9 is mentioned in the annexure.

### 5.3 Inequality among Social Groups

In Rural areas (Refer Table 10), inequality decreases among all social groups. Rural others witnessed a sharp decrease in inequality (11%), followed by SCs (9%). In urban areas, SCs witnessed a very sharp increase in inequality coefficient (17%) whereas OBCs exhibited an increased by 7%. Urban others registered a sharp decline in this respect (13%) in Uttar Pradesh.

Also in 2004-05, there is larger decline in poverty in SC class in rural UP than all-India and SCs in UP are doing better than SCs in rest of the India (Pathak, 2010). We would not comment anything about ST's as their number in sample is too small to do any rigorous analysis. Table 10 is mentioned in the annexure.

## 6. Conclusions and Policy Implications

This paper examines the gap in terms of 'opportunity of consumptions' among different social and religious

group across regions and districts of State Uttar Pradesh for the period 2004-05 to 2009-10. The study is based on the unit level data collected from 'Consumer Expenditure Survey', 61<sup>st</sup> (2004-05) and 66<sup>th</sup> (2009-10) NSS rounds on monthly per capita consumption expenditure (MPCE), using uniform reference period (URP). Inequality in the MPCE is estimated using Lorenz Curve, Gini Coefficients and Peitra ratios. The study elaborates upon the fact that there is some decline in the inequality level among a few social and religious groups in the state and further it has identified some critical areas where planning process is essentially required. At each section, some regions, some groups (social and religious) or some districts are evaluated and it has been observed that they are really in want of some strong and accountable policy actions.

Out of all, some of districts which are not as good as others among major social and religious groups and in terms of their level of living in the state are Rae Bareli (CR), Chitrakoot (SR), Jalaun (SR), Kaushambi (ER), and Bijnor (WR). The possible reason of such inequality trends may be administrative incapability and poor governance. As pointed out by Diwakar (2000), 'Resource aside, quality governance is important for faster growth with justice. The failure of land reforms is one of the crucial indicators of the quality of governance, which has reflected the class character of administration.' Also, Government should make such policies which emphasis directly on the elimination of disparity among masses, especially poor in terms of 'opportunity of consumption'.

*"We must make our choice. We may have democracy, or we may have wealth concentrated in the hands of a few, but we can't have both."* - **Justice Louis D. Brandeis**

### Brandeis

The regional analysis in terms of change in average MPCE from 2004-05 to 2009-10 reveals that SR achieved the highest increase in the average MPCE, whereas CR and ER recorded moderate increase in the average MPCE in both rural and urban areas over the period of study. Among the social group, the 'others' category obviously has excelled over Scheduled Castes (SCs) and the other backward classes (OBCs), whereas among religious group, Hindus has outperformed Muslims in the level of living, as measured in terms of average MPCE. Also, the Lorenz curve (LC) shows that the society has become more egalitarian in the rural areas; while in urban areas, inequality in the MPCE has slightly exacerbated. Among the groups, maximum decline in the inequality has been observed in the 'others' social group and Muslim religious group. The paper underscores some critical areas which are essentially required to remove these regional, social and religious inequalities in the level of living in the State.

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## Appendix

**Table 1: Region-wise percentage distribution of rural and urban population by religious groups in Uttar Pradesh (2004-05 to 2009-10)**

Regions	RURAL (Total)		Religious Group(RURAL) Population %				URBAN (Total)		Religious Group(URBAN) Population %			
			Hinduism		Islam				Hinduism		Islam	
	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10
WR	34.3	34.1	32.8	32.0	42.9	45.4	50.9	53.0	46.7	51.3	58.8	56.2
CR	17.8	18.0	18.2	18.6	15.0	14.6	22.1	21.3	24.4	21.6	17.1	20.7
SR	4.9	4.8	5.5	5.3	1.5	1.5	5.6	5.7	6.3	7.0	4.1	2.7
ER	43.0	43.1	43.4	44.0	40.6	38.5	21.5	20.1	22.5	20.1	20.0	20.5
UP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>% of UP*</b>	<b>100.0</b>	<b>100.0</b>	<b>84.7</b>	<b>85.8</b>	<b>15.0</b>	<b>14.1</b>	<b>100.0</b>	<b>100.0</b>	<b>65.8</b>	<b>70.1</b>	<b>32.7</b>	<b>28.8</b>

Note: \* Figures of other Religious groups are not included.

**Table 1(a) :Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Rural UP**

Regions	Hinduism (Rural)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Bulandshahr	778	G. BNagar	1200	Shahjahanpur	459	Bijnor	704
CR	Barabanki	694	Barabanki	806	Rae Bareli	388	Rae Bareli	653
SR	Jalaun	814	Jhansi	1632	Chitrakoot	348	Lalitpur	656
ER	Faizabad	819	Deoria	1497	Siddharthnagar	342	Shrawasti	626

**Table 1(b) :Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Rural UP**

Regions	Islam (Rural)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Moradabad	870	Aligarh	3309	Agra	285	Mainpuri	559
CR	Unnao	1037	Kanpur Nagar	1236	Rae Bareli	362	Lucknow	579
SR	Jalaun	1035	Jhansi	969	Banda	281	Jalaun	438
ER	Faizabad	1135	Ballia	2011	Mau	300	Basti	531

**Table 1 (c) :Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Urban UP**

Regions	Hinduism (Urban)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Agra	1584	Ghaziabad	2287	Kannauj	477	Bijnor	696
CR	Lucknow	1468	Sitapur	3175	Unnao	589	Rae Bareli	787
SR	Jalaun	835	Jhansi	1663	Banda	422	Chitrakoot	759
ER	Faizabad*	1059	Basti	2716	S. K. Nagar	487	Kaushambi	695

Note:\* District Ambedkar Nagar also has same Average MPCE value

**Table 1 (d) :Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Urban UP**

Regions	Islam (Urban)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Saharanpur	972	G. BNagar	1268	Auraiya	326	Pilibhit	603
CR	Kanpur Nagar	1332	Kanpur Nagar	1473	Unnao	286	Kanpur Dehat	515
SR	Jhansi	949	Banda	1855	Chitrakoot	329	Chitrakoot	516
ER	Basti	1242	Deoria	3512	Siddharthnagar	293	Sultanpur	575

**Table 2(a-1):Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Rural U.P.**

Regions	SC's(Rural)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Aligarh	723	Moradabad	1267	Firozabad	321	Shahjahanpur	485
CR	Sitapur	638	Sitapur	827	Rae Bareli	359	Rae Bareli	519
SR	Jhansi	540	Hamirpur	1212	Chitrakoot	314	Mahoba	468
ER	Faizabad	713	Ambedkar Nag.	912	Shrawasti	264	S.R.Nagar	530

**Table 2(a-2) :Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Rural U.P.**

Regions	OBC's (Rural)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Bulandshahr	833	Aligarh	1313	Budaun	440	Rampur	627
CR	Barabanki	728	Hardoi	939	Rae Bareli	378	Lucknow	612
SR	Jalaun	638	Jhansi	2559	Chitrakoot	335	Jalaun	590
ER	Faizabad	894	Deoria	1472	Siddharthnagar	340	Sultanpur	620

**Table 2(a-3) :Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Rural U.P.**

Regions	Other's(Rural)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Bulandshahr	1001	Meerut	1546	Etawah	460	Budaun	638
CR	Sitapur	874	Lucknow	1392	Rae Bareli	480	Unnao	674
SR	Jalaun	4924	Lalitpur	1159	Banda	439	Jhansi	528
ER	Faizabad	1110	Ghazipur	3207	S. Kabir Nagar	386	Balrampur	706

**Table 2(b-1):Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Urban U.P.**

Regions	SC's(Urban)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Moradabad	1425	Ghaziabad	2381	Kannauj	367	Mathura	432
CR	Lucknow	995	Lucknow	1308	Kanpur Dehat	404	Unnao	712
SR	Jalaun	974	Banda	3351	Banda	380	Chitrakoot	567
ER	Faizabad	1213	Maharajganj	3244	Siddharthnagar	245	S. K. Nagar	477



**Table 2(b-2 ):Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Urban U.P.**

Regions	OBC's (Urban)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	Avg. MPCE (Rs.)		Avg. MPCE (Rs.)		Avg. MPCE (Rs.)		Avg. MPCE (Rs.)	
	District		District		District		District	
WR	Firozabad	1238	Meerut	2230	Pilibhit	460	Moradabad	586
CR	Barabanki	1012	Sitapur	1620	Kanpur Dehat	426	Hardoi	623
SR	Jhansi	819	Jhansi	1291	Jalaun	380	Chitrakoot	714
ER	Azamgarh	813	Basti	2257	Siddharthnagar	448	Bahraich	655

**Table 2(b-3 ):Region-wise Best and Worst Districts among religious groups in terms of average MPCE in Urban U.P.**

Regions	Other's(Urban)							
	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	Avg. MPCE (Rs.)		Avg. MPCE (Rs.)		Avg. MPCE (Rs.)		Avg. MPCE (Rs.)	
	District		District		District		District	
WR	Agra	2314	Saharanpur	3377	Mathura	471	Kannauj	772
CR	Lucknow	1640	Sitapur	2503	Sitapur	376	Kheri	788
SR	Chitrakoot	1413	Banda	2031	Jhansi	546	Chitrakoot	1152
ER	Faizabad	2016	Ghazipur	3077	Ambedkar Nag.	336	Pratapgarh	905

**Table 2 : Region-wise percentage distribution of rural and urban population by social groups, Uttar Pradesh (2004-05 to 2009-10)**

Regions	RURAL Population %						URBAN Population %					
	SC		OBC		Others		SC		OBC		Others	
	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10
WR	30.9	29.4	35.9	34.3	34.8	40.2	40.3	50.7	50.2	48.6	55.8	59.7
CR	23.3	22.5	15.3	15.7	17.7	18.5	28.4	24.0	15.7	18.3	26.9	22.0
SR	4.4	5.2	5.5	4.6	4.2	4.8	12.6	7.2	6.2	5.8	2.4	5.2
ER	41.4	42.9	43.3	45.4	43.3	36.5	18.7	18.2	27.8	27.3	14.9	13.0
UP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>% of UP*</b>	<b>25.40</b>	<b>27.75</b>	<b>54.64</b>	<b>52.41</b>	<b>19.37</b>	<b>19.11</b>	<b>13.65</b>	<b>14.51</b>	<b>45.37</b>	<b>43.69</b>	<b>40.53</b>	<b>40.40</b>

Note: \* Figures of Social group 'Schedule Tribes' are not included.

**Table 3: Region-wise distribution of sample households by religious groups, Uttar Pradesh**

Regions/ UP	Uttar Pradesh				Religious Group							
	2004-05		2009-10		Hinduism				Islam			
	Rural		Urban		2004-05		2009-10		2004-05		2009-10	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
WR	2693	1233	2039	1340	2218	813	1661	884	470	398	366	440
CR	1359	635	992	512	1156	474	863	353	193	153	128	154
SR	399	280	448	256	383	216	436	223	16	61	13	31
ER	3417	1198	2427	979	2966	843	2123	695	447	344	305	269
<b>UP</b>	<b>7868</b>	<b>3346</b>	<b>5906</b>	<b>3087</b>	<b>6723</b>	<b>2346</b>	<b>5083</b>	<b>2155</b>	<b>1126</b>	<b>956</b>	<b>812</b>	<b>894</b>

Note: Figures of religious group other than Hinduism and Islam are not included.

**Table 4: Region-wise distribution of sample households by social groups, Uttar Pradesh**

Regions/ UP	Social Group											
	SCs				OBCs				Others			
	2004-05		2009-10		2004-05		2009-10		2004-05		2009-10	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
WR	559	213	481	202	1513	508	1061	574	613	511	484	560
CR	409	118	307	91	653	231	453	186	293	280	225	226
SR	96	73	132	46	223	132	222	114	80	72	93	95
ER	791	159	677	123	1840	655	1282	543	752	367	443	297
UP	1855	563	1597	462	4229	1526	3018	1417	1738	1230	1245	1178

Note: Figures of STs are not included.

**Table 5. Region wise average MPCE (URP)(in Rs.) ,Uttar Pradesh**

Region/ UP	RURAL MPCE			URBAN MPCE		
	2004-05	2009-10	% change	2004-05	2009-10	% change
WR	586.77	891.58	51.95%	849.04	1390.11	63.73%
CR	562.57	742.69	32.02%	1069.1	1540.19	44.06%
SR	532.02	918.64	72.67%	639.72	1326.98	107.43%
ER	477.14	804.96	68.71%	714.53	1123.86	57.29%
UP	<b>532.63</b>	<b>828.67</b>	55.58%	<b>857.05</b>	<b>1364.99</b>	59.27%

Source: Authors calculation from NSSO unit level data

**Table 6R : Region-wise Best and Worst Districts in terms of average MPCE (URP) in Rural Uttar Pradesh**

Regions	Best (2004-05)		Best (2009-10)		Worst (2004-05)		Worst (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
	WR	Bulandshahr	781	G. B. Nagar	1184	Shahjahanpur	439	Rampur
CR	Barabanki	687	Hardoi	803	Rae Bareli	385	Rae Bareli	658
SR	Jalaun	817	Jhansi	1627	Chitrakoot	348	Jalaun	655
ER	Faizabad	917	Deoria	1367	Siddharthnagar	359	Kaushambi	650

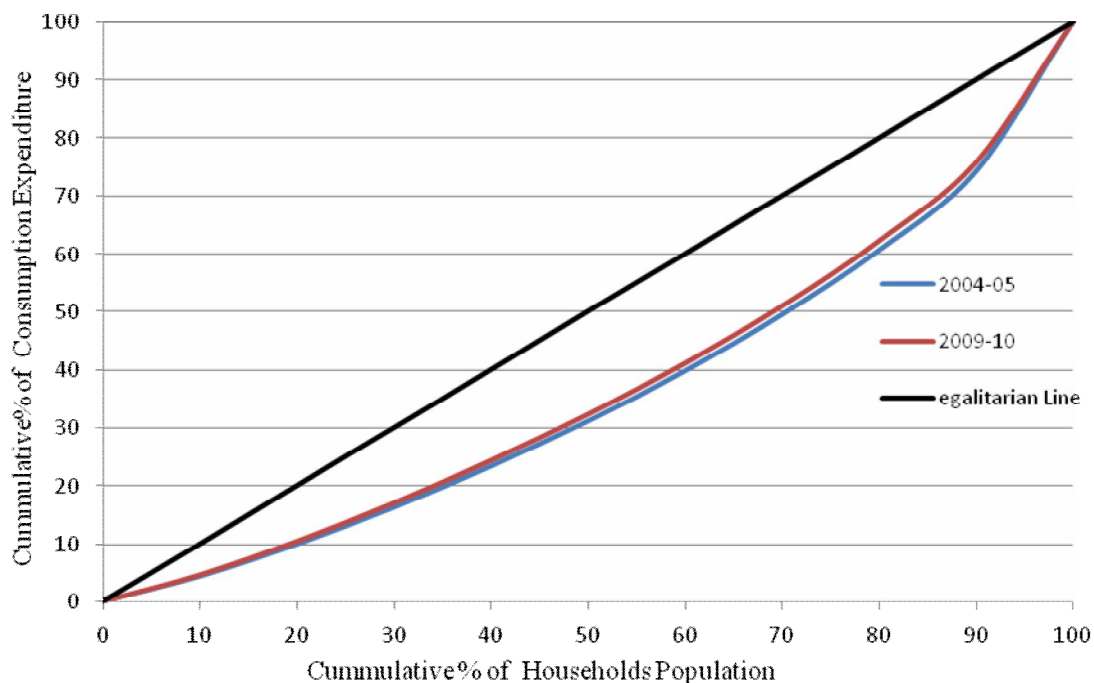
Source: Authors calculation from NSSO unit level data

**Table 6U :Region-wise Best and Worst Districts in terms of average MPCE (URP) in Urban Uttar Pradesh**

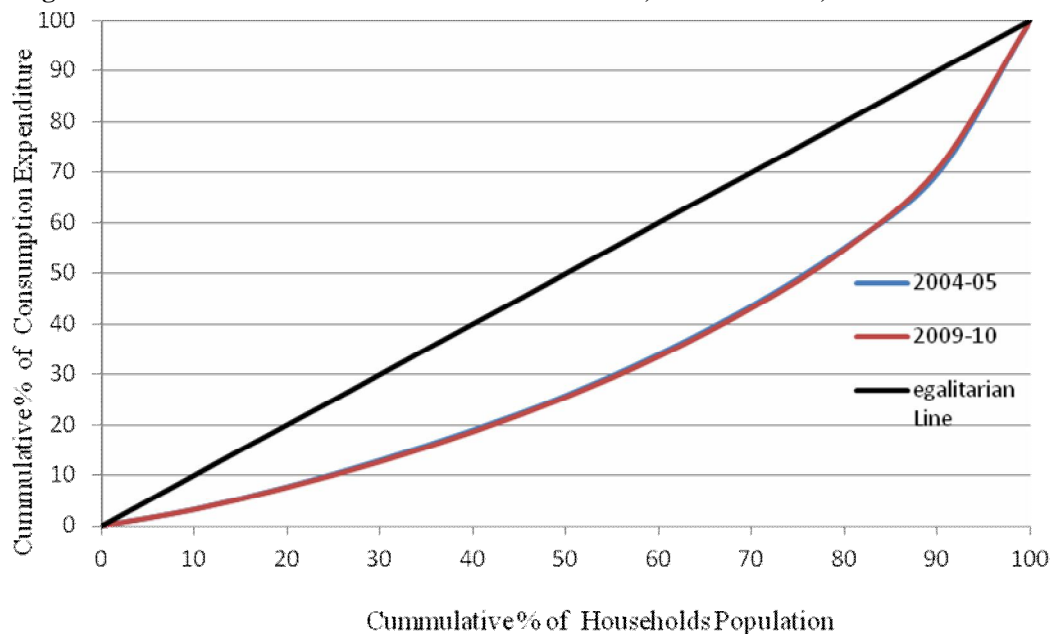
Region	Best (2004-05)		Best (2009-10)		Worse (2004-05)		Worse (2009-10)	
	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)	District	Avg. MPCE (Rs.)
WR	Agra	1393	Meerut	2082	Kannauj	504	Moradabad	758
CR	Lucknow	1329	Sitapur	2300	Unnao	569	Rae Bareli	813
SR	Chitrakoot	773	Jhansi	1586	Banda	436	Chitrakoot	747
ER	Basti	964	Basti	2140	Ambedkar Nagar	451	Kaushambi	720

Source: Authors calculation from NSSO unit level data

**Figure 2R: Lorenz curve for rural household's MPCE, Uttar Pradesh, 2004-05 to 2009-10**



**Figure 2U: Lorenz curve for urban household's MPCE, Uttar Pradesh, 2004-05 to 2009-10**



**Table 7: Comparison of Gini coefficient and Richi-Schutz Index**

Regions	Gini Coefficients		Richi-schutz index	
	2004-05	2009-10	2004-05	2009-10
Rural	0.282	0.264	0.31	0.26
Urban	0.356	0.360	0.39	0.34

**Table 8: Comparison of Gini coefficient of consumption inequality between Regions in Rural UP\***

	WR		CR		SR		ER	
	2004-05	2009-10	2004-05	2009-10	2004-06	2009-11	2004-06	2009-11
Rural	0.28	0.25	0.285	0.22	0.30	0.38	0.270	0.271

*Note: Urban UP inequality remains stagnant so not taken separately*

**Table 9: Comparison of Gini coefficient of consumption inequality between Religious Group in Uttar Pradesh**

	Hinduism		Muslim	
	2004-05	2009-10	2004-05	2009-10
	Rural	0.28	0.27	0.29
Urban	0.36	0.36	0.31	0.29

*Note: Number of Other's (Religious Group) sample is low so not take for analysis.*

**Table 10: Comparison of Gini coefficient of consumption inequality between different Social Group in UP**

	OBC's		Other's		SC's	
	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10
Rural	0.27	0.26	0.31	0.26	0.25	0.23
Urban	0.30	0.32	0.39	0.34	0.29	0.34

*Note: Number of ST's sample is low so not take for analysis.*

## Mapping Peasants' Movement in Punjab: A Study of the Border Area Sangarsh Committee

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### Abstract

*A successful and concerted effort from below has been made in the border belt of Punjab to raise the genuine concerns of the peasants who have land across the fencing on the Indo-Pak border. The issues of these farmers have been forcefully voiced before the insensitive and inhuman power structures both at the state and central levels. The rise and institutionalisation of Border Area Sangarsh Committee(BASC) was to forge a new alliance, based on collective agenda and identities ,irrespective of party affiliations to articulate new strategies to ensure peasants' survival and resistance to man- made challenges after their land went across the fencing on the border during terrorism in Punjab (1978-93).It has emerged as a powerful voice of more than twelve thousand small and marginal farmers belonging to two hundred and seventy nine villages located on zero line in three (now six) border districts i.e. Gurdaspur ,Amritsar and Ferozepur of Punjab.*

*The paper is part of recently completed major research project "Problems of Border Area Farmers in Punjab: An Empirical Study "sanctioned by the Indian Council of Social Sciences Research, New Delhi. It is divided into five parts. Part one gives a brief account of farmers' movements in the state in the post independence India. Part two examines the reasons behind the formation of the Border Area Sangarsh Committee and its agenda. Part three explains the structure and working of the BASC. Part four highlights the achievements of the BASC and Part five sums up the study.*

### Part I

Peasant movements are important variants of social movements (Dhanagre, 1983.). Social movements are generally used to denote a wide variety of collective attempts at bringing change in certain social institutions, and thus creating an entirely new social order (Sills, 1968, 438-39). These movements comprise specific kinds of concerted action groups which mobilise and motivate people for pursuing common concerns mostly outside the established institutions. These movements have proliferated in all types of societies i.e. modern and traditional. The difference is only in emphasis on relevant matters in their respective concerns (Giri, 1997, 1-36) .On the other hand, the terms peasant movement and agrarian movement refer to all kinds of collective attempts of different strata of

the peasantry either to change the system which they felt was exploitative or to seek redress, for particular grievances, without necessarily aiming at overthrowing the systems (Desai, 1966, 174-200).

The mobilization of farmers all over Punjab is getting intensified in the background of their facing serious threats to their interests in the contemporary conditions. The internal and external pressures on the state and central governments to change the policies protecting farmers' interests have become a serious concern for them. The marginalization of small and medium farmers, opening of Indian agriculture to global trading system , stagnating and declining agricultural productivity in the face of rising cost of production, mounting debts and distress conditions of farmers, marginal rise in support price which is disproportionate to the rising input cost and constant threat of winding up the Minimum Support Price(MSP) System, withdrawal of subsidy on inputs which include fertilizers and electricity and forced acquisition of their land for mega projects and for establishing special economic zones(SEZs)are some of the serious problems confronting farmers and their organizations are a response to these challenges.

Punjab has witnessed various mass mobilizations of the farmers in pre and post-independence era (Mukerjee, 2004, Chander, Mukerjee and Mukerjee1999, 421-32). The prominent struggles of the peasants in pre independence India were Canal Colony Agitation of 1907 under the leadership Sardar Ajit Singh and many other struggles under the aegis of Zimidara Union of Unionist Party and Kisan Sabha of the Communist Party.

The post-independence era saw several rounds of mass mobilization of farmers in Punjab. The first mass mobilization was that of tenants which spread over in part of Malwa region comprising the Patiala and East Punjab States Union (PEPSU) region i.e. Patiala, Sangrur and Bathinda districts during 1948-52 (Gill, 2004, 2964-66). Abolition of *Biswadedari/Jagirdari* system and land to the tillers were the major issues around which the movements were organised. The movement was so powerful that it succeeded in making the tenants landowners without paying any compensation. This movement was led by the Red Communist Party of Comrade Teja Singh Swatantar. The second massive mobilisation took place in 1958-59, which is known as Anti-Betterment levy Agitation. This was in response to the imposition of a betterment levy by Punjab Government after the opening of Bhakra canal. The government increased water rates for irrigation and thus imposed heavy financial liability on the farmers. The movement was led by Kisan Sabha of Communist Party of India (CPI), which succeeded in forcing the government to withdraw this levy. The emergence of green revolution in late 60s and early 70s produced a new class of rich and capitalist farmers who took the reigns of farmer's movement. It was against

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this background that the *Punjab Khetibari Zamidara Union* came into being in 1972. This phase of farmers' movement was led by rich peasantry without the direct command of any established political party. The thrust of the movement was for higher procurement prices of wheat and paddy and subsidized input prices of electricity, fertilizers, fuel etc. The issues related to the landless, marginal and small peasantry were sidelined because of the rise and dominance of the capitalist farmers and the continuously decline of the *Kisan Sabhas* led by the Communist Parties. The Punjab Khetibari Union was later on converted into the Punjab unit of *Bhartiya Kisan Union* (BKU) in 1980. The national level leadership of the BKU was under the control of Mohinder Singh Tikait. The Punjab wing of BKU organized many rounds of mobilizations of peasantry including the famous Raj Bhawan gherao in 1984. The political activities including peasants movements came to halt in the post Operation Blue Star in June 1984 as state witnessed an unforeseen rise of terrorist violence.

The terrorist violence (1980-92) in the state adversely affected the farmers' movements in the state. The worst affected were the left parties led farmers movements as a large number of their leaders were killed by the various terrorist groups in the state. The state remained under the President's rule first from September 1983 to August 1985 and later on from May 1987 to February 1992. These developments marginalized the working of the farmers' movements by diverting their attention away from livelihood issues. Secondly, the peasants' movements remained stagnant and confined to local issues instead of addressing the structural crisis of peasantry. The other reasons of poor performance of these organizations were divisions in the peasants' organizations because of internal contradictions, disagreements on common issues etc. The first split in the BKU took place in 1989 when Ajmer Singh Lakhawal and Manjit Singh Kadian formed separate organization. The other group was led by Bhupinder Singh Mann and Balbir Singh Rajewal. This split resulted in the nomination of Bhupinder Singh Mann to the Rajya Sabha by the then Janata Dal government at the centre headed by V P Singh. This division later on gained ideological content on the issue of the liberalization of Indian agriculture. The Mann-Rajewal led farmers' organization favoured liberalization policies and argued that it would ultimately benefit the farmers, while Lakhawal-Kadian group was much more susceptible about the consequences of such policies (Chandoke and Priyadarshi, 2006, 817-19).

The containment of terrorism in the state after 1992 witnessed the revival of farmers' movements in Punjab but with weak organizational structure and a dwindling support base. But the leadership of these movements remained with the *Bhartiya Kisan Union* (BKU) led by rich farmers. In the meanwhile, another

split took place in BKU (Lakhawal-Kadian) group in 1994. The left elements in the organisation formed another group under the banner BKU (Ekta). This split was an outcome of Lakhawal's proximity with the Akali leadership. The BKU (Ekta) witnessed further split into two factions in 2003 i.e. one faction was led by Pishora Singh Sidhpur and the other by Joginder Singh Ugrahan. Currently there are more than three factions of the BKU, and three *Kisan Sabhas* led by CPI, CPI (M) and CPI (M) Pasla group respectively, three organisations namely *Kul Hind Kirti Kisan Sabha* (KHKKS), *Kisan Sanghrash Committee* (KSC) and *Kisan Vikas Morcha* (KVM) etc.. The total number of farmers' organisations in present times is about seventeen. These organisations have their own areas of influence in different parts of Punjab. The only positive development in the recent past was a functional co-ordination among these farmers organisations on various issues related to the peasantry in the state. Though there was a long list of demands of these organisations but a few needs special mention. These were:

- Remunerative Prices of Agricultural Produce
- Assured Market Clearance
- Remuneration/Compensation in case of Crop Failure
- Free Power Supply to the farmers
- Social Security for the Aged Farmers
- Opposition to the Opening up of Indian Agriculture to Global Trading System
- Opposition to the Privatization of Punjab State Electricity Board (PSEB) etc. (The present government led by Parkash Singh Badal has already converted the PSEB into Power Corporation.)
- Opposition to the Forced Acquisition of Land by the Government to establish Special Economic Zones (SEZ) or setting up Power Plants by the Private Parties.

## Part II

The problems of the farmers of the border areas were not on the agenda of mainstream farmers' organizations. It was only the Amritsar unit of All India Kissan Sabha who took the lead to highlight the problems of the border area farmers. The affected farmers were organized under the banner of Border Area Sangarsh Committee to make it a broad-based and open organization. The membership of the organization was open to the farmers irrespective of their political affiliations. The first gathering of the farmers was organized at Attari Village which is located very close to the famous Wagha Border. In this gathering, the farmers criticized both the state and Central governments for ignoring the problems of the farmers in the border villages. A resolution was passed to implement into the recommendations of the

S.L.Kapoor Committee. It is to mention here that two high powered Committees were constituted before and after the completion of the fencing on the border under the leadership of S.L Kapoor, the then Chief Secretary of Punjab. The task of the second Committees was to suggest ways and means to minimize the suffering of the people after the fencing on the border. As mentioned earlier that the fencing on the border brought untold miseries and hardships to the farmers in the border villages. The other members of the Committee were the three Deputy Commissioners of Gurdaspur, Amritsar and Ferozepur districts respectively, Financial Commissioner (Revenue), Secretary Power and Irrigation, officials of Home, Revenue, Public works, Electricity Board, Rural Development and Panchayats etc.. After going through the problems being faced by the farmers having land beyond fencing, the Committee recommended:

1. The payment of special inconvenience bonus at the rate of Rs. 400 per annum per acre to the affected farmers,
2. To Adjust the Timing of opening and closing of the entry gates on the fence at the convenience of farmers;
3. Ensured supply of electricity and canal water (where it was possible) during day times;
4. Full payments to the farmers of their land acquired for fencing;
5. Allotment of 4 Kanals of land to the farmers having total land across the fencing. It will be used to grow fodder for the livestock. It is mention that crops with more than three feet height is not allowed across fencing on the border.
6. The District Administration of each district would make arrangement for harvesting combines to harvest crop across the fencing.
7. The Home Ministry would be requested to issue identity cards to the farmers including the male members of their families.
8. The process to issue identity cards to the farm labour would be made simplified etc.

The recommendations of this committee met the same fate as those of the earlier Committee which recommended the fencing on the border at a distance of fifty to hundred yards from the Zero Line. The farmers were left at the mercy of the security forces deployed on the border. On the other hand, the lack luster attitude of both the Central and state governments and absence of any clear cut policy of the government to mitigate the problems of the affected farmers added more miseries to already distressed farmers. There poor farmers had neither access nor could they dare to raise their voice to get rid of this new situation. If any voice was raised it was not taken seriously. The local administration and the state government always put blame on the central government for the miseries of the farmers. The poor farmers did not dare to argue with the BSF authorities about the problems they faced

while cultivating their land across the fencing on the border. It was in this context that the farmers of border villages gave an instant response to form an organization which could fight for their genuine demands. An adhoc committee comprising one hundred forty one members representing the border villages of the then three districts was constituted to prepare the agenda and demands of the affected farmers. The first state level convention of the BASC was called in Amritsar to prepare the agenda of the organization.

The state level headquarter of the BASC is located in the CPM (Punjab) office at Amritsar. The first and the most important and difficult task of the BASC was to prepare a charter of demands to be submitted to the authorities. For this purpose, they secured a copy of the recommendations of S.L. Kapoor Committee as these recommendations were quite favourable to the farmers. Naturally, their first demand pertained to the immediate implementation of the recommendations of the S.L.Kapoor Committee. They also prepared a comprehensive charter of demands of the farmers of the border villages. The main demands of the BASC were:

1. Immediate stoppage of disrespect, maltreatment meted out to the farmers having land across the fencing at the hands of the BSF personnel deployed at the entry gates. It also demanded stoppage of forcing the farmers to work for BSF personnel as there were various complaints of such nature in the border villages. The victims of such incidents were mostly small and marginal farmers.
2. The timing of opening and closing of entry gates should be from 8 a.m. to 6 p.m. instead of 10 a.m. to 4 p.m. The entry gates should open daily instead of on alternative days or after three days so that the farmers could enter their fields daily.
3. Recruitment of Women in the BSF so that the women laboureres could enter the fields across fencing. In the absence of women force, the women workers were not allowed to move in the fields. Any one who goes across fencing is thoroughly searched by the BSF personeel deployed at the entry gates.
4. Relaxation of rules for allowing laborers to work in the fields. The village Sarpanch be authorised to issue identity cards to the laborers to work in the fields across the fencing on the border.
5. Regular and uninterrupted power supply across the fencing during the day times.
6. Shifting of the fence within the radius of fifty yards from the Radcliff line of the border.
7. Permanent policy of the resettlement of the farmers, laborers in case in case any emergency or tension at the border.
8. Immediate release of the remaining part of compensation of the land acquired for fencing on the Border.
9. Full compensation to the victims of mine blasts.

10. Release of compensation of the land acquired in 1947 for marking Radcliffe Line.
11. Comprehensive Master Plan for the overall development of the border belt with specific focus on health, education and road connectivity (Source: Border Area Sangarsh Committee).

### Part III

#### Structure of the Border Area Sangarsh Committee

The structure of the BASC is divided into four tiers i.e. at Village, Tehsil, District and State levels.

**Village Unit:** It is the lowest and grassroots level unit of the BASC. This unit exists in all the border villages except a few villages in Gurdaspur district. The number of members in each village unit varies from five to eleven i.e. five in small villages and eleven in big villages. The number of membership is also determined on the basis of the number of total farmers having land across the fence on the border. These members elected amongst themselves a President, a Secretary and a Cashier.

**Tehsil Unit:** The villages on the border fall in nine tehsils of four revenue districts. These are Pathankot, Gurdaspur and Dera Baba Nanak in Gurdaspur district, Ajnala and Amritsar in Amritsar district, Tarn Taran and Patti in Tarn Taran district, and Ferozepur and Fazilika in Ferozepur district. The tehsil unit consists of fifteen to twenty five members. These members are elected by the members of village units. Usually, the election of the members of the tehsil unit is unanimous. The majority of the members are politically active. The tehsil unit consists of a President, a Secretary and a Treasurer. The remaining are executive members.

**District Unit:** There are four border districts in Punjab and each border district has a unit of BASC. The district unit consists of thirty five to fifty members. Most of the members in the district units are office bearers and executive members of village and tehsil units in their respective district. Usually politically active members of the lower units of the organization are office bearers and members of the district unit.

**State Unit:** The headquarter of the state unit of the BASC is in Amritsar. It consists of Forty to fifty members representing all tehsils and districts in the border belt of Punjab. The state unit consists of a President, two Vice-Presidents, a Secretary, a Treasurer and executive members.

The elections of the members of the units were more or less unanimous.

The Border Area Sangarsh Committee (BASC) has been successful in mobilising thousands of affected farmers to raise their voice against the concerned authorities at various levels ---starting from entry gates on the fence in a village to the Parliament of India. The mobilisation involved gate rallies, *dharnas* and protests at village, tehsil, district, division, state and national levels.

The methods adopted by the movements are frequent participation in meeting with civil and BSF officials, demonstrations, *gheraos* of the concerned officials etc. The level of action by the organization depends on the nature of the issue. For example, if the issue is related to the farmers of a particular village or of a particular entry gate on the fence, the concerned village unit decides the action with the consultations of the members of tehsil unit. But if it involves major issue, the involvement of the district unit is ensured. The state level unit provides leadership to the local units and mobilizes farmers for organizing demonstrations, *dharnas* at district, division, state and national levels.

The mobilization of the farmers begins at the village level. The action of the organization depends upon the nature of the issue and problem faced by the farmers. In some cases, the mobilization process begins a few weeks before the final action of the organisation. The members of tehsil and district units visit each village and hold meeting with the farmers. It is the responsibility of the members of the village unit to organize such meetings in a public place (sometimes in Gurdwara) in a village. They make all the arrangements like food, seating arrangement, public address system etc required for such meeting. The village unit is also responsible for collecting money from the farmers for such arrangements and for incurring expenditure on other actions of the BASC. The other important responsibility of the village unit is to prepare volunteers for mass actions and to make arrangement of transportation of the farmers to various destinations. The role of tehsil unit is to coordinate between the village units and the district unit. The district units of the border belt coordinate with the state unit for planning and execution of action plans of the BASC.

There is a long list of actions and achievements of the BASC at different levels. The first major achievement of the BASC was to prevail upon the then Home Minister Mr. Inderjit Gupta to look into the problems of the farmers having land across fencing on the border. He was also made aware of the non-implementation of the recommendations of the S.L Kapoor Committee. The Home Minister took a serious note of the prevailing problems of the farmers and assured the delegation to look into the matter. While taking action on the demands put up by the BASC, the Central government replied that the total compensation of the land under fencing have been sent to the state government and a committee has been constituted to look into the problems of the farmers. Later on, the Home Ministry directed the BSF authorities through a formal order DO NO. 1/17034/31/96-IS (D-VII) dated February 19, 1997 to allow the farmers to undertake farming operations across the fencing from 6 a.m to 7 p.m (Document with the BASC). This order of the Home Ministry was implemented because of the early fall of the government at the Centre and strong



resistance to the proposal by the security and intelligence agencies. Later on Lal Kishan Advani, the then Home Minister in National Democratic Alliance (NDA) government paid a visit to three border villages near Wagha in 1999 to get first hand information of the problems being faced by the affected farmers. The leadership of BASC made him aware of the structural problems of the farmers having land across the fencing on the border. He was also made familiar with the recommendations of the S.L. Kapoor Committee. After listening to the grievances of the farmers, the Home Minister announced an inconvenience allowance at the rate of rupees three thousands per acre per annum to the farmers having land across the fencing. The farmers of the Punjab got this allowance for three consecutive years i.e. from 1999 to 2001. Later on, it was stopped as the farmers and governments of other states (Jammu and Kashmir, Rajasthan and Gujarat) also started demanding a similar allowance for the farmers having land across fencing.

The other method of raising the farmers' issues is to submit memorandums to the Civil and BSF officials from time to time and having meetings with them to make them aware of the burning issues of the farmers in the border area. The committee prevailed upon the officials of the Doordarshan to make a documentary on the plight of the people of border villages. The documentary was telecast during the prime time at national level. The Committee also arranges the visits of the principal correspondents of various newspapers i.e. local, national and international to highlight the plight of the peasantry in the border belt.

#### **PART IV**

##### **Achievements of the BASC**

The following are a few achievements of the BASC since its formation in 1996.

**1. Change in the Attitude of BSF Personnel deployed on the Entry Gates:** The BASC has succeeded to bring a sea change in the attitude of the erring BSF personnel posted on the border in general and entry gates in particular. They have become more humane, co-operative and considerate. Now this is the general perception of the farmers about the BSF officials. The major issue raised by the BASC was to check the "cruel behaviour" of the BSF personnel towards the farmers whenever they went to cultivate their land across fencing on the border. They were not only forced to do work for the BSF officials against their wishes but were also compelled to clean the area in and around the BSF post, remove wild grass from the perimeter of the posts and passages along fencing. The farmers were threatened by the BSF officials to not to allow them to go across the fence if they did not obey their orders. There were many complaints against the BSF jawans of misbehaving with the local population also. But, now it has become a thing of the past.

**2. Recruitment of Women Constables in the BSF:** The BASC succeeded to get the recruitment of one hundred seventy eight women in the BSF. They have been posted along Punjab's border with Pakistan. It was a long standing demand of the BASC to deploy women soldiers at the entry gates for facilitating entry of the women laborers across the fencing to work in the fields.

**3. Compensation of rupees three thousands as an inconvenience allowance to the Farmers:** The farmers having land across the fencing on the border received an inconvenience allowance of rupees three thousands per acre for three consecutive years (1999-2001). It was discontinued by the Central government because of political reasons. But the BASC is still striving hard to put pressure on the governments to restart inconvenience allowance to the affected farmers.

**4. Permission for laying Pipe-line under the Fencing:** The BASC has succeeded to prevail upon the central government to grant permission to lay pipeline under the fencing on the border. It has helped thousands of farmers to irrigate their fields by taking water from outside the fencing.

**5. Sanction of New electricity Connections to the Tube-wells:** It is to mention here that not a single electricity connection was sanctioned to tube-wells across the fencing since it was completed. Recently, the state power corporation has sanctioned a large number of electricity connections to the tube-wells across the fencing on the border. It was considered a major achievement of the BASC. The restrictions on sinking new bores for tube-wells in the fields across fence have been relaxed to some extent.

**6. Regular Opening of Entry-gates and Increase in working Hours:** There was a common complaint of the farmers about irregular opening of the entry gates on the fence. "Earlier, the gates were opened sometimes twice in a week or on alternative day", said many farmers. Now, the general response of the farmers was that the gates are opened almost daily and they are allowed to work in their fields for longer hours. "It was the result of organized efforts of the BASC", they accept.

It is to mention here that the border is porous and is vulnerable for anti-national activities from both the sides i.e. India and Pakistan. There are a few structural restrictions on opening the gates particularly during fog in the winter, rainy days and shortage of the BSF personnel etc. The farmers do not bother if gates are not open in such situations.

**7. Compensation to the Victim of Mines Blasts:** There were a large number of victims of mine blasts in the border villages. The mines were regularly laid down in the fields of the border villages whenever there were wars or warlike situation on the border. While most of the victims get compensation after getting injured or killed in mine blasts but there were many who remained unattended. The BASC took up the cases of

those victims who could not get justice and prevailed upon the authorities to provide them relief.

**8. Process of Shifting of Fence on the border has begun:** The government of India has agreed in principal to shift the fence close to the zero line. The process has begun in two villages in Ferozpur district. The shifting of the fence from the present site would bring an end to the problems of the farmers.

**9. Compensation of the Land (zero line) Acquired in 1947:** The farmers of two hundred and seventy nine villages on the border have yet to get compensation of their land acquired in 1947. It is worth reminding that a fourteen feet wide piece of land on zero line was acquired to make it an international border. The BASC took up this issue with the state and the Central governments. Recently, the leaders of the BASC told us that the Central government has released the money to be given to the genuine claimants.

#### Part V

To sum up, the BASC has succeeded to a great extent not only to raise the problems of the farmers in the border villages but also to get some of these resolved. The problems of the peasantry in the border –belt are very complex. The border-belt is backward and is still facing neglect at the hands of present governments -- both Central and State. The process to redress the complex problems of the farmers is very difficult. It involves both state and the central governments. The final authority to take decision is with the home ministry. The role of the security and intelligence agencies is also very crucial in the decisions related to the border area. The insensitivity of the local bureaucracy is an added factor coming in the way of early resolution of the farmers problems in the border-belt.

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## India's Decades with Neo-liberalism: Political Economy Perspectives

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### Abstract

*This paper examines the impact of a decade of neoliberal policies on poverty and income distribution in India. It demonstrates that while liberalisation and market reform contributed towards the attainment of high growth rate and to some extent accelerated capital inflows, little was achieved by way of removing the agricultural crises, employment generation, reducing income inequality, poverty, price rise and overall economic and social development of the working class. The paper concludes by evaluating neoliberalism in the context of equity.*

The 1990's marked the triumph of neoliberal economic policies and globalisation in world particularly in India. The old paradigms of development through import substitution industrialisation driven by the public sector, in a closed economy setting, with a large role for the state, were jettisoned in favour of an open economy for the state, with an exit of the state through massive privatisation and the pre-dominance of market forces (Edmund A mann and Werner Baer, 2002). History of economic thought suggests different theories of development. Development has been defined by Dickson (1997) as "qualitatively ameliorated social, political and economic change; others like Peet and Hartwick (2009) define it as "a better life for everyone". Modernization theory is primarily associated with Rostow (1960) who identified five stages that a country has to pass through so as to make growth the "normal condition" (Rostow, 1960: 49) and move away from "traditional society". Dependency theory critiqued modernization theory and argued that underdevelopment was a consequence of capitalist exploitation. Although economic development is a much larger concept, different authors have pointed out the widespread tendency of associating it with different economic indicators, like trade (Hoekman and Kostecki, 2009) economic growth (Peet and Hartwick, 2009) and "gross national product per head" (Sen, 2000). Through his thesis of "development as freedom" (1999) economist Amartya Sen, attempts to bring about a "pluralist conception of progress to the exercise of development" (2000) and moves away from the traditional measure of economic progress such as the gross national product per head. He does this by positing the thesis of both the "ends as well as the means of development" being equivalent to advancement of human freedom. Sen (1999) believes that such freedom can be achieved by removing

deprivations that limit choice and opportunities. This in turn enhances human capability to enable people to lead lives that they "have reason to value". The annual Human Development Index (HDI) of the United Nations Development Program attempts to move away from a growth-only measure of development, economic measures of development continue to predominate as has been pointed out by the authors above. From late 80s or early 90 those concepts of development have established their hegemony which is centred on growth rate and super-enhancement of the surplus value. It is the "ideology of globalization" (Colás, 2005) where only the free flow of market dynamics could survive. Only the globalization has 'become the new word for mainstream development' (Hettne, 2002).

In addition, the adoption of the new policy framework was the result of a comprehensive shift in international power relationships. As Ayers & Ayers (2011) explain that "Since World War II every U.S. president has repeatedly asserted the assumed role of the United States in global affairs with a simple slogan: "Leader of the Free World." When the Soviet Union and the socialist bloc collapsed in the 1980s, the U.S. concept shifted slightly; it became in the eyes of its own elite the unrivaled leader of a unipolar world. It moved even more aggressively to dominate global resources, labor, and markets, with profits flowing exclusively toward the metropolis. Wealth poured in and businesses boomed. Economists of the wealthy countries advanced the notion that neoliberalism—a faith that the free market, especially a market that is not so free when dominated and controlled by the west—would solve all problems and make the west ever richer. The export of industrial production from the metropole to the Third World engendered Dickensian sweat shops around the world and drove down wages for workers in the imperial centre, resulting in even greater spikes in profits. These realignments reduced metropolitan economies to service, information, and financial management, and were accompanied necessarily by a bloated military establishment built to keep these unjust relationships intact and relatively stable".

### Indian New Liberal Policies in 1990s and After

The economic liberalisation in India refers to ongoing economic reforms in India that started on 24 July 1991. After Independence in 1947, India adhered to socialist policies. Attempts were made to liberalize economy in 1966 and 1985. The first attempt was reversed in 1967. Thereafter, a stronger version of socialism was adopted. The process came to a halt in 1987, though 1966 style reversal did not take place. In 1991, after India faced a balance of payments crisis, it had to pledge 20 tons of gold to Union Bank of Switzerland and 47 tons to Bank of England as part of a bailout deal with the International Monetary Fund (IMF). In addition, IMF required India to undertake a series of structural economic reforms. As a result of this requirement, the government started breakthrough reforms, although they did not implement many of the reforms

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IMF wanted. The new neo-liberal policies included opening for international trade and investment, deregulation, initiation of privatization, tax reforms, and inflation-controlling measures. Therefore, by the end of the 1980s, India had adopted the so-called “Washington Consensus” policy orientation. This consisted of the following combination of measures:

1. An effective attack on inflation through drastic fiscal adjustment.
2. Privatisation of state owned enterprises, both in the industrial and public utility sectors.
3. Trade liberalisation, which consisted of pronounced declines in tariff, and especially, non-tariff protection.
4. The prevalence of market interest rates.
5. Opening most sectors to foreign investment and substantially decreasing controls over the actions of foreign capital.

The Bharatiya Janata Party (BJP) - Atal Bihari Vajpayee administration surprised many by continuing reforms, when it was at the helm of affairs of India for five years. The BJP-led National Democratic Alliance Coalition began privatizing government owned business including hotels, VSNL, Maruti Suzuki, Airports and began reduction of taxes, a sound fiscal policy aimed at reducing deficits and debts and increased initiatives for public works. The United Front government attempted a progressive budget that encouraged reforms, but the 1997 Asian financial crisis and political instability created economic stagnation. Towards the end of 2011, the Government initiated the introduction of 51% Foreign Direct Investment in retail sector. The insurance, aviation and pension sectors have also been opened for FDI.

### **Consequences/Impact of Liberalisation**

The policies associated with the Washington Consensus have long been viewed as conducive to efficient economic growth by its advocates. From the GDP point of view, the Indian economy seems to be a functioning well. However, the most striking disappointment of the 2000s growth performance (Table 1 - annexure) is the fluctuation of GDP growth rate (between 4 to 9 per cent). Table 1 indicates that the weakest performance was displayed by the agricultural sector that provides the livelihoods to the majority of the people. The performance of industrial sector also shows fluctuating to the growth. It is the service sector that tends to increase over the years.

The most important aspect of the Indian economy under liberalisation is that agriculture has become un-remunerative and is increasingly becoming unviable for the bulk of the peasantry. A Situation Assessment Survey of Income, Expenditure and Productive Assets of Farmer Households conducted by the National Sample Survey Organisation between January and December 2003 showed that 96.2 % of the farmer households surveyed, owning less than 4 hectares of land, had incurred monthly consumption expenditure in excess of their average monthly income from all sources.

Only the top 3.8 % of the farmer households earned enough to meet their monthly consumption expenditure. Because of the unviable nature of cultivation, peasants are finding it difficult to continue in agriculture. The 59<sup>th</sup> Round of the National Sample Survey revealed that 40 % of the farmers surveyed wanted to quit farming if given an option. “The agrarian sector experienced a crisis in the country is a result of the neoliberal policies pursued by the Central Government in the post-liberalisation phase. Through the withdrawal of state support to the peasantry, income deflationary fiscal policies, trade and financial liberalisation and allowing MNCs and domestic corporate to increase their dominance in input and output markets, the Government has created the grounds for the agrarian crisis. The problems plaguing the peasantry today; absence of remunerative prices for the produce, volatility in prices, repeated crop failures, rising cost of cultivation, inaccessibility of institutional credit, growing indebtedness and lack of alternative employment opportunities; are direct outcomes of neoliberal policies” (Pillai, 2007).

The beginning of 1990’s saw initiation of period of ‘jobless’ growth when public sector was no longer seen as an employment provider; it has, in fact, experienced a continuous decline in employment since mid-1990s and 2000s. Higher growth of the economy induced by liberalisation was expected to lead to a faster expansion of employment. Growth rate accelerated but employment growth saw a deceleration. And most new jobs were located in the informal sector with low earnings and no social protection. Similar situation remained in the decade of 2000s. Table 2 (annexure) reveals that employment declined not only in the public sector but also in total organised sector. The employment in the public sector as well as in total organised sector was 194.15 and 281.13 lakhs respectively in 1999, which declined to 176.74 and 275.48 lakhs in 2008. This reflected the falseness of the rhetoric about the capabilities of the private sectors in providing the employment opportunities.

Unemployment rate is other indicator which reflects the process of marginalisation of the workforce. India has not changed much over the years. Unemployment rate (Measured as unemployed persons as percentage of labour force) tends to be increasing in the age of liberalisation. It was 5.99 per cent in 1995 and increased up to 9.8 per cent in 2011 (Table 3-annexure). This reflects the high magnitude of the employment problem in India. The declining opportunity in the organised sector is probably due to two major phenomena. First, the privatisation process resulted in a substantial dismissal of workers considered by the new owners to have been superfluous. Second, the opening of the economy gave an incentive to many sectors to install technologically more advanced equipment which was labour-saving in nature. In other words, declining employment opportunities in organized sector were not fully compensated by rise in employment opportunities in any of the much hyped sector.

Also notable is the performance of the investment to GDP ratio, which was not strong as was expected throughout the 2000s, increasing in the early 1990s, before declining slightly in the second half of the decade (Table 4-annexure). It can also be explained by the fact that Household Sector, public sector and Pvt. Corporate Sector exhibit the same tendency. The investment by the household sector continued to be the prime source of the gross fixed capital formation during the period. As the government had pulled out there had from the public sector, its share declined from 6.5 per cent in 2000-01 to 5.67 per cent in 2010-11. After receiving the huge benefits and tax concession, the share of the private corporate sector has not played the expected role. It has decreased in late 2000s after a marginal increase in the beginning of the decade. The first half of the 2000s saw a substantial increase in infrastructure in corporate sector in before a moderate fall-off between 2007-08 and 2010-11. It clearly shows that there is no dramatic increase in the investment/GDP ratio under the neoliberal regime which was one of the key objectives of it.

It was argued that financial liberalisation would serve the development needs of the country better than the previous regime did, by attracting large amounts of foreign capital into the economy. Even this argument, however, fails to draw a crucial distinction, namely between capital inflow that adds to the productive capacity of the economy, and capital inflow that does not. Foreign Direct Investment (FDI), and that too not all of it but only a part of it, genuinely adds to the productive capacity of the economy.

This is the FDI which locates production on our soil for meeting the global market or which produces goods essential for us but for which we lack the technology. But FDI which produces goods for the home market that only supplant what is being already produced does not add to our productive capacity: on the contrary it causes an implicit form of deindustrialisation. And all capital flows in the form of deposits or portfolio investments constitute short-term flows that are essentially speculative in nature which do not add directly to productive capacity. Financial liberalisation is undertaken in the name of attracting the first kind of capital inflow, but, for a variety of reasons, it scarcely succeeds in doing so. First of all, the total amount of all FDI inflows to the Third World (other than China which is in a separate category) is limited; secondly, even this limited amount is declining in the wake of the Global crises just like East Asian crisis; thirdly, productive, that is, non-reindustrialising capital inflows, are even more meager; and finally, all "liberalised" economies are chasing these meagre inflows. Under these circumstances, financial liberalisation scarcely gives a boost to productive capital inflows.

What it does, however, is to expose the economy to the vortex of speculative capital movements, that is, to the flows of short-term finance in search of quick profits. An economy open to global financial flows tends to get caught in the mire

of stagnation and lower social expenditures, both of which impinge adversely on the conditions of the poor. This is exactly what has happened in India. Despite the fact that financial liberalisation in India is still incomplete, the real interest rates in the post-liberalisation era are much higher than what prevailed earlier and this is one of the major factors accentuating the fiscal crisis and contributing to the cuts in public investment and social expenditure. The argument is often advanced that higher real interest rates encourage larger savings and hence make possible a larger investment ratio without causing higher rates of inflation. In post-liberalisation, however, the investment ratio has not increased compared to what prevailed earlier, even as the inflation rate on average is, if anything, higher rather than lower (Table 5-annexure). And yet the fiscal crisis has been aggravated, and public investment and social expenditures have been drastically cut, which only underscores the vacuity of the savings argument.

In addition to the country's growth problems, the neoliberal regime did not resolve India's traditional social problem, its distribution of income. It has been shown in the past that no matter what the policy regime is, the distributional problem has always haunted the country. The period since the neo-liberal economic reforms were introduced in India has been one of dramatically increased income inequality.

Table 6 (annexure), which shows the Gini indicators, is based on available household statistics. Wage inequality has driven more general income inequality in the country. India has got more unequal over the last two decades—India's Gini coefficient, the official measure of income inequality, has gone from 0.32 to 0.38, with 0 being the ideal score. Inequality in earnings has doubled in India over the last two decades, making it the worst performer on this count of all emerging economies. According to a new report on inequality by Organisation for Economic Cooperation and Development (OECD), the top 10 % of wage earners now make 12 times more than the bottom 10 %, up from a ratio of six in the 1990s. Moreover, wages are not smoothly spread out even through the middle of the distribution. The top 10 % of earners make almost five times more than the median 10 %, but this median 10 % makes just 0.4 times more than the bottom 10 %. There is evidence of growing concentration of wealth among the elite. The consumption of the top 20 % of households grew at almost 3 % per year in the 2000s as compared to 2 % in the 1990s, while the growth in consumption of the bottom 20 % of households remained unchanged at 1 % per year. This was particularly un-fortunate since India has continued to have one of the world's most uneven distributions of income.

It should also be noted (Table 7-annexure) that the percentage of the population considered to be poor has declined since the early 1993s. In particular, one observes a dramatic reduction in numbers of the poor between 1993 and 2009-10, the percentage of the poor dropping from 45.3 per cent to 29.8 per cent.

The all-India HCR (head-count ratio) has declined by 7.3 percentage points from 37.2 % in 2004-05 to 29.8 % in 2009-10, with rural poverty declining by 8.0 percentage points from 41.8 % to 33.8 % and urban poverty declining by 4.8 percentage points from 25.7 % to 20.9 %.

However, one must be very cautious in interpreting these data. Most significantly in this regard it is important to note that the data contained in table 7 are based on estimates of monetary income. This poverty line represents the extreme poverty “line of the famine”. The only reason for the above official result of ‘poverty declining’ is its steady lowering of the standard over a long period of time, since 1973-74. If the pass mark in a school is continuously lowered over a 40 year period – thus the lowering becomes substantial- then it is not surprising if the percentage of failures shows a fall, but it is quite wrong to claim improvement because to compare, the same standard must be applied. “What happens to poverty estimates if we use the true poverty lines at which the Planning Commission’s own nutrition standard is met? Table 8 (annexure) shows that the percentage of persons in poverty increased sharply after economic reforms started and 75/73 per cent of the rural/urban population was actually poor by 2009-10. This means that by making its incorrect estimates quoted above, the Planning Commission is currently excluding 41 % of the rural population and 52 % of the urban population, from the BPL category. The number of the actually poor who are being left out is about 500 million and far exceeds the number of those officially recognized as poor”.

What we produce, is not the same as the grain which is actually available to the people, because there can be exports or imports, and because there can be addition to public stocks or drawing down of stocks. Output adjusted for trade and change in stocks is called availability. In recent years even though per head output has been falling, per head availability has been falling even faster because there is export and addition to stocks. The table shows data from the Economic Survey, 2011-12. The Economic Survey is released by the Finance Ministry every year just before the Budget. These clearly show that that per capita availability per day was rising before economic reforms comparing the three year averages from 1977-79 to 1989-91. Exactly the opposite happened during the period of economic reforms and export thrust. The per capita availability fell during 1989-91 to 2007-09 reaching only 440 grams per day (Table 9-annexure). This is the actual consumption level of grain for all purposes.

All these show a very pity situation for the policy makers that after the twenty years of the liberalisation India’s one third population faces the extreme poverty.

Unfortunately for labour, and fortunately for capital, the benefits of productivity increase did not accrue to workers. A corollary of the decline in the share of wages in net value added was of course a rise in the share of profits. The years after 2001-02 saw the ratio of profit to net value added soared, from

just 24.2 per cent to a peak of 61.8 per cent in 2007-08. The driver of this remarkable boom in profits was a rise in the profit margin, or the ratio of profits to the value of output. Increases in profit shares have clearly been the result of the ability of capital to extract more profit from every unit of output. The question naturally arises as to the factors that explain the sudden and sharp rise in profit margins and shares in the periods after 2002. The answer is that in the name of economic reform, the government, through tax concessions, transfers of various kinds and sale of land and scarce assets to the private sector at extremely low prices, engineered this profit inflation. But to realise those profits the private sector needed a market to produce for. That market was delivered by a credit financed boom in private investment and consumption, which rode on the liquidity infused into the system by the foreign financial inflows attracted by the concessions that the reform offered.

The cautious view regarding the impact of the liberalisation on poverty is reinforced when one examines the results of the Human Development Index, which appear on an annual basis in the UNDP’s Human Development Report. It will be noted in Table 10 (annexure) that although the Human Development Index (HDI) for India improved from 1990 to 2010, it is still substantially below not only the advanced industrial countries but most of the large emerging economy as well. In addition, India’s ranking in the HDI was 134; far behind from all the BRICS countries.

### **Neoliberalism and Equity: An Evaluation**

We have shown that neoliberalism in India has consisted of a substantial increase in the openness of the economy to foreign trade and investment, a dramatic retreat of the state’s participation in the economy. All of this took place within the context of a successful stabilisation programme, bringing the rate of inflation down from a two digit to a lower one digit level. These developments closely conformed to the Washington Consensus policy prescriptions reviewed at the beginning of this paper.

The net results of these shifts in policy orientation were disappointing. First of all they are highly concentrated on the high rates of growth not on the real economic development that is more suitable for the country like India. Second, agriculture has become un-remunerative and is increasingly becoming unviable for the bulk of the peasantry. Third, higher growth of the economy induced by liberalisation was expected to lead to a faster expansion of employment but employment growth saw a deceleration with growth rate acceleration. Most new jobs were located in the informal sector with low earnings and no social protection. Forth, in post-liberalisation phase, however, the investment ratio has not increased compared to what prevailed earlier, even as the inflation rate on average is, if anything, higher rather than lower. Fifth, the distribution of income and other equity measures have not only worsened, but the process of income concentration has been increased.

Sixth, if we use the true poverty lines at which the Planning Commission's own nutrition standard is met then the percentage of persons in poverty increased sharply after economic reforms. Seventh, the per capita availability of nutrition fell during 1989-91 to 2007-09 reaching only 440 grams per day. Eight, the benefit of productivity increase under liberalisation did not accrue to workers but they are facing a corollary of the decline in the share of wages in net value added. Last but not least, India's ranking in the HDI that is still far behind from all the BRICS countries is enough to evaluate the slogans and chauvinistic ideas like "India Shining" and "India's Superpower Status".

Many people say that neoliberalism has no alternative. They may be right if their fears are that the interests sustaining the neoliberal system are too powerful. They claim neoliberalism will prevail because there are no viable alternatives. However,

they are quite wrong. There has been massive resistance to the liberalization, to which the state is responding in a most undemocratic manner. By making most of the political parties/groups equal as far as their adherence to neoliberalism is concerned, the liberalization has also created a situation where casteism and religious fundamentalism are made use of to divide the poor working class. The advocates of the neoliberalism and the policy makers of the current time India have to understand that control of society's resources by big business, unregulated growth, exploitation of labour and all segments of working class, income inequality and ecological devastation cannot be a sustainable way of development in the country like India. Sustainable development belongs to a way which imbibes the process of socially coordinated wealth creation, equality, solidarity, popular democracy and satisfaction of needs of the majority of the people.

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## Annexure

**Table 1: Real GDP and Component Growth Rates**

Indicators	India's Real GDP Growth Rates (Factor Cost)	Agriculture growth (%)	Industry growth (%)	Services growth (%)
1999-2000	6.04	0.5	4.6	9.5
2000-01	4.35	-0.2	6.4	5.7
2001-02	5.81	6.3	2.7	7.2
2002-03	3.84	-7.2	7.1	7.5
2003-04	8.52	10.0	7.4	8.5
2004-05	7.60	1.6	9.4	9.4
2005-06	9.49	5.1	9.7	10.9
2006-07	9.60	4.2	12.2	10.1
2007-08	9.30	5.8	9.7	10.3
2008-09	6.70	0.1	4.4	10.0

2009-10	8.40	1.0	8.4	10.5
2010-11	8.39	7.0	7.2	9.3
2011-12(AE)	6.88	2.5	3.9	9.4

Source: Data book for DCH; 10 April 2012

**Table 2: Estimates of Employment in Organised Public & Private Sectors**  
(in lakh Persons)

<b>Organised</b>			
Year	Public	Private	Total
1999	194.15	86.98	281.13
2000	193.14	86.46	279.60
2001	191.38	86.52	277.89
2002	187.73	84.32	272.06
2003	185.80	84.21	270.00
2004	181.97	82.46	264.43
2005	180.06	84.52	264.58
2006	181.88	88.05	269.93
2007	180.02	92.74	272.76
2008	176.74	98.75	275.48

Source: Economic Survey, various years.

**Table 3: Unemployment Rate**

Year	1995	2000	2005	2010	2011
Unemployment Rate	5.99	7.32	8.9	10.8	9.8

Source: Data book for DCH; 10 April 2012

**Table 4: Gross Fixed Capital Formation (% of GDP)**

Year	Total	Household Sector	Pvt. Corporate Sector	Public Sector
2000-01	22.5	10.4	5.6	6.5
2004-05	28.72	12.69	9.12	6.91
2005-06	29.30	10.78	11.46	7.06
2006-07	28.68	9.87	11.62	7.19
2007-08	28.69	8.95	12.78	6.96
2008-09	26.53	10.65	8.91	6.97
2009-10	24.48	9.26	8.87	6.35
2010-11	22.14	8.66	7.82	5.67

Source: Data book for DCH; 10 April 2012

**Table 5: Average Inflation Rate**

Year	Average Inflation Rate
2000-01	3.77
2001-02	4.31
2002-03	3.81
2003-04	3.77
2004-05	4.25
2005-06	5.79
2006-07	6.39
2007-08	8.32
2008-09	10.83
2009-10	12.11
2010-11	8.87
2011-12	9.01

Source: Data book for DCH; 10 April 2012



**Table 6: Levels of inequality in BRICS Nations**

Countries	Gini at disposable income	
	2008	1993
India	0.376	0.324
China	0.42	0.33
Russia	0.428	-
Brazil	0.548	0.605
South Africa	0.7	0.67

Source: <http://www.oecd.org/social/socialpoliciesanddata/49170475.pdf>

**Table 7: Percentage and Number of Poor Estimated by Expert Group 2009 (Tendulkar Methodology)**

	Poverty Ratio %		
	Rural	Urban	Total
1993-94	50.1	31.8	45.3
2004-05	41.8	25.7	37.2
2009-10	33.8	20.9	29.8
Annual Average Decline from 1993-94 to 2009-10			
2004-05 from 1993- 94 by Expert group 2009	0.75	0.55	0.74
2009-10 from 2004-05 by Expert group 2009	1.60	0.96	1.48

Source: Data book for DCH; 10 April 2012

**Table 8: Trends in the True Percentage of Persons in Poverty All India, 1973-4 to 2009-10**

	1973-74	1983-84	193-94	2004-05	2009-10
Percent of Persons below 2200 calories daily intake (Rural)	56.4	56	58.5	69.5	75
Percent of Persons below 2100 calories daily intake (Urban)	49.2	58.5	57	64.5	73

**Table 9: Cereals availability per head per day**

	1978	1980	1990	1995	2000	2005	2010
Gms. Per day	458	446	494	491	455	442	441

Source: Data from Ministry of Finance Govt. of India Economic Survey 2011-2012

**Table 10: HDI of the BRICS**

Countries	1990	1995	2000	2005	2011	Rank
India	0.410	0.437	0.461	0.504	0.547	134
China	0.490	0.541	0.588	0.633	0.687	101
Russia	-	0.675	0.691	0.725	0.755	66
Brazil	0.600	0.634	0.665	0.692	0.718	84
South Africa	0.615	0.644	0.616	0.599	0.619	123

## Food Security Act: One Step Forward, One Step Back?

Reetika Khera\*

### 1. Introduction

The National Food Security Bill (NFSB) was tabled in Parliament in December 2011 after nearly two years of deliberations. The Bill takes a "life-cycle approach" to food security: it aims to address the needs of individuals at different stages of their life, through a range of food schemes and cash transfers. These schemes include the Public Distribution System (PDS), Mid-Day Meal Scheme (MDM), Integrated Child Development Services (ICDS) and maternity entitlements, among others. The government's draft Bill in its current form will cost approximately Rs. 1,00,000 crores per year which is just over 1% of India's current GDP. This implies an increase of government food subsidy of Rs. 35,000 crores (from the current level of approximately Rs. 65,000). A substantial portion of the total cost of the Bill is on account of the Public Distribution System, which is one of the reasons that the PDS has received a lot of attention in the debates around the NFSB.

This short article focuses on PDS-related entitlements in the Bill. It also discusses two popular perceptions of, or "facts" about, the PDS. The first relates to targeting errors (i.e., the non-poor having "Below Poverty Line" (BPL) ration cards or the poor not having BPL cards) and the second to corruption in the PDS (i.e. that much of the grain meant for the poor does not reach them and instead ends up in the open market).

### 2. PDS Entitlements under the NFSB

The Bill, as tabled in Parliament, creates three categories of households for the purpose of the PDS - "excluded" households, "general" households and "priority" households. In rural areas, 25% will be excluded, 29% are to be classified as "general" and the remaining 46% as priority.<sup>1</sup> At one end of the spectrum are excluded households that will get nothing from the PDS and at the other end are priority households that would enjoy substantial entitlements (7kg/capita at Rs 3/2/1 per kg, depending on which cereal they get). Entitlements of the third category (general households) are conditional upon initiation of "PDS reforms" (as prescribed by the central government) and in any case are much less than priority households. Conditional on PDS reforms, individuals belonging to general households will be entitled to grain at 3kg/capita at half of the minimum support price.

In short, priority households (46% in rural areas and 28% in urban areas) are assured of substantial PDS entitlements under the current

version of the Bill. Another 29% and 22% of rural and urban households *may* be entitled to PDS grain, but they will get a lower quantity at a higher price. PDS entitlements in the Bill are thus, not very different from PDS entitlements as they exist (in terms of proportion of households covered, quantity and prices) today. For example, according to National Sample Survey data, 43% of rural households and 28% of urban households were buying PDS grain in 2009-10. Grain requirements mandated by the Bill are unlikely to increase as dramatically as has been made out in the media. If there is 100% offtake as per NFSB entitlements (for priority and general households), offtake will increase by approximately 25% from current levels. Further, as discussed below, PDS prices in many states are already at the levels (or even lower) prescribed in the Bill.

Apart from the fact that there is no significant change in terms of entitlements under the Bill, the framework raises one serious question regarding its implementation.<sup>2</sup> While the Bill includes a three-way division of households, the difficult question of how these households are to be identified has not been resolved.

The similarity in the PDS coverage and entitlements of BPL households and those of priority households leads one to conclude that not much other than nomenclature has changed. On the process of identifying and classifying households as "excluded", "general" or "priority" the Bill is silent. It is also silent on the share of priority households at the state level as well as how those households are to be identified. The Bill only says that the Central government "may prescribe the guidelines for identification" (Section 15(1)).

Reports, however, suggest that the identification will be based on the Socio-economic Caste Census (SECC) that is currently underway. Conceptually, the SECC is not very different from previous BPL censuses undertaken by the government in 1997 and 2002 to identify BPL households (on this see Drèze 2011c).

The misclassification of households through these BPL censuses is well-documented (see, for instance, Drèze 2011a and 2011b). According to NSS data for 2004-5, half of the poorest households (belonging to the bottom quintile of the monthly per capita expenditure distribution) did not have a BPL card (Drèze and Khera 2010). The discussion on "inclusion errors" (i.e., non-poor with access to the PDS) and "exclusion errors" (i.e., poor who are left out of the system), and the ensuing hardship for the poor is not new.

What is also well established is that the classification of households as APL or BPL (or, general and priority respectively) is a tricky issue. There are conceptual problems in this process (e.g.,

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<sup>1</sup> In urban areas, the proportions of excluded, general and priority households will be 50, 22 and 28 per cent respectively. For details of PDS entitlements, see Section 3 of the Bill.

<sup>2</sup> On the size of each of the three PDS categories, though not stated explicitly, it appears that these figures are linked to the poverty rate as estimated by the Tendulkar Committee. For instance, the figure of 46% for coverage of priority groups in rural areas is based on the Tendulkar Committee's estimate of 42% for rural poverty in 2004-5 with a small margin (10% of 42%) for targeting errors.

what criteria are used to identify poor households) and implementation errors (e.g., surveyors may not visit each household or households may misreport their information). Further, even if one is able to identify perfect indicators of poverty and implement the survey honestly, since people move in and out of poverty, there will always be problems in drawing up reliable BPL lists.

To summarize, the food security Bill does not significantly expand PDS coverage or entitlements (in terms of quantities or prices) at the national level. In some states, e.g., Tamil Nadu, Andhra Pradesh and Himachal Pradesh, it may lead to states being forced to cut back on current coverage or entitlements of some households. The Bill fails to get rid of the inevitable conundrum that results from trying to accurately identify "poor" households. It does not take on board the lessons from the past decade that food security and poverty are two separate issues and those previous attempts at identifying the poor have been disastrous. If the current framework is not modified, it is quite certain that the curse of targeting errors will remain. The current framework of the Bill, with respect to the PDS, needs to be revamped.

### 3. Corruption in the PDS

Corruption in the PDS has been a major concern for the past few years, and especially in the debates on the NFSB. Critics have pointed to the high rates of diversion - e.g., according to a Planning Commission estimate for 1997-2001, half of the PDS grain was diverted. Therefore, the critics suggest, the PDS cannot deliver food subsidies to the poor in a satisfactory manner. However, what the critics have failed to take on board is the performance of the PDS in more recent years, especially when we look at trends in diversion at the state level.

A field survey of the PDS in 2011 in nine states suggests that there has been an impressive revival in most states (see Khera 2011).<sup>3</sup> The survey included a careful accounting of purchases of PDS grain by BPL households in the sample. Respondents were asked three complementary questions to arrive at a reliable estimate of the extent to which they were able to secure their full entitlements: (1) how much they "normally" get from the PDS outlet; (2) how much they got the last time they bought PDS grain; and (3) how much they bought, month by month, from March to June 2011.

The purchase-entitlement ratio (PER) refers to the proportion of full entitlement that is purchased by BPL households.<sup>4</sup> One of the major findings of the survey is that as far as BPL and Antyodaya cardholders are concerned, there has been a marked improvement in the PER across states (see Table 1).<sup>5</sup>

<sup>3</sup> The survey covered over 1200 households entitled to PDS commodities. The nine states covered by the survey are Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Himachal Pradesh, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh.

<sup>4</sup> A low PER could be due to corruption in the system or lack of demand (possibly related to low quality of PDS grain).

<sup>5</sup> For instance, in a 2002 survey of 400 households in Rajasthan, I found that BPL households were buying only 12.6kg/month, 36%

Average purchase in the past three months, across states, ranged between 24.0 and 30.4kg/month (for BPL and Antyodaya cards respectively). The average PDS purchase in the past three months is 84% of the monthly entitlement (28.7kg/household per month), on average. Bihar is the only state in the survey where the PER of 45 percent, falls below 70 percent.

The improvement recorded in the PDS 2011 survey is also reflected, for some of the sample states, in NSS data for 2009-10. The states in which this revival is visible include earlier "basket cases" such as Chhattisgarh, Orissa and Jharkhand. For instance, diversion of grain (estimated by comparing NSS data with official offtake figures) in Chhattisgarh has declined from 52% in 2004-5 to 11% in 2009-10. Similarly, in Orissa estimated diversion has come down from 76% to 30% in the same period. Besides this are states where diversion rates have been low - e.g., less than 10% in states such as Tamil Nadu and Andhra Pradesh. However, overall the diversion rate remains unacceptably high (41%), with a decline of 13 percentage points since 2004-5.<sup>6</sup> The experience of many states in the past five years suggests that, though leaky, the pessimism regarding the PDS for delivering food subsidy is premature and unwarranted.<sup>7</sup> The next section discusses policy measures undertaken in various states that have contributed to its improved performance.

### 4. PDS Reforms<sup>8</sup>

The above-mentioned PDS Survey 2011 provided an opportunity to learn about state initiatives for improved implementation of the PDS. It is interesting to note that the bundle of "reform" measures that have contributed to the improvement across reviving states are largely similar. This short section focuses on these reforms. The PDS reforms can be broadly categorized under two heads: "demand-side" factors and "supply-side" measures.

#### *Demand-side factors*

Three important state-level policies have had the effect of enhancing voice and increasing the "pressure from below" on the system to deliver. These three policies are: one, a move towards a more inclusive PDS, two, a reduction in state PDS prices below the issue prices prescribed by the Centre, and three, the provision of a more diversified basket of food items through PDS outlets. All three have the effect of strengthening people's stake in the PDS.

of their 35kg quota. In the PDS survey 2011, the corresponding figure for the Rajasthan sample is 85-91%.

<sup>6</sup> On how the better performance recorded in the PDS 2011 Survey can be reconciled with the estimates from NSS data, see Drèze and Khera (2011). On caveats associated with this methodology, see Khera (2011a).

<sup>7</sup> Other sources also report an improvement in the performance of the PDS - see Widsoe (2012) for Bihar, Rai (2011) and Office of the Commissioners of the Supreme Court 2010 for Orissa and for Karnataka, see Nava Jeevana Mahila Okkoota and Public Affairs Foundation (2011).

<sup>8</sup> This section draws upon the material presented in Khera (2011b).

An encouraging trend observed in the survey states was one towards a much more inclusive (even universal, in some cases) PDS. Tamil Nadu has had a universal PDS for some time. Himachal Pradesh also has a universal PDS, albeit with a difference - APL households pay a higher price than BPL households, though the entitlements (in terms of commodities and quantities) of all households are the same. In Andhra Pradesh and Chhattisgarh, the system is "quasi-universal" with nearly 80% of the rural population entitled to PDS commodities.

This trend towards universalization of the PDS could be seen in other states too. In Orissa, the PDS has been nearly universalized in the hunger prone "KBK region" (originally the Kalahandi-Bolangir-Koraput Districts, now divided into smaller Districts).<sup>9</sup> Rajasthan, Bihar and Jharkhand have all expanded their BPL lists to include more rural households. Uttar Pradesh is the only exception among the nine sample states.

Expanded coverage has been made possible by using one (or both) of two measures: state governments pay for expanded coverage (e.g. in Andhra Pradesh, Chhattisgarh and Tamil Nadu) or central allocations to states are "spread thinner". The central government currently allocates 35kg for each BPL household (so long as state governments adhere to the Planning Commission's poverty estimates). While Chhattisgarh, Himachal Pradesh, Jharkhand and Uttar Pradesh still give 35kg per household per month, in other sample states household entitlements are lower than 35kg per month. Two states (Andhra Pradesh and Tamil Nadu) have moved to per capita entitlements (with an upper limit of 20kg/household per month), whereas in Bihar, Orissa and Rajasthan BPL households are entitled to 25kg per month.

The second measure that has had the effect of enhancing voice is a reduction in PDS prices. Six out of nine state governments have reduced PDS issue prices below the centrally fixed issue prices for BPL households - Rs. 4.65/kg for wheat and Rs. 6.15/kg for rice. In Tamil Nadu, the government provides 20kg of free grain; in Chhattisgarh, Rajasthan, Orissa and Andhra Pradesh, grain is provided at Rs. 2/kg; in Jharkhand the price is Re 1/kg (and free for Antyodaya households belonging to the "primitive tribal group" category). Meanwhile market prices have increased, so that there has been a sharp increase in the implicit subsidy from the PDS.

To illustrate, consider the case of Chhattisgarh, where BPL households are entitled to 35 kgs of rice at Rs 2/kg. The value of this monthly ration at local market prices, net of what people pay for it, is around Rs 600. This, in turn, is the equivalent of about 5 days of NREGA wages (without having to work!) every month, or 60 days per year. To put this in perspective, the sample

households in Chhattisgarh had worked for 25 days on NREGA in the preceding twelve months, on average. The PDS is doing more than twice as much as NREGA for them, and the two together now give them a very important protection from poverty and hunger.

A third positive trend observed in some states is the expansion of the list of commodities made available through the PDS to include more nutritious items. In Himachal Pradesh, all ration card holders (irrespective of whether they are APL or BPL) can buy at least one kg of dal and one kg of oil each month. Larger households can buy upto 3 kg of dal and 2 kg of edible oil. Andhra Pradesh and Tamil Nadu also provide dal and edible oil. In Uttar Pradesh, households reported intermittent supply of "*matar ki dal*" (split peas); in Rajasthan too, households reported getting dal and oil briefly during 2009-2010, when market prices suddenly jumped. There was an expectation among respondents that these would be re-introduced. The Chhattisgarh state government has introduced chana dal on a pilot basis in Bastar District.

#### *Supply-side measures*

State governments are not relying on "pressure from below" alone in their attempt to make the PDS work. Pro-active steps have also been taken to remedy supply-side issues. Five such measures are briefly discussed here: management of PDS outlets; door-step delivery of grain; use of Information Technology (IT); instituting and enforcing a schedule for the opening of PDS outlets; and rationalizing official PDS commissions. Each of these is explained below.

There have been several important changes in the policies for management of the FPSs. This includes, in some states, the handing over of FPSs to cooperative societies, Gram Panchayats, Self-Help Groups and other community institutions. This was especially visible in Chhattisgarh, Himachal Pradesh, Orissa and Tamil Nadu. In Chhattisgarh, Himachal Pradesh and Tamil Nadu cooperative societies dominated; Orissa has taken the lead in handing over management of FPSs to Gram Panchayats, followed by Chhattisgarh and Andhra Pradesh. In Bihar and Uttar Pradesh all shops were still run by private dealers. Private dealers were running most FPSs in Andhra Pradesh, Jharkhand and Rajasthan (between 67-75% of FPSs were managed by them). Andhra Pradesh is the only state in which the PDS works fairly well in spite of the involvement of private dealers on a large scale.

In cases where FPSs are run by cooperative societies, salesmen are appointed to run the FPS. As employees, the salesman receives a reasonable monthly salary (more than Rs. 4000 in both Chhattisgarh and Tamil Nadu). This is an important step towards reducing corrupt practices at the FPS.

One of the most significant initiatives to increase transparency in the PDS has been the computerization of records. This has several advantages. One, it helps to streamline the entire chain of distribution (from lifting to distribution at

<sup>9</sup> This was done by abolishing any differentiation of entitlements between APL and BPL households. An important caveat though is that many households in the KBK region do not have *any* (APL or BPL) ration card. According to some estimates nearly one-fifth of all households do not have any ration card, so the universalization of the PDS in the KBK region remains incomplete.

FPSs) and adopt more effective management practices (e.g., Chhattisgarh has been able to regularly update the list of cardholders in the state allowing them to weed out duplicates from the system). Two, it helps to maintain better records (e.g. accurate, consistent, and tamper-proof), even in real time in some cases. Three, the discipline of strict record-keeping makes corrupt practices more difficult.

However, the full potential of these computerized databases for reducing corruption and fostering transparency is yet to be realized. For instance, in Chhattisgarh and Tamil Nadu, details of purchases by each ration card holder are available in a computerized database. However this database has not been made public, as the NREGA MIS has been.<sup>10</sup> If these were publicly accessible, it would help to bring greater transparency to the system.

Another major change in policy has been the implementation of "door-step delivery" of grain to fair price shops. Much of the diversion of PDS grain is known to happen between the lifting of grain from FCI godowns and the FPSs. When PDS dealers are responsible for this step, the chances of diversion are high. In many sample states, the food department has started making transport arrangements to deliver PDS commodities to the FPS. Half of the FPSs reported door-step delivery (either through state transport or contractors). Wherever this has been implemented, the "purchase-entitlement ratios" are high. Another measure that has reduced the woes of FPS dealers is that commissions and transport reimbursements are adjusted at the time of depositing money for the grain. This reduces the risk of delays and harassment when private dealers try to recover their official commissions and transport reimbursements ex-post.

In the current system, the financial viability of Fair Price Shops depends on the volume of grain they handle and official commissions (Rs./quintal). In 1997, the number of ration cards handled by each FPS dealer shrank with the introduction of the targeted PDS. Low commissions combined with fewer cards made most FPSs financially unviable, a strong incentive (if not compulsion) to cheat.

In the past three years, barring Bihar, Jharkhand and Uttar Pradesh, official commissions that FPS managers earn from the sale of PDS commodities have been revised (increased). This has contributed to improving the viability of the FPS. Simultaneously, the number of BPL cards per FPS has also increased in Chhattisgarh, Orissa and Rajasthan, as the coverage of the PDS was expanded. These two measures (higher commissions and more ration cards), combined with earnings from the sale of empty gunny bags ("*boras*") after the grain has been sold, seem to reduce the pressure on FPS dealers to indulge in corrupt practices. They also

make it much easier to replace private dealers with collective management of FPS (e.g., by Gram Panchayats or Self-Help Groups), as many states have already done.

The fifth, simple but very effective step has been an attempt to enforce a predictable, pre-announced, reliable schedule for sale of PDS commodities through PDS outlets. Earlier, shops could open once in a few months and no one knew in advance when the shop would open. Further, the number of days for which the shop would remain open also varied from outlet-to-outlet and month-to-month. Since state governments have started adopting this measure, the poor find it much easier to plan and make their PDS purchases.

Besides these five important measures, improvement in the physical infrastructure for FPSs has also helped smoother functioning of these shops. Nearly 40% of FPSs in the sample had their own dedicated space. Another 30% were either housed in Gram Panchayat buildings or rented spaces. The proportion of shops located in private houses (e.g., of the private dealer) remains high - 25 percent. Most shops (71%) used weighing scales with standard weights (rather than using stones, etc.) and one-third even had electronic weighing machines. These basic facilities, especially separate buildings and standard weights, contribute to streamlining the running of the ration shop.

In Tamil Nadu and Chhattisgarh, there is (at least partially) a functional system of grievance redressal. This includes providing phone numbers - or helplines - for ration card holders to call in case of complaints. In Tamil Nadu, the phone numbers of concerned officials are painted outside each FPS. Local organizations in Chhattisgarh claimed that the helplines were effective and that complaints lodged there usually led to some effective action.

In the NFSB, there seems to be an attempt to come up with a straightjacket formula for "PDS reforms" (see Section 18(2) of the Bill). There is a danger that the formulaic approach adopted in the Bill may end up undermining the creativity visible at the state level in the past five years. States may feel compelled to undertake the reforms laid out in the Bill because entitlements of "general" households are subject to these reforms being undertaken. While the Bill must incorporate the lessons on PDS reforms from state governments, it must also allow flexibility to the states for further innovations to improve the PDS. On the one hand, the Bill makes it difficult to continue some of the reforms that have worked in many states (e.g., expansion of PDS coverage towards a more inclusive PDS) and on the other, it introduces and even prescribes measures that have not been tried on any substantial scale so far (Section 18 (2) (c) and Section 18 (2) (h) advocate the use of "adhaar" (a unique identification, UID) and cash transfers or food coupons "in lieu of their foodgrain entitlement"). In fact, in eight out of nine survey states in the PDS survey 2011, respondents articulated a range of concerns with the idea of cash in lieu of foodgrain (see Khera 2011 for further

<sup>10</sup> The official NREGA website ([www.nrega.nic.in](http://www.nrega.nic.in)) has a publicly accessible database which contains employment information for all job cardholders (including days of employment, wages earned, worksite employed on and so on). This makes it possible for people to verify their own records and that of others, apart from facilitating social audits.

details). Given these valid concerns, the (not-so-) subtle push towards cash transfers in the Bill also needs further debate.

The Bill is silent on other important reforms, e.g., decentralized procurement of grain by various states. This has been instrumental in enabling a move towards a more inclusive PDS. Decentralized procurement is desirable not only on account of possible cost saving (e.g., lower transportation costs), but also in order to encourage the procurement and supply of other, more nutritious, cereals through the PDS.

## 5. Conclusion

The proposed version of the National Food Security Bill does seem to be a case of one-step-forward, one-step-back with respect to PDS-related provisions: while many state governments are moving towards more a inclusive PDS, the Bill restricts coverage (at the national level), based on the Tendulkar Committee's poverty estimates. The Bill also creates a three-way division of the population (into "excluded", "general" and "priority" households) without a proper plan as to how households for each category are to be identified. There are ways to improve the current framework - e.g., by removing

the distinction between general and priority households and giving them the same entitlements, or by allowing states to do so (see Drèze 2012).

In an increasing number of states, the PDS plays an important role for the poor in terms of providing assured supply of foodgrains. It ensures that they do not sleep hungry. The PDS is a system that people are aware of and that has begun to deliver. PDS reforms initiated in recent years have been instrumental in making the PDS relevant for food security. These reforms are a direct consequence of greater political will at the state level.

The National Food Security Bill provides a significant opportunity to build on the positive momentum observed at the state level and to put in place an effective protection from hunger and under-nutrition. The PDS sections of the Bill require two major amendments. One, a simplification of the framework. The framework for the PDS, in its current form, is likely to result in large exclusion errors (i.e., exclusion of poor households). Two, rather than making a specific set of "PDS reforms" mandatory, these should be suggestive in nature so that states enjoy some flexibility to adapt to new developments. These two modifications can ensure that this opportunity is not wasted.

**Table 1: Foodgrain Purchases from the PDS (BPL Households)**

	Average purchase in March-May 2011 (kg/month)	Average entitlement (kg/month) <sup>a</sup>	Purchase-entitlement ratio (%)
Bihar	11.2	25	45
Jharkhand	24.9	35	71
Uttar Pradesh	30.7	40 <sup>b</sup>	77 <sup>b</sup>
Rajasthan	26.0	30 <sup>b</sup>	86 <sup>b</sup>
Himachal	37.1	40 <sup>b</sup>	92 <sup>b</sup>
Tamil Nadu	17.9	19.5	92
Chhattisgarh	33.3	35	95
Orissa	29.2	30 <sup>b</sup>	97 <sup>b</sup>
Andhra Pradesh	14.9	15.1	99
<b>All states</b>	<b>24.0</b>	<b>28.7</b>	<b>85</b>

<sup>a</sup> Entitlements of sample households, based on the state-specific norms applicable at that time.

<sup>b</sup> Including a temporary bonus of 5 kgs on account a recent Supreme Court Order. Since this bonus was, in fact, not always applicable, these entitlements are upper bounds, and the corresponding purchase-entitlement ratios are lower bounds.

Source: PDS Survey 2011, a survey of the PDS in nine states initiated by IIT-Delhi.

The survey covered two districts in each state, and a total of about 1200 households.

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## The Crisis of Neo-Liberalism and FDI Flows in India

Suvranshu Pan<sup>1</sup>

### Abstract

FDI flows in and from India is rising day-by-day. In the period of neo-liberalization, internal contradictions arising from the inability of the post-independence Indian state to introduce the institutional changes and adopt the interventions needed for successful import-substituting industrialization. Yet the transition to neo-liberalism occurred in accelerated fashion only after two decades. This paper would trace the lag to the timing of changes in the international financial system that was a prerequisite for liberalization. The transition occurred and gained momentum India emerged as a successful instance of neoliberal growth because of the foundations created in the import substituting years, the flows of FDI shows a cyclical trend and the human face which governments were forced to adopt given the compulsions of democracy in a populous country with significant poverty.

**Keywords:** Neo-liberalism, FDI Flows, Indian Economy

### I. Introduction

Neo-liberalism is the last such order, it is a class phenomenon, in which upper classes removed all limits to their power and income with disastrous consequences for popular classes and, finally, for the upper classes of the countries of the center themselves, whose economies stagnate and became unmanageable. Neoliberal globalization such as free trade, free capital movements, the globalization of financial mechanisms is the international component of neo-liberalism, but the difference must be made between this international aspect and the generalization of neo-liberalism, including its domestic components and policies, to all countries around the globe, all countries are involved within neoliberal globalization but not all have been subjected to the rules and methods of neo-liberalism.

The four crises created economic conditions conducive to change and, thus, separate three social orders. The question is obviously posed of a possible such new social order in the wake of the current crisis. By social orders, we mean power configurations in which upper classes, or fractions of upper classes, dominate social relationships, either in a strong position of hegemony or within forms of compromise. A central element is obviously the power of capitalist classes.

These include banks, pension funds, and the like, but also the IMF or rating agencies. When, in the rest of this study, we refer to Finance, we mean this agent in history, with its class and institutional components.

In the early 20<sup>th</sup> century the first social order can be described as a financial hegemony. A degree of compromise existed between capitalists and the emerging managerial class, but the leadership of finance was well established. The Great Depression destabilized this first power configuration. This happened in the context of a strong worker movement, in the United States and Europe, and in the world. Capitalist classes were under threat. Their hegemony had already been hit by the victory of the Bolsheviks in Russia. It was further shaken in the New Deal in the United States, the Popular Front in France. To these, one must add the quite specific configurations of Fascism and Nazism in Europe, and militarism in Japan. After World War II, a new balance of powers was found in the world, with the integration of Eastern Europe into the soviet block and the victory of communist forces in China, but also the establishment of the so-called free world in Europe and Japan, under the leadership of the United States. Within this part of the world, a social compromise was found, with particular features in various countries, in which the private property of the means of production was preserved despite, sometimes, massive nationalization. But the power and income of Finance was dramatically diminished. In the postwar compromise, managers of the private and government sectors enjoyed a larger degree of autonomy in the organization of the economy. Given the improved conditions of technical-organizational change resulting from the managerial revolution, the pressure of popular classes gave its favorable features to the period. The purchasing power of wage earners increased, new progress of welfare systems occurred and considerable advances in terms of education and research were realized. This new social order was the expression of a social compromise between popular classes and managerial classes, which can be described as social democratic or Keynesian.

During the 1970s, the third structural crisis created the economic conditions for the political defeat of popular classes, and allowed capitalist classes to regain their earlier hegemony in neo-liberalism, notably to regain the control of financial institutions. The management of corporation was reoriented toward the creation of value for shareholders; policies were defined to limit inflation and establish high real interest rates to the benefit of lenders; trade borders were lifted; the free international movements of capital were guaranteed. Due to these latter two aspects, all workers in the world were placed in a situation of competition, the strongest tool in the reversal of the conquests of the postwar social order (Figure 1).

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**Figure 1: New York Stock Exchange Indices Corrected for Inflation**

(max = 100): Composite Index and Financial



## II. Five Views on the Effect of Capital Mobility on Economic Performance

We identify five views of the likely effect of MNCs and FDI on the trajectory of the world economy. We label these views a) The Race to the Bottom, b) The Climb to the Top, c) Neo-liberal Convergence, d) Uneven Development, and e) Much Ado about Nothing.

- a) According to ‘The Race to the Bottom’ view (*Barnet and Cavanagh, 1994; Greider, 1997; Pan, 2009; 2011; 2012*), capital will increasingly be able to play workers, communities and nations off against one another, threatening to run away if demands for tax, regulatory and wage concessions are not forthcoming. In this perspective, increased capital mobility benefits corporations, while workers and communities lose. A modified version of this view is that the winners in the race to the bottom will include highly educated and skilled workers and those in privileged professions, no matter where they live. The losers will be the less skilled and the unemployed everywhere.
- b) ‘The Climb to the Top’ view takes the opposite position. It suggests that multinational corporations are attracted less by low wages and taxes than by highly educated workers, good infrastructure, and high levels of demand and agglomeration effects arising from the clustering of companies in a particular location. According to this view, competition for FDI will lead countries in both the North and the South to try to provide well educated

labor and high quality infrastructure in order to retain and attract foreign investment (*Pan, 2007; 2008*). Thus footloose capital and national competition for FDI will induce a global climb to the top.

- c) This climb to the top could lead to the outcome represented by ‘Neo-liberal Convergence’. This is the widely held mainstream belief that free mobility of multinational corporations, in the context of deregulation and free trade, will produce increased living standards in all countries. This process will, moreover, transfer capital and technology from North to South, thereby raising the standards of living of those in the poorer countries at a faster rate than those in the wealthier ones, eventually generating a world wide convergence in living standards.
- d) These same processes could, however, lead to the outcome envisaged in the fourth view, ‘Uneven Development’. ‘Uneven Development’ holds that some regions of the world will grow at the expense of others. For decades the dominant version of this view was the theory of imperialism: if the South integrated itself with the North, the North would grow at the expense of the South. Now, the reverse fear holds: by forcing Northern workers to compete with cheap Southern labor, an integrated world economy will help the South grow at the expense of the North.
- e) The previous four views take for granted that FDI and MNCs have a substantial effect on national economies. In contrast, the ‘Much Ado about Nothing’ view (*Krugman and Lawrence, 1994; Gordon, 1988; Pan, 2012*) asserts that FDI and MNCs play a rather modest role in global economics. Adherents argue that FDI is still a relatively small percentage of national income and most of it is between rich countries; thus, FDI can generate neither convergence nor a race to the bottom.

To find out the best among above five, we cannot provide a complete answer, nor, we suggest, can anyone else, given the current state of knowledge. We argue that foreign direct investment is neither inherently good nor bad; its effects are conditioned by the overall national and international context within which capital mobility occurs. When FDI occurs in the context of high aggregate demand and tight labor markets, effective regulatory institutions, and non-destructive competitive processes, it may indeed have a positive impact on nations and communities. Absent these conditions, FDI can have destructive economic and political consequences on both home and host countries.

During the 1960's in the US, outward FDI was of roughly the same order of magnitude relative to the

size of the economy as in the 1990's. In the high employment, high growth era of the 1960's, FDI was more likely to increase exports from domestic companies, rather than substitute for them (*Pan and Sen, 2004; 2007*). But even when FDI led to domestic plant shutdowns, equivalent replacement jobs were much easier to find for workers and communities. As a result, the threat to run away did little to lower wages or shrinks the tax base. By contrast, in the 1990's, with a chronic shortage of good jobs, government budgetary problems, and emaciated unions, workers and governments are much more likely to be adversely affected by capital flight and its threat.

It is believed that within the structures of the current neoliberal global economic regime increased capital mobility is contributing to a race-to-the-bottom tendency. Within the neoliberal regime, there are strong secular forces which destroy the preconditions required for FDI to benefit workers and communities. These forces arise from key components of the neoliberal regime such as financial liberalization, privatization, increased labor market flexibility, trade and investment liberalization, and austerity macro policy.

To be sure, at this point both capital mobility and the neoliberal model or Washington consensus have spread themselves unevenly around the globe. But as the NLR strengthens, negative effects of FDI and capital mobility will spread to more countries and communities, as the recent Asian crisis makes clear. So while our view is relevant to the explanation of current phenomena, it is, perhaps, more important as a cautionary tale about the future.

### **III. Crisis of FDI Flows in India**

India has one of the most liberal policy frameworks for foreign direct investment (FDI) and foreign technology transfer. FDI up to 100% is permitted on the automatic route in most sectors. Entry under automatic route only requires post-entry notification and no prior approval. It has been the continuous effort of the Government to simplify the procedures for filing of the application for various approvals. Even the forms required for various purposes are also simplified and are available in downloadable format on the web site of the Department. Most of the policies and procedures governing FDI in India are also available on the web site of the Department.

FDI has been recognized as one of the important drivers of the economic growth of our country. Government has, therefore, been making all efforts to invite and facilitate FDI and investment from Non Resident (which also includes PIOs) including Overseas Corporate Bodies to complement and supplement domestic investment. To make India globally competitive destination for FDI, investments

and returns on them have been made freely repatriable with certain exceptions (*Pan, 2012*).

RBI has granted general permission under FEMA in respect of proposals approved by the Government. Indian companies getting foreign investment approval through FIPB route do not require any further clearance from RBI for the purpose of receiving inward remittance and issue of shares to the foreign investors. Such companies are, however, required to notify the Regional Office concerned of the RBI of receipt of inward remittances within 30 days of such receipt and to file the required documents with the concerned Regional Offices of the RBI within 30 days after issue of shares to the foreign investors.

India is a federal country consisting of States and Union Territories. States are also partners in the economic reforms being undertaken in the country. Most of the States are making serious efforts for simplifying the rules and procedures for setting up and operating the industrial units. Single Window System is now in existence in most of the States for granting approval for setting up industrial units. Moreover, with a view to attract foreign investors in their states, many of them are offering incentive packages in the form of various tax concessions, capital and interest subsidies, reduced power tariff, etc.

FDI refers to the flow of capital across national boundaries, as private sector companies invest in a foreign country in order to provide goods and services. The FDI flows have increased dramatically in recent years, outstripping the growth of international trade. Since the mid-1980s, FDI has grown at a rate four times higher than that of world GNP (*Hansen, 1998*). In 2011, world FDI outflows reached a record level of \$649 billion, growing by 37 per cent that year, the highest growth rate attained since 1987. On average, virtually all of the increase in FDI in 2011 was concentrated in developed countries. FDI flows to and from developed countries reached new levels, of \$460 billion and \$595 billion respectively (representing increases over 2001 of 68 per cent and 46 per cent respectively). In developing countries, inward FDI flows decreased slightly, from \$173 billion in 2001 to \$166 billion in 2011, a decline of 4 per cent. Flows to the economies in transition of Central and Eastern Europe (CEE) remained almost stable, at close to \$19 billion, although the Russian Federation saw a sharp decline. The 48 least developed countries (LDCs) continued to attract less than \$3 billion, accounting for 1.8 per cent of flows to all developing countries and 0.5 per cent of world FDI flows (*Pan, 2012; UNCTAD, 2012*).

The main share of FDI flows takes place between developed countries, but it is also an important factor for developing countries. The slight decrease in FDI flows into developing countries in 2011 should not

conceal the fact that FDI is a part of overall financial flows to these economies and that it has become increasingly important in recent years. This becomes clear by looking at the financial flows to developing countries in the 1990s and 2000s. Between 1991 and 2011 overall financial flows to developing countries increased from \$120 billion to \$275 billion. Besides FDI, these financial flows also included bank loans, portfolio investments and official aid. During the 1990s official aid decreased in both absolute and relative terms. Bank loans and portfolio investments increased until 2001, but decreased in 2011 – so did FDI, but the 2011 decrease in FDI was comparatively moderate. Altogether, the share of FDI in overall financial flows to developing countries increased from barely 27 per cent in 1991 to 56 per cent in 2011 (Pan, 2012).

FDI is driven by market liberalization that enables TNCs to seek globally new outlets for their products and services and to exploit competitive advantages relating to production cost differentials, access to labour, technologies and natural resources. For many governments, especially in developing countries, the ability to attract FDI is critical to economic growth and development strategies and to political success. Investment by TNCs brings not only foreign currency, but also employment growth, potential transfer of technologies and technical expertise, increased efficiency and competitiveness and managerial skills. Potentially, FDI can also introduce cleaner technologies, facilitating the technological leapfrogging that might contribute to sustainable development. However, TNCs are driven primarily by the need to meet shareholder expectations, especially for investment returns. Their objective is to maximize their competitive advantage and the financial benefits of their investment incurring the least possible cost and business risk.

The debate on the environmental consequences of FDI is one of the central issues in the wider discussion about globalization and sustainable development and has been very heated. Some commentators are concerned those countries will lower environmental standards to attract FDI, creating so-called pollution havens, and that a race to the bottom will ensue as countries compete with each other for FDI by continually reducing their environmental standards. Others argue that foreign investment brings more environmentally friendly technologies. In this view, FDI is the best way to disseminate new and cleaner technologies. Moreover, a slow but steady increase in environmental standards might result. There is also the argument that poverty is the main cause of environmental degradation and that increased economic wealth will therefore enable countries to afford better environmental protection, and that with rising income

levels consumer expectations for more environmentally friendly products will also grow.

#### **IV. Perceptions and Reality of Crisis for India**

One of the prime drivers of an international investment decision is the investor's perception of the country risk involved. Risk in the context of investment means in common parlance, the uncertainty of return. By its very nature country risk is measured not in absolute terms but more in terms of a comparison between potential investment destinations. India risk denotes perception of the outside world about India – and such perception may be different from our domestic understanding of what we believe to be the reality! Different political and economic systems of international markets impart varying degrees of risk and reward. Risks to international investment projects are mostly posed by political events. Violent political conflict can have profound negative effects on foreign direct investment. Unstable governments that cannot take strong decisions, corruption, inconsistent institutional reforms and shifts in public policy have a major adverse influence on investment environment.

Government policy can have an enormous impact on investment activities and investment value. By taxation, regulation, enforcement, litigation, publicity and even the threat of action, a government erects or lowers barriers, imposes or relaxes costs, dictates or ratifies standards, relieves or imposes risks of liability and thereby furthers or impedes the course of an investment initiative. This can affect the future cash flows of a project in that country in a variety of ways. Thus political developments affect the life and the terminal value of foreign investment.

##### **IV.I. The International Perception of India's Crisis:**

A look at some snapshots of recent surveys reveals that political stability, bureaucratic hurdles and the legal environment are the key detriments in international perception about India.

a) **Political instability:** Based on their poll of a panel of expatriate business executives on their perceptions of the political and economic risk of the Asian countries, Hong Kong based Political and Economic Risk Consultancy has rated India 8.22 on a scale of zero to 10, with 10 the worst possible grade. India is perceived as the most vulnerable country in Asia in terms of external threat, while Australia, Hong Kong, Malaysia, China and Vietnam are perceived to be the least exposed. The factors considered are regional security, direct military threat, diplomatic relations with neighbours, fallout from political instability in neighbouring countries, and relations with major trading partners. In fact, the very success of democracy itself spells a perceived risk in India.

Consider the hindrances, the politically motivated protests and the Public Interest Litigations. Not all the political hurdles to privatisation have yet been crossed. Apart from populism, there is an increasing sense of lawlessness that the political institutions seem not only incapable but also unwilling to contain. At a fundamental level, these political and democratic institutions have failed to provide a fair environment and efficient systemic protection to basic human rights when we look at the horrific events in Gujarat. Significantly foreign investors may well see Gujarat not as an aberration but as a confirmation of fears that have helped keep foreign investment in India at relatively low levels.

b) **Bureaucratic hurdles:** The Political and Economic Risk Consultancy also highlighted how the human and regulatory dimensions of Asian bureaucracy posed major frustrations. Investors dislike systems with a multitude of rules, where decisions are open to interpretation by different authorities. Several Asian countries such as China, India, Indonesia and Vietnam fall into this category. Taiwan, Korea and Malaysia pose bureaucratic hurdles as well. India has been placed at the bottom of the pile. When considered together with other investment obstacles that have an impact on the regulatory environment - including slowdown of the reform process, excessive government involvement in the economy and corruption – the FDI confidence audit results suggest that India's regulatory environment is perceived to be the main obstacle for FDI in the country. The World Bank's *World Business Environment Survey* finds that in India managements spend as much as 16 per cent of their time for dealing with government officials. In terms of government efficiency, India has slipped rather drastically from 37 in 2011 to 44 this year. India is in the bottom class in terms of assessment on public finance, the institutional framework, business legislation and education, all areas that involve government intervention.

c) **Legal environment and judicial system:** Responses in the AT Kearney FDI Audit reflect a perception of uncertainty due to protracted nature of legal disputes. Whilst our judicial process is considered to be somewhat slow, it is a matter of pride that the fairness of the judiciary is beyond reproach and any perception of national bias is absent.

Foreign investors have little or no control over regulatory and political events, which can adversely affect the commercial viability of their investments and future business plans in India. These may include political instability leading to

delays in decision making; adverse changes or unpredictability on policy issues; bureaucratic inefficiency and corruption; disruption of normal business due to social and political unrest; or dilating judicial and dispute resolution processes. The total outstanding foreign investment in the country has been declined by three per cent over the past few years. This was mainly due to gradual withdrawal of foreign companies from power and other infrastructure projects. Lacunae such as the lack of independent regulators or even dispute settlement mechanisms in existing legal framework have constrained commercialization of infrastructure. Two highly visible cases of governance failure have been in the electricity and financial sectors, resulting in an adverse climate for reforms.

While our legal system and an independent and fair judiciary has for long been one of our hallmarks, systemic delays in judicial process for dispute resolutions have led to some not unexpected results. Absent means of expeditious legal remedies to enforce rights behavioral modes and culture develop where there is no respect for law as the retribution is too late and in the context too little. A market economy requires a cultural infrastructure of norms – mere laws alone are not adequate. An efficient justice delivery system can provide powerful impetus to creating an environment of business behavior, which respects legal obligations.

#### **IV.II. Risk Mitigation:**

Foreign investors view India as a very attractive destination in terms of the huge opportunities that this market (product as well as factor market) offers. But, they will hold back till their key fears are addressed in the areas of political instability, bureaucratic inefficiency and ambiguity in regulations are mitigated and there is a clear movement towards greater reliance on market mechanisms for resource allocation.

The most desirable duty that the government can perform is to put in place policies that reduce risks, increase returns and ensure safety of investments. The government can improve private investors' ability to forecast and plan for his investments and thus reduce perceived riskiness of projects by making relevant public information available. By encouraging competition, there can be a reduction in political pressure on governments to intervene in markets. In instances where monopolies may still be unavoidable, government can reduce risk by establishing laws and regulations that protect property rights and by enforcing them in a fair and consistent manner.

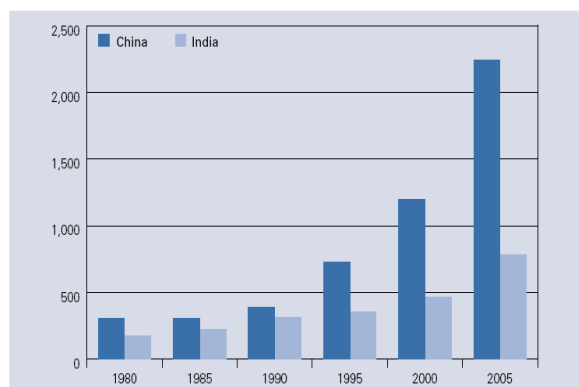
There is a need to establish expert regulatory agencies that have a significant degree of independence

from the rest of the government and are thus somewhat insulated from popular pressure to keep prices below costs. Moreover, strengthening the judicial system to ensure timely and efficient resolution of disputes must be achieved by introducing procedural changes expedite litigations, appointing special Judges to deal with infrastructure related disputes, sensitizing the judiciary to the economic and social costs of delays in infrastructure projects. In particular, there is a clear need for designing and writing better contracts, bringing clearer and transparent rules, besides the critical but often neglected need to avoid internal contradictions in policy and laws.

## V. Emerging Market Economies

The term emerging economy is defined as a country with income per head of population of \$9,265 or less. With this definition the big and small size countries are included. And these are typically economies in transition, moving from a closed to an open economy, as they seek to integrate into the world economy. The emerging market economies are characterized as transitional, which means that they are in the process of moving from a closed to an open market economy. The adoption of these policies will suppose to lead to a better economic performance levels, as well as transparency and efficiency in the capital market. It also involves reform in exchange rate system because a stable local currency builds confidence in an economy, especially when foreigners are considering investing. Moreover, foreign investment is seen as a signal that the world has begun to take notice of the emerging market, and when international capital flows are directed toward an EME, the injection of foreign currency into the local economy adds volume to the country's stock market.

**Figure II: China and India's Gross Domestic Product Growth**



Source: IMF World Economic Outlook

According to proponents, for foreign investors the EME provides an outlet for expansion by serving, for example, as new sources of revenue. For the poor countries the employment levels will increase, labour and managerial skills will become more refined. It is claimed that in the long-run, the EME's overall production levels would increase, increasing its GDP and eventually lessening the gap between the developed and developing worlds. China adopted neoliberal economic policies in the 1978, while India adopted much later i.e. in 1991. Therefore, both economies are known as emerging market economies because both prior to economic reforms have had closed and centrally planned economies (Figure II).

## V.I. Neo-liberalism: The Dead End:

Three broad categories of policies can be distinguished, schematically: (1) the policies of the Right, combining the fight against inflation and against government deficits; (2) traditional Keynesian demand policies to boost the macro economy and employment, to which one can add an active industrial policy; and (3) anti-neoliberal policies adding to the previous a strong financial regulation, as new New Deal, the taxation of high incomes, a degree of protectionism and significant limitations to the international mobility of capitals (a 'New Bretton Woods').

i) *Neoliberal Policies*. There is no way out along the rules of neo-liberalism and preserving all the advantages conquered by upper classes. If the present turn to the Right in the United States is prolonged, it will have very damaging economic and social consequences. This turn was first manifest in the lost majority of the Democrats during the midterm election in 2010. How long and how far the United States will maintain such directions remains undetermined. The situation is not better in Europe. The most advanced countries of the euro zone (under the leadership of the famous Merkel-Sarkozy duet) are playing the same dangerous game with countries facing extreme situations as with the popular classes of their own countries, using the circumstances of the crisis to push forward the conquest of neo-liberalism. There will, obviously, be economic sanctions to neoliberal mechanisms and policies. Adjustment programs, reminiscent of the treatment of the crises of the 1990s, and the so called policies of austerity, as in Europe, will only lead to a new fall of the macro economies. The overall structure typical of neoliberal financialization and globalization is still fraught with the same fragility. As of August 2011, each new threat sparks a new collapse of financial markets, itself adding to the ongoing turmoil. This is true within countries of the center, but the peripheries, now well engaged into neoliberal financial globalization, are not insulated. The same lack or misdirection of global governance,

notably expressed in the limited means and neoliberal bias of the action of institutions such as the IMF, prohibits any forms of treatment of the global situation from above.

ii) *Keynesian Demand Policies*. The policies conducted in the treatment of the first episode of the crisis, of which government deficits are a crucial element, were quite efficient to support the macro economies. But the present crisis of sovereign debts demonstrates that they are presently reaching their limits. Along such lines, there would be no other options than the further expansion of deficits. The point is not that these policies are misdirected, but that they are incomplete.

iii) *Beyond Neo-liberalism*. It is particularly clear in the United States, that deficit or industrial policies will not be sufficient to remedy the situation if they are not paralleled by a strong intervention from the government and, more generally, central institutions. The reterritorialization of production, notably manufacturing, is impossible in the absence of serious limitations to neoliberal globalization, free trade and the free movements of capitals. As is well known, the consciousness of the threat is growing despite the mass propaganda of the Republicans in the United States. The right turn has been repeatedly criticized by *Paul Krugman*, who judges it reminiscent of the policies followed in 1937 that provoked a new contraction of output in the United States. One can also cite the diagnosis of the Boston Consulting Group, a major firm advising business.

## **V.II. The Political Economy and Ideology of Neo-liberalism:**

The impact of neo-liberalism on India's neighbourhood policy is central to my research and, at one level; the ILA can be seen as an outcome of its neoliberal project. Neo-liberalism is both a political economy approach and a political ideology. It denotes a relationship between the state and the market, where primacy is given to the market (*Gamble, 2006*). Nevertheless, the neoliberal objective of institutionalizing the values of the market has a political agenda (*Robison, 2006*).

Neo-liberalism emerged in the 1970s both as an ideology and as a policy response to a specific crisis in western capitalism which resulted in the disintegration of the welfare state and its accompanying Keynesian ideology, and which led to the ascendance of a free market ideology influenced by neoclassical economics. The harsher, laissez faire version of neo-liberalism that emerged in the late-1970s/1980s, called for market forces totally unfettered by state control, and was replaced in the 1990s by a softer version. The latter acknowledged a significant role for the state in creating and sustaining institutions that were considered necessary for the free market to reach its full potential. When India started its reform process in 1991, the

softer version of neo-liberalism, legitimising a range of state interventions, was already in place. Neo-liberalism became closely associated with the global policy agenda set by IFIs and it was aggressively prescribed for developing countries as the template of the whole world (*Gamble, 2006*). It has remained the hegemonic ideology.

Neo-liberalism's key contradiction is that it demands that both the economy and the state should be simultaneously strong. It therefore incorporates within it an unprecedented convergence of the market and politics. It has in many instances, consolidated authoritarian or populist politics and predatory economic relationships in developing countries. For *Gilpin (1986)*, a liberal international economy rests on three elements that constitute its political framework. They are a dominant liberal hegemonic power; a set of common economic, political and security interests that help bind liberal states together; and a shared ideological commitment to liberal values. With neoliberal ascendancy in India, all three elements gradually become available in the Indo-Lanka relationship, although not in the whole of South Asia. India's neoliberal project transformed its regional hegemonic role from coercer/aggressor to a more liberal hegemon. The ILA was introduced when India was gradually transforming into a liberal hegemon. A hegemon is a leader who uses its power, influence and economic/political resources to promote and maintain a liberal trade regime and a stable international system primarily to advance its own political and economic interests. The leader seldom coerces the weaker states within its sphere of influence to obey the rules, it seeks cooperation. Weaker states cooperate with the hegemon because it is in their economic and security interests to do so. The hegemonic power therefore organises its economic space in terms of its own economic and security interests (*Gilpin, 2002*).

## **VI. Conclusion**

India's rising growth trajectory requires rapidly expanding infrastructure facilities to support it. The Government recognizes the fact that domestic resources alone may not be adequate to sustain the required expansion in infrastructure. Thus, it has followed a strategy to create incentives for FDI. India, today, has an extremely liberal regime for FDI in terms of entry norms. International experience shows that there can potentially be a number of other barriers to the willingness to invest in infrastructure projects. The Government has taken systematic initiatives to address these problems largely through comprehensive reforms in sectors like power and telecommunications. The combination of domestic private foreign investment and multilateral investments is likely to propel India's economic growth momentum in future.

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**‘भारतीय अर्थव्यवस्था में शिक्षा का बाज़ारीकरण: एक मूल्यांकन, उच्च एवं तकनीकी शिक्षा के विशेष संदर्भ में’**

**अभय नारायण राय<sup>1</sup>  
मनमोहन कृष्ण<sup>2</sup>**

<b>अमेरिका</b>							
<b>यूरोप</b>	2.2	10.3	17.3	22.1	25.2	40.9	44.7
<b>उत्तरी अमेरिका</b>	7.2	28.9	45.4	54.3	63.8	68.1	70.2

**अमुक (Abstract)**

वर्तमान वैश्वीकरण के दौर में भारत सरकार अधिकांश आर्थिक क्रिया-कलापों को बाज़ार शक्तियों पर छोड़ती जा रही है। इसके पीछे तर्क यह है कि इनके कार्यकुशलता व गुणवत्ता में वृद्धि होगी। साथ ही इनके निजीकरण से निजी निवेश तेजी से बढ़ेगा और इनमें अभूतपूर्व परिमाणगत वृद्धि होगी। इससे राष्ट्र तीव्र सतत एवं समावेशी विकास के अपने लक्ष्य को सहजता से प्राप्त कर लेगा।

इस क्रम में भारत सरकार द्वारा शिक्षा, विशेषकर उच्च एवं तकनीकी शिक्षा के बाज़ारीकरण पर भी बल दिया जा रहा है। इसमें न केवल घरेलू निजी संस्थान बल्कि विश्व व्यापार संगठन के अन्तर्गत सेवाओं के व्यापार पर सामान्य समझौते- गैट्स के तहत विदेशी निजी संस्थानों को भी आने की अनुमति दी जा रही है। ऐसे में, यह प्रश्न उठना स्वाभाविक है कि शिक्षा जैसा महत्वपूर्ण एवं संवेदनशील क्षेत्र का बाज़ारीकरण राष्ट्र के लिए कितना उपादेय होगा? क्या शिक्षा के बाज़ारीकरण से राष्ट्रीय शिक्षा के लक्ष्यों – मानवशक्ति का अनुकूलतम उपयोग, क्षमता निर्माण व सामाजिक न्याय की प्राप्ति संभव हो सकेगी।

उल्लेखनीय है कि शिक्षा राष्ट्रीय मूल्यों, विश्वास, सभ्यता और संस्कृति को बनाये रखने और उन्हें निरन्तर आगे बढ़ाने का महत्वपूर्ण स्रोत होती है। यह शिक्षा ही है जिसके माध्यम से बच्चे इतिहास, भूगोल एवं राष्ट्र की अन्य मौलिक विशेषताओं के प्रति जागरूक बन पाते हैं जिससे उनमें राष्ट्रीय गर्व की भावना का विकास होता है। ऐसे में, बाज़ारीकरण/निजीकरण के बाद जबकि विदेशी संस्थाएँ भी इस क्षेत्र में आ जाएंगी क्या इन मूल्यों को बनाये रखा जा सकेगा? प्रस्तुत लेख इन्हीं सन्दर्भों में शिक्षा के बाज़ारीकरण का मूल्यांकन करता है, जिसमें वर्तमान शिक्षा व्यवस्था की समस्याओं पर भी विचार किया गया है तथा इस सन्दर्भ में कुछ महत्वपूर्ण सुझाव दिये गये हैं।

सूचना क्रांति के इस दौर में शिक्षा किसी भी देश के आर्थिक विकास की धुरी बन चुकी है। इसमें भी उच्च एवं तकनीकी शिक्षा विशेष रूप से महत्वपूर्ण हो गयी है। भारत जैसे विकासशील देशों के लिए तो अपने दीर्घकालिक विकास को सुनिश्चित करने हेतु उच्च एवं तकनीकी शिक्षा को बढ़ावा देना अनिवार्यता बन चुकी है। अभी तक के आनुभविक अध्ययन इस अनिवार्यता की पुष्टि करते हैं। आज विश्व के जिन राष्ट्रों ने विकसित होने का गौरव प्राप्त किया है उनमें उच्च एवं तकनीकी शिक्षा का स्तर काफी ऊँचा है। इनमें से कई राष्ट्रों ने तो प्राकृतिक संसाधनों की दृष्टि से विपन्न होने के बावजूद भी मानव पूँजी व तकनीकी प्रगति के बल पर ही आर्थिक विकास के उच्च स्तर को हासिल किया है, जैसे- जापान एवं सिंगापुर। इसके विपरीत अधिकांश लातिनी अमरीकी, अफ्रीकी, एशियाई एवं खाड़ी के देशों में प्राकृतिक एवं मानवीय संसाधनों की प्रचुरता के बावजूद उच्च एवं तकनीकी शिक्षा का स्तर निम्न होने के कारण आर्थिक विकास का निम्न स्तर बना हुआ है। यहाँ यह भी उल्लेखनीय है कि कुछ राष्ट्रों (यथा- फिलीपीन्स, कुवैत, वेनेजुएला, थाईलैण्ड आदि) में वयस्क साक्षरता की उच्च दर (95 प्रतिशत) होने एवं प्राकृतिक संसाधनों की दृष्टि से इनके सम्पन्न होने के बावजूद भी आर्थिक विकास की दृष्टि से ये पिछड़े हुए हैं। जो यह सिद्ध करता है कि मानव पूँजी का निर्माण केवल साक्षरता से नहीं होता बल्कि इसके लिए उच्च एवं तकनीकी शिक्षा आवश्यक है। तालिका-1 में उच्च शिक्षा में नामांकन अनुपात क्षेत्रवार दिया गया है जो इसकी स्पष्ट पुष्टि करता है।

**तालिका-1: उच्च शिक्षा नामांकन अनुपात (%)**

क्षेत्र	1950	1960	1970	1980	1990	2000	2005
<b>अफ्रीका</b>	0.8	0.7	1.5	3.5	4.3	10.3	12.8
<b>एशिया</b>	1.5	2.6	3.5	5.6	7.3	16.2	13.6
<b>लैटिन</b>	1.6	3.0	6.3	13.5	16.9	20.3	28.7

तालिका से स्पष्ट है जिन क्षेत्रों में उच्च शिक्षा में अधिक नामांकन है वे विकसित हैं जैसे उत्तरी अमेरिका व यूरोप। इसके विपरीत जिन क्षेत्रों में नामांकन कम है वे कम विकास कर पाए हैं जैसे लतीनी अमीरीका, एशिया व अफ्रीका।

इतना ही नहीं, एक देश के अन्दर भी जिन क्षेत्रों में उच्च एवं तकनीकी शिक्षा का तेजी से प्रसार हुआ है वहाँ विकास की दर तीव्र है और जिन क्षेत्रों में उच्च एवं तकनीकी शिक्षा का प्रसार कम हुआ है वे विकास की दौड़ में निरन्तर पिछड़ते जा रहे हैं। उदाहरण के लिए भारत में राष्ट्रीय राजधानी क्षेत्र दिल्ली (NCR), बंगालूरु, चेन्नई, मुम्बई आदि में उच्च एवं तकनीकी शिक्षा का अनुपात देश के अन्य क्षेत्रों की तुलना में अधिक है और ये क्षेत्र तुलनात्मक रूप से अधिक विकसित हैं।

लेकिन, जैसे-जैसे वैश्वीकरण की प्रक्रिया तीव्र एवं घनी होती जा रही है, उच्च एवं तकनीकी शिक्षा के सन्दर्भ में विकासशील देशों की समस्याएँ बढ़ती ही जा रही हैं। इनमें सर्वप्रमुख समस्या ‘सामाजिक न्याय’ के प्राप्ति की है। सामाजिक न्याय की प्राप्ति के लिए कर्मोवेश सभी विकासशील देशों ने शिक्षा को सार्वजनिक क्षेत्र के अधीन बनाए रखा है। ऐसा विश्वास किया जाता है कि यदि इस क्षेत्र को निजी क्षेत्रों के लिए खोल दिया गया तो वे केवल उन्हीं क्षेत्रों में प्रवेश करेंगे जहाँ लाभदायकता अधिक होगी अर्थात् तकनीकी और व्यावसायिक क्षेत्रों में। इनमें भी वे जनसंख्या के केवल उसी वर्ग को शामिल करेंगे जो इन सेवाओं के बदले ऊँची फीस दे सकेंगे। इस स्थिति में शिक्षा लाभ कमाने की व्यावसायिक वस्तु बनकर रह जाएगी। इसका मतलब यह भी होगा कि जनसंख्या का एक बड़ा भाग (लगभग 80 प्रतिशत) उच्च एवं तकनीकी शिक्षा के क्षेत्र में प्रवेश पाने योग्य नहीं होगा। इससे आगे चलकर असमानता और बढ़ेगी क्योंकि विशेष रूप से प्रशिक्षित लोगों का वेतन अन्धों से ज्यादा होगा। फिर, इससे मानव शक्ति का अनुकूलतम उपयोग भी नहीं हो सकेगा क्योंकि कई उच्च मरिटेड व दक्षता वाले व्यक्ति वित्त के अभाव में उच्च शिक्षा से वंचित रह जाएंगे और दूसरी तरफ कम गुणवत्ता व दक्षता वाले व्यक्ति अन्तर्राष्ट्रीय प्रतिस्पर्धा में टिक नहीं पाएंगे।

दूसरी समस्या यह है कि शिक्षा राष्ट्रीय मूल्यों, विश्वास, सभ्यता और संस्कृति को बनाए रखने और उन्हें निरन्तर आगे बढ़ाने का महत्वपूर्ण स्रोत होती है। यह शिक्षा ही है जिसके माध्यम से बच्चे इतिहास, भूगोल एवं राष्ट्र की अन्य मौलिक विशेषताओं के प्रति जागरूक बन पाते हैं जिससे उनमें राष्ट्रीय गर्व की भावना का विकास होता है। ऐसे में, निजीकरण के बाद जबकि विदेशी संस्थाएँ भी इस क्षेत्र में आ जाएंगी क्या इन मूल्यों को बनाए रखा जा सकेगा?

विकासशील देशों के समुख शिक्षा के निजीकरण को लेकर एक अन्य महत्वपूर्ण समस्या राष्ट्रीय लक्ष्यों की प्राप्ति को लेकर है। सरकार का दीर्घकालिक लक्ष्य राष्ट्रीय प्राथमिकता के क्षेत्र में क्षमता निर्माण से सम्बन्धित होता है जबकि अल्पकालिक लक्ष्य का सम्बन्ध मानवशक्ति के अनुकूलतम उपयोग से होता है। लेकिन, निजी सेवा प्रदाता (घरेलू/विदेशी) उन्हीं क्षेत्रों में संकोन्द्रित होंगे जिनमें उनका तात्कालिक हित सधेगा और वे क्षमता निर्माण के दीर्घकालिक लक्ष्य के बारे में कभी योजना नहीं बनायेंगे। इससे कई सामाजिक-आर्थिक समस्याएँ जन्म लेंगी। उदाहरण के लिए यदि डॉक्टरों या विशेष प्रकार के इंजीनियरों जैसे- (सिविल या कम्प्यूटर) की कमी होती है तो ऐसे में सारे निजी सेवा प्रदाता इसी क्षेत्र की ओर गमन करेंगे जिससे डॉ0 व इंजीनियरों की कमी की तो पूर्ति हो जाएगी, किन्तु अन्य क्षेत्रों में माँग व आपूर्ति का अन्तराल बढ़ जाएगा।

लेकिन, यह भी सत्य है कि कर्मोवेश सभी विकासशील देश पूंजीगत, वित्तीय एवं तकनीकी समस्याओं से ग्रस्त हैं। ऐसे में ये देश सार्वजनिक क्षेत्र के बल पर उच्च एवं तकनीकी शिक्षा की अनिवार्यता को पूरा नहीं कर पाएंगे। दूसरी तरफ अधिकांश देशों ने विश्व व्यापार संगठन (WTO) की सदस्यता ग्रहण कर ली है। इसमें शिक्षा एवं अन्य सेवाओं के वैश्विक आर्थिक विकास में महत्व को दृष्टिगत रखते हुए ‘सेवाओं में व्यापार पर सामान्य समझौता’ (गैट्स-General Agreement on Trade in Services) का प्रावधान किया गया है

<sup>1</sup> शोध छात्र अर्थशास्त्र विभाग, इलाहाबाद विश्वविद्यालय, इलाहाबाद।

<sup>2</sup> प्रोफेसर अर्थशास्त्र विभाग, इलाहाबाद विश्वविद्यालय, इलाहाबाद।

ताकि वस्तुओं की तरह सेवाओं का भी निर्बाध व्यापार किया जा सके। ऐसी परिस्थिति में, अधिकांश विकासशील देश किकर्तव्यविमूढता की स्थिति में हैं। उनके लिए उच्च एवं तकनीकी शिक्षा के विकास में निजी घरेलू व विदेशी संस्थानों को अनुमति देना कितना प्रासंगिक होगा? राष्ट्रीय लक्ष्यों और शिक्षा के निजीकरण में साम्य कैसे स्थापित किया जाय ? अपने नागरिकों के हितों की रक्षा हेतु घरेलू व विदेशी निजी संस्थानों पर नियंत्रण कैसे स्थापित किया जाय? आदि ढेरों प्रश्न इनके सम्मुख खड़े हैं।

प्रस्तुत लेख चार भागों में बँटा है जिसमें भारत के विशेष सन्दर्भ में उच्च एवं तकनीकी शिक्षा से जुड़े संदर्भों पर विचार किया गया है। प्रथम भाग में, वर्तमान शिक्षा व्यवस्था से जुड़ी समस्याओं पर विचार किया गया है। द्वितीय भाग में, प्रस्तावित 'राष्ट्रीय उच्च शिक्षा एवं अनुसंधान आयोग' (The National Commission for Higher Education and Research- NCHER) की आवश्यकता एवं उससे जुड़ी समस्याओं व चुनौतियों पर विचार किया गया है। लेख के तीसरे भाग में गैट्स समझौते में दिए गए प्रावधानों पर चर्चा की गयी है। लेख के चौथे एवं अंतिम भाग में कुछ निश्चित सुझावों को दिया गया है जिसे भारत सरकार को भावी शिक्षा नीति बनाते समय ध्यान में रखना आवश्यक है।

### भाग-I

वर्तमान भारतीय शिक्षा व्यवस्था मिश्रित स्वरूप की है अर्थात् यह सरकारी और गैर-सरकारी दोनों ही क्षेत्रों द्वारा संचालित होती है। यदि प्राथमिक व माध्यमिक विद्यालयों पर दृष्टि डाली जाय तो सरकारी व गैर-सरकारी विद्यालयों में गुणवत्ता के स्तर में भारी अन्तर दिखाई पड़ता है। अधिकांश कान्वेन्ट स्कूलों का गुणात्मक प्रदर्शन सरकारी प्राइमरी स्कूलों की तुलना में बेहतर है। परन्तु, अधिकांश गैर-सरकारी या निजी विद्यालय शहरी क्षेत्रों में ही विद्यमान हैं और ग्रामीण क्षेत्रों में इनका प्रसार बहुत कम है। ऐसे में, उच्च एवं तकनीकी शिक्षा के क्षेत्र में आने के इच्छुक ग्रामीण छात्रों की कमजोर नींव आड़े आती है। दूसरी तरफ यदि उच्च एवं तकनीकी शिक्षण संस्थानों पर दृष्टि डाली जाय तो ग्रामीण क्षेत्रों में अर्द्धसरकारी एवं निजी क्षेत्र के संस्थान ही अधिक हैं जबकि शहरी क्षेत्रों में सरकारी एवं निजी संस्थान प्रतियोगी की भूमिका में हैं।

उपर्युक्त मात्रात्मक एवं गुणात्मक विभिन्नताओं के चलते भारत की वर्तमान शिक्षाव्यवस्था में प्रत्येक स्तर पर भिन्न-भिन्न प्रकृति की समस्याएँ दिखाई पड़ती हैं— जैसे प्राथमिक स्तर पर नामांकन की समस्या, माध्यमिक स्तर पर विद्यालय छोड़ने (ड्रॉपआउट) की समस्या तथा उच्च एवं तकनीकी शिक्षा के स्तर पर शोध व विकास पर कम व्यय एवं शोध व अर्थव्यवस्था की आवश्यकता के बीच असम्बद्धता की समस्या आदि।

वस्तुतः प्राथमिक शिक्षा के स्तर पर नामांकन की समस्या प्राथमिक विद्यालयों की संख्या अपर्याप्त होने, सरकारी विद्यालयों की गुणवत्ता निम्न होने, ग्रामीण क्षेत्रों से निजी विद्यालयों के विमुख होने तथा विद्यमान निजी विद्यालयों में शुल्क दर ऊँची होने के कारण बनी हुई है। जबकि माध्यमिक स्तर पर ड्रॉपआउट रेट ऊँची होने की समस्या इस स्तर पर शिक्षा पद्धति के व्यावसायिक व तकनीकी न होने के कारण बनी हुई है। इसी प्रकार, उच्च एवं तकनीकी शिक्षा के स्तर पर शिक्षण संस्थानों को उद्योगों व फर्मों से सम्बद्ध नहीं किया जा सका है और ये संस्थान 'पब्लिक-प्राइवेट पार्टनरशिप' आधारित भी नहीं हैं। फलतः शोध एवं विकास पर कम व्यय और शोध व अर्थव्यवस्था की आवश्यकता के मध्य तालमेल की समस्या बनी हुई है।

उल्लेखनीय है कि उच्च एवं तकनीकी शिक्षा में कम व्यय की समस्या को दूर करने के लिए भारत सरकार द्वारा 'कुमार मंगलम बिड़ला' की अध्यक्षता में एक समिति का गठन किया गया। समिति ने 2000 में दिए अपने रिपोर्ट में 'सार्वजनिक-निजी भागीदारी (PPP)' के आधार पर उच्च एवं तकनीकी शिक्षा में निजी क्षेत्र को लाने की संस्तुति की। इस पर अमल करते हुए सरकार द्वारा उच्च एवं तकनीकी शिक्षा के क्षेत्र में न केवल निजी क्षेत्र के प्रवेश को अनुमति दिया गया है बल्कि इनके लिए निरन्तर उदार नीतियाँ भी लागू की जा रही हैं। निश्चित तौर पर उच्च शिक्षा में निजी क्षेत्र के आगमन से शिक्षण संस्थानों की संख्या में तेजी से वृद्धि हुई है। परन्तु, अधिकांश निजी संस्थान लाभप्रेरित होने के कारण न्यूनतम लागत व अधिकतम आय की नीति अपना रहे हैं और

शिक्षा की गुणवत्ता पर कोई विशेष ध्यान नहीं दे रहे हैं। यही कारण है कि भारत में आज भी अधिकांश अच्छे संस्थान (IITs, IIMs) सार्वजनिक क्षेत्र में ही हैं। निजी क्षेत्र के संस्थानों में जहाँ कुछ कॉलेज इन सरकारी संस्थानों को कड़ी प्रतिस्पर्धा दे रहे हैं वही अधिकांश संस्थान 3 या 4 कमरों में चलाए जा रहे हैं जहाँ मुद्रा के बदले डिग्रियाँ बाँटी जा रही हैं। इनके पास न तो आवश्यक प्रयोगशालाएँ हैं और न ही अन्य आधारभूत सुविधाएँ तो फिर ऐसे संस्थानों से गुणवत्ता की आशा कैसे की जा सकती है?

इतना ही नहीं, इन संस्थानों में प्रवेश दाखिला बिना किसी प्रतियोगिता या उचित मानक के ऊँची फीस (जिसे Paid Sheet या Payment Sheet कहा जाता है) लेकर करा लिया जाता है। इसके कारण निम्न आय वर्ग के प्रतिभावान छात्रों के लिए प्रवेश की समस्याएँ जटिल बनी हुई हैं। यद्यपि भारत सरकार द्वारा ऐसे छात्रों के लिए शिक्षा ऋण (Educational Loan) की व्यवस्था की गयी है, परन्तु साख (Credit) सम्बन्धी गारण्टी न होने के कारण अथवा सूचनाओं एवं वित्तीय संस्थाओं की अपर्याप्तता के कारण गरीब छात्र इस सुविधा से प्रायः वंचित रह जा रहे हैं।

दूसरी तरफ इन संस्थानों से निकलने वाले प्रोडक्ट्स (छात्रों) की गुणवत्ता निम्न होने के कारण ना तो उनकी विदेशों में मांग होती है और ना ही घरेलू क्षेत्र में। ऐसे में, ये छात्र घरेलू क्षेत्र में ही कम से कम पारिश्रमिक (Salary) पर भी कार्य करने को तैयार हो जाते हैं जिससे अच्छे शिक्षण संस्थानों से निकलने वाले छात्र जो ऊँचे पारिश्रमिक की चाह रखते हैं, प्रतिस्थापित हो जाते हैं। ये प्रतिभावान छात्र विदेशों में ऊँचा वेतनमान व सुविधाएँ देखकर आकर्षित होने लगते हैं जिससे 'प्रतिभा-पलायन' (Brain-Drain) की समस्या बढ़ती जा रही है।

फिर, बड़े पैमाने पर निजी संस्थानों के प्रवेश से छात्रों, शिक्षकों, कर्मचारियों, उच्च शिक्षण संस्थानों के प्रबन्धन और विश्वविद्यालयों तथा अन्य भागीदारों को लेकर होने वाले मुकदमों की संख्या में भी तेजी से वृद्धि हुई है। विवादों के निपटारे की कोई त्वरित न्यायिक व्यवस्था न होने के कारण विभिन्न सहभागियों के बीच असंतोष बढ़ रहा है। इससे शिक्षा की गुणवत्ता और संस्थाओं के कुशल संचालन पर विपरीत प्रभाव पड़ता है। इसके अतिरिक्त 1990 के दशक के मध्य से भारत में विदेशी शिक्षा संस्थाओं (FES) की गतिविधियों में भी तेजी आई है। इनमें से कुछ तो प्रतिष्ठित संस्थाएँ हैं तो दूसरी तरफ ऐसी भी कई संस्थाएँ हैं जो छात्रों को, विशेषकर छोटे शहरों और कस्बों से, आकर्षित करने के लिए गलत तरीके अपनाती हैं। इनमें से अनेक संस्थाएँ इसलिए खुली हैं क्योंकि देश में विदेशी शिक्षा संस्थानों के नियमन के लिए कोई नियामक व्यवस्था अथवा केन्द्रीकृत नीति नहीं है। ले-देकर तकनीकी शिक्षा के संदर्भ में 'अखिल भारतीय तकनीकी शिक्षा परिषद (AITEC)' द्वारा बनाए गए कुछ नियम भर ही हैं, जो विदेशी संस्थाओं की कथित गड़बड़ियों को रोकने के लिए पर्याप्त नहीं हैं।

इतना ही नहीं, घरेलू शिक्षण संस्थानों की मान्यता प्रक्रिया भी गम्भीर समस्या बनी हुई है। जांच प्रक्रिया के दौरान विभिन्न राज्यों में कई विश्वविद्यालय फर्जी पाए गए। इस संदर्भ में विश्वविद्यालय अनुदान आयोग (UGC) की वेबसाइट पर 18 जनवरी, 2009 को जारी फर्जी विश्वविद्यालयों की राज्यवार सूची को देखा जा सकता है—

राज्य	फर्जी विश्वविद्यालय
बिहार	1. मैथिली यूनीवर्सिटी/विश्वविद्यालय दरभंगा बिहार।
दिल्ली	2. वाराणसेय संस्कृति विश्वविद्यालय वाराणसी (उ.प्र.) जगतपुरी, दिल्ली।
	3. कमर्शियल यूनीवर्सिटी लिमिटेड, दरियागंज, दिल्ली।
	4. यूनाइटेड नशंस यूनीवर्सिटी, दिल्ली।
	5. वोकेशनल यूनीवर्सिटी, दिल्ली।
	6. एडीआर सेंट्रिक जुरिडिकल यूनीवर्सिटी, एडीआर हाउस, 8 जे, गोपाला टावर, 25 राजेन्द्र प्लेस, नई दिल्ली- 110008।
	7. इंडियन इंस्टीट्यूट ऑफ साइंस एण्ड इंजीनियरिंग, नई दिल्ली।
	8. बाड़ागान्ची सरकार वर्ल्ड ओपन यूनीवर्सिटी एजूकेशन सोसायटी, गोकक बेलगांव, कर्नाटक।
कर्नाटक	

केरल	9. सेंट जान्स यूनीवर्सिटी, किशनट्टम, केरल।
तमिलनाडु	10. डी.डी.बी. संस्कृति यूनीवर्सिटी, पुतुर, भिची, तमिलनाडु।
मध्यप्रदेश	11. केसरवानी विद्यापीठ, जबलपुर, मध्यप्रदेश।
महाराष्ट्र	12. राजा अरेबिक यूनिवर्सिटी, नागपुर, महाराष्ट्र।
पश्चिम बंगाल	13. इंडियन इंस्टीट्यूट ऑफ अल्टरनेटिव मेडिसिन, कोलकाता।
उत्तर प्रदेश	14. महिला ग्राम विद्यापीठ/विश्वविद्यालय (वीमेंस यूनिवर्सिटी), प्रयाग, इलाहाबाद, उत्तर प्रदेश। 15. इंडियन एजुकेशन कौंसिल ऑफ यू.पी., लखनऊ, उ.प्र। 16. गांधी हिन्दी विद्यापीठ, प्रयाग, इलाहाबाद, उ.प्र। 17. नेशनल यूनिवर्सिटी ऑफ इलेक्ट्रो काम्प्लेक्स होम्योपैथी, कानपुर, उ.प्र। 18. नेताजी सुभाष चन्द्र बोस यूनीवर्सिटी (ओपन यूनीवर्सिटी), अचलताल, अलीगढ़, उत्तर प्रदेश। 19. उत्तर प्रदेश विश्वविद्यालय, कोसी कलां, मथुरा, उत्तर प्रदेश। 20. महाराणाप्रताप शिक्षा निकेतन विश्वविद्यालय, प्रतापगढ़, उ.प्र। 21. इन्द्रप्रस्थ शिक्षा परिषद, इंस्टीट्यूशनल एरिया, खोड़ाख माकनपुर, नोएडा फेज टू, उत्तर प्रदेश। 22. गुरुकुल विश्वविद्यालय, वृंदावन, उत्तर प्रदेश।

स्रोत: यूजीसी की वेबसाइट

## भाग-II

भारत में उच्च शिक्षण संस्थाएँ बहुत सी वैधानिक एजेन्सियों द्वारा विनियमित (Regulate) होती हैं यथा- 'अखिल भारतीय तकनीकी शिक्षा परिषद' (AICTE) बार काउन्सिल ऑफ इंडिया (BCI), काउन्सिल ऑफ अर्किटेक्चर (COA), इण्डियन नर्सिंग काउन्सिल (INC), मेडिकल कौंसिल ऑफ इण्डिया (MCI), दूरस्थ शिक्षा परिषद (DEC), नेशनल कौंसिल ऑन टीचर एजुकेशन (NCTE), फार्मसी कौंसिल ऑफ इण्डिया (PCI), विश्वविद्यालय अनुदान आयोग (UGC) आदि जैसे 13 नियामक संस्थाएँ हैं।

वास्तव में, ऐसा इसलिए है क्योंकि प्रारंभ में यह महसूस किया गया कि इतने अलग-अलग विषय हैं, इन्हें पढ़ाने वाले भी अलग हैं तो फिर इन्हें सहायता देने वाली जो संस्थाएँ हैं उन्हें भी अलग-अलग कर देना चाहिए। इस क्रम में, मेडिकल संस्थान अलग बना दिए गए, इंजीनियरिंग व एग्रीकल्चर संस्थान अलग बना दिए गए। लेकिन, ऐसा कर देने से लोगों को आपस में मिलजुलकर कोई नई चीज बनाना मुश्किल हो गया। इस समस्या के समाधान के लिए पहले विश्वविद्यालय अनुदान आयोग (UGC) का गठन किया गया और कुछ 20-25 विश्वविद्यालय भी बनें। फिर, मेडिकल काउंसिल अलग कर दी गई। बाद में, यह महसूस किया जाने लगा कि तकनीकी के लिए अलग संस्था होनी चाहिए तो इसके लिए 'अखिल भारतीय तकनीकी शिक्षा परिषद' (AICTE) बना दी गयी। यह निर्धारित किया गया कि इसमें आर्किटेक्चर तो होगा पर कला या सौंदर्यशास्त्र नहीं होगा। विज्ञान को यूजीसी से भिन्न वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (CSIR) देखेगा। ऐसा करके पुनः चीजों को आपस में मिलने से रोक दिया गया। कुल मिलाकर इस प्रक्रिया में विश्वविद्यालयों में ही नहीं कॉलेजों में भी ज्ञान के विभिन्न टुकड़े कर दिए गए।

लेकिन, हमेशा यह देखा गया है कि जब भी कोई नई बात या नई सोच निकली है, चाहे वह विज्ञान में हो या समाजशास्त्र में, कहीं भी हो वह सोच वहीं से निकली है जहाँ पर दो टुकड़ों की दीवारें (ज्ञान की दो विशिष्ट शाखाएँ) मिलती हैं। यह ठीक है कि विभिन्न विषयों की शाखाओं के मध्य पतली-सी दीवार होनी चाहिए, किन्तु वह इस तरह की होनी चाहिए जैसे जैविक कोशिका की दीवार होती है। अगर दीवार न हो तो कोशिका अंदर कोई काम नहीं कर पाएगी। लेकिन, अगर दीवार मोटी बनी हो और उसका बाहर से कोई रिश्ता न हो तो कोशिका मर जाएगी। कोशिका सही ढंग से तो कार्य तभी करेगी जब उसको अन्दर काम करने का वक्त मिले और बाहर से भी आदान-प्रदान होता रहे। ऐसा होने पर ही कोशिका फलती-फूलती है और उसका

अस्तित्व बना रहता है। ज्ञान के संदर्भ में भी यही बात लागू होती है अर्थात् विषयों में थोड़ा विभाजन होना चाहिए, परन्तु विषयों को ऐसा न बना दिया जाय कि वे एक-दूसरे से बिल्कुल अलग होकर रह जाय।

लेकिन, ऐसा करने के लिए राष्ट्रीय स्तर पर एक ऐसी स्वायत्त संस्था आवश्यक है जो निर्वाचन आयोग की तरह किसी मंत्रालय के अधीन न हो जबकि सभी उच्च शिक्षण संस्थान उसके पर्यवेक्षण (Supervision) में कार्य करें। उल्लेखनीय है कि इस आवश्यकता को महसूस करते हुए भारत सरकार द्वारा 28, फरवरी, 2008 को प्रो 0 यश पाल की अध्यक्षता में 24 सदस्यीय उच्च समीक्षा समिति का गठन किया गया। समिति ने अपनी सिफारिशों में यूजीसी, एआईसीटी, एमसीआई जैसी 13 नियामक संस्थाओं को समाप्त कर निर्वाचन आयोग की तरह एक सर्वसमाहित 'राष्ट्रीय उच्च शिक्षा एवं अनुसंधान आयोग' (The National Commission for Higher Education and Research - NCHER) के गठन का सुझाव दिया है। रिपोर्ट के अनुसार, इस आयोग में अलग-अलग काम होंगे, जैसे मान्यता के लिए जो विभाग उत्तरदायी होगा वह विश्वविद्यालय के गठन पर ध्यान देगा। लेकिन, त्वरित नियंत्रण करने के लिए नहीं होगा।

यह आयोग केवल आदेश देने वाली संस्था नहीं होगी। वास्तव में, यह एक फ्रेमवर्क बनाएगा, जिनमें लोगों को काम करने दिया जाएगा। तात्पर्य यह कि यह उच्च शिक्षा के क्षेत्र में शीर्षस्थ नियामकीय निकाय होने के बावजूद विश्वविद्यालयों के लिए ऐसा वातावरण मुहैया कराएगा जिससे कि वे स्व-नियामकीय निकाय बन सकें। यह आयोग इस सिद्धान्त पर कार्य करेगा कि विश्वविद्यालय कोई वर्कमैन नहीं हैं जिनको हमेशा नियंत्रित करने की आवश्यकता है, बल्कि वे वह जगह हैं जहाँ नया ज्ञान पैदा होता है, जहाँ बहुत सोचने वाले लोग रहते हैं। अतः विश्वविद्यालय को सोच व विचार में आजादी चाहिए। यह विश्वविद्यालय के विवेकाधीन होना चाहिए कि क्या बनाना है और कितना बनाना है। इतना ही नहीं, विश्वविद्यालय अंदर भी यह स्वायत्तता शिक्षकों तक जानी चाहिए। नए कोर्स एवं कार्यक्रमों का निर्माण विश्वविद्यालय में होना चाहिए, यह नहीं कि यूजीसी के सदस्य यह निर्णय लें कि यह होगा और यह नहीं होगा। यानी विश्वविद्यालय को अपने कोर्स निर्धारण का अधिकार होगा भले ही वह अन्यों से अलग हो। लेकिन पाठ्यक्रम (Curriculum) का निर्धारण आयोग करेगा क्योंकि पाठ्यक्रम एक रहना चाहिए।

उपर्युक्त के अतिरिक्त राष्ट्रीय उच्च शिक्षा एवं अनुसंधान आयोग भारत में उच्च शिक्षा सम्बंधी नीतिगत मुद्दों पर केन्द्र एवं राज्य सरकारों का प्रधान सलाहकारी निकाय भी होगा। यह भारत में उच्च शिक्षा की स्थिति पर रिपोर्ट तैयार करेगा और उसे प्रतिवर्ष संसद में प्रस्तुत करेगा। इसके लिए उच्च शिक्षा पर राष्ट्रीय डाटाबेस हेतु यंत्र प्रदान करेगा। आयोग विश्वविद्यालयों के प्रमाणन और गुणवत्ता को सुनिश्चित करने के लिए उचित मानक, प्रक्रिया और ढाँचा तैयार करेगा। साथ ही विद्यार्थियों व अध्यापकों के बीच मेल-जोल (Interaction) के लिए सहज प्रक्रिया बनाएगा।

लेकिन, राष्ट्रीय उच्च शिक्षा एवं अनुसंधान आयोग से जुड़ी समस्याएँ व चुनौतियाँ भी कम नहीं होगी। पहली समस्या तो यह है कि आयोग श्रम बाजार की मांग के अनुरूप उच्च शिक्षा के विकास एवं उच्च शिक्षण संस्थानों की स्वायत्तता के लक्ष्य को एक साथ कैसे प्राप्त करेगा? हाल के वर्षों में भारतीय अर्थव्यवस्था तेजी से विकास कर रही है। यह विकास 'सेवा प्रेरित विकास' (Services led growth) है। इस विकास के कारण आई टी व आई टी आधारित सेवाओं में श्रम की मांग तेजी से बढ़ रही है। औषधि विज्ञान, बायो टेक्नोलॉजी, इंजीनियरी व डिजाइन सेक्टर में भी काम के अवसर बढ़े हैं। साथ ही वित्त, बीमा, फुटकर व्यापार, विमानन, एनीमेशन, मीडिया, रीयल इस्टेट और बुनियादी संरचना क्षेत्रों में भी अनेक प्रकार के रोजगार के अवसर बढ़ रहे हैं। इनमें रोजगार के लिए उच्च शिक्षा यानि कम से कम स्नातक जरूरी है। लेकिन, वर्तमान उच्च शिक्षण संस्थान इस मांग को पूरा करने में असमर्थ रहे हैं दूसरी तरफ स्नातकों एवं परास्नातकों की बेरोजगारी बढ़ रही है। वस्तुतः कार्य की प्रकृति बदलते रहने और अन्तर्राष्ट्रीय स्तर पर श्रम बाजार के एकीकरण के कारण उच्च शिक्षा व श्रम बाजार में तालमेल कठिन हो गया है। इस तालमेल को बिटा पाना आयोग के लिए प्रमुख चुनौती होगी।

दूसरी समस्या वैश्वीकरण के दौर में तेजी से हो रहे बदलावों को दृष्टि में रखते हुए उच्च शिक्षा से जुड़े हर पहलू की तेजी से जांच

कैसे हो सकेगी। फिर, यह आयोग जड़ता और गैर-जवाबदेही जैसी समस्याओं से उच्च शिक्षा को निजात कैसे दिला जाएगा? इतना ही नहीं, इस क्षेत्र में होने वाले विभिन्न प्रकार के विवादों का आयोग निपटारा कैसे करेगा यह भी एक मुख्य समस्या होगी।

एक अन्य महत्वपूर्ण समस्या उच्च शिक्षा में नामांकन के वर्तमान 12% को बढ़ाकर 12वीं पंचवर्षीय योजना की समाप्ति तक 21% तक करने के लक्ष्य को कैसे प्राप्त करेगा। क्या उच्च शिक्षा में व्यय को बढ़ाने के लिए विदेशी संस्थानों को आमंत्रित किया जाएगा? यदि हाँ तो गैट्स (General Agreement on Trade in Services) में समझौता (Commitment) कैसे किया जाएगा और विदेशी संस्थाओं के गुणवत्ता की जांच व उन पर निगरानी कैसे रखी जाएगी? यहाँ गैट्स से जुड़ी समस्याओं या चुनौतियों पर विचार करने से पूर्व यह आवश्यक है कि उसके प्रावधानों पर एक विहंगम दृष्टि डाली जाय।

### भाग-III

गैट्स (General Agreement on Trade in Services) विश्व व्यापार संगठन (WTO) का एक एकीकृत भाग है जिसे भारत सरकार द्वारा 1995 में हस्ताक्षरित व स्वीकृत किया गया। गैट्स सेवाओं व्यापार संबंधी नियमों का प्रथम एवं एकमात्र समझौता है। इसमें तीन तत्व हैं-

1. मूल पाठ जिसमें सामान्य नियम एवं परिणियम (General obligation and disciplines) हैं।
2. बाजार पहुँच के लिए देशों द्वारा किए गए विशिष्ट समझौते (Commitments) और
3. कुछ परिशिष्ट (Annexures)

**गैट्स का पहला भाग** अर्थात् सामान्य नियम एवं परिणियम की 3 महत्वपूर्ण विशेषताएँ हैं- प्रथम, सर्व समाहित (Total coverage) यह समझौता सभी अन्तर्राष्ट्रीय व्यापारयोग्य सेवाओं को शामिल करता है अर्थात् 161 सेवाएँ हैं जो 12 क्षेत्रों में वर्गीकृत हैं। ये क्षेत्र पुनः कई उपक्षेत्रों में बँटे हुए हैं, जैसे शिक्षा सेवाएँ 5 उपक्षेत्रों में बँटी अर्थात् प्राइमरी, सेकेण्डरी, उच्च एवं तकनीकी, वयस्क एवं अन्य में। द्वितीय, सेवा आपूर्ति के सभी तरीके (all modes of supply)। सेवाओं का विविध रूपों में व्यापार हो सकता है। अतः सेवाओं का उनके व्यापार के तरीकों के आधार पर पुनः वर्गीकरण किया गया है। सेवाओं में व्यापार में 4 तरीके हैं जो इस प्रकार हैं-

**पहला तरीका-** सेवाओं की सीमा-पार आपूर्ति (Mode-1- Cross Border Supply):सेवाओं के व्यापार का यह तरीका वस्तु व्यापार सदृश होता है जिसमें सेवाओं को एक देश से दूसरे देश में भेजा जाता है। **दूसरा तरीका-** सेवाओं का विदेशों में उपभोग (Mode-2 - Consumption Abroad):इसमें वे सभी सेवाएँ आती हैं जिन्हें प्राप्त करने के लिए उपभोक्ता को अपने देश से सेवा प्रदाता देश के पास जाना पड़ता है। **तीसरा तरीका-** वाणिज्यिक उपस्थिति अथवा पूंजी का गतिशीलन (Mode-3 - Movement of Natural Persons (Temporary migration)):इसमें उन सेवाओं को रखा जाता है जिन्हें सेवा प्रदाता उपभोगकर्ता देश में पूंजी निवेश आदि के द्वारा संस्था स्थापित करके सेवा प्रदान करता है अथवा फ्रेंचाइजी स्थापित करता है। **चौथा तरीका-** प्राकृतिक व्यक्तियों की आवाजाही (अस्थायी प्रवासन) (Mode- IV - Movement of Natural Persons (Temporary migration)):इसमें उन सेवाओं को रखा जाता है जिनके लिए सेवा प्रदाता व्यक्तियों को अस्थायी तौर पर विदेशों में जाना पड़ता है। इसे श्रम का गतिशीलन या प्रवाह भी कहा जा सकता है। **तृतीय, सामान्य सिद्धांत (General Principles):**इसमें सर्वाधिक ईष्ट राष्ट्र व्यवहार को दिया गया है। इस सिद्धांत के अनुसार एक राष्ट्र जैसा व्यवहार किसी एक व्यापारिक भागीदार देश के साथ करता है उसे वैसा ही व्यवहार सभी व्यापारिक भागीदारों के साथ करना पड़ता है।

**गैट्स समझौते का दूसरा भाग** देश विशेष के समझौते (Commitment of the individual countries) से सम्बन्धित है। ये समझौते दो स्तम्भों पर आधारित होते हैं- एक, बाजार पहुँच, दो-राष्ट्रीय व्यवहार। यह गैट्स की अद्वितीय विशेषता है। इसमें सदस्य देशों को यह अधिकार प्राप्त होता है कि उन सेवा क्षेत्रों की सूची जारी करें जिन्हें वे गैट्स के अन्तर्गत मुक्त व्यापार के लिए रखना चाहते हैं। लेकिन, ऐसा करते हुए वे कुछ सीमाओं का निर्धारण कर सकते हैं एवं

राष्ट्रीय व्यवहार के अन्तर्गत विभेद कर सकते हैं। उदाहरण के लिए यदि कोई यह समझौता करता है कि विदेशी बैंक उसके घरेलू बाजार में आ सकते हैं तो इसे "बाजार पहुँच समझौता (Market Access Commitment)" कहा जाएगा। परन्तु, इस समझौते में जब सरकार विदेशी बैंकों के लिए लाइसेन्स की सीमा निर्धारित कर देती है तो इसे "बाजार पहुँच की सीमाएँ (Market Access Limitations)" कहा जाता है। यदि सरकार यह भी निर्धारित कर दे कि विदेशी बैंक केवल एक ही शाखा खोल सकते हैं जबकि घरेलू बैंक अधिक शाखाएँ खोल सकते हैं तो इसे "राष्ट्रीय व्यवहार सिद्धान्त (जिसमें घरेलू व विदेशी में भेद नहीं किया जाता) का अपवाद" (Exception to the National Treatment Principle) कहा जाता है। इस प्रकार, गैट्स सरकारों के लिए लोचशीलता प्रदान करता है ताकि वे राष्ट्रीय हितों और नीतिगत उद्देश्यों को प्राप्त कर सकें।

**गैट्स का तीसरा भाग** विविध परिशिष्टों को शामिल करता है। समझौते का यह भाग यह सुनिश्चित करता है कि सभी सेवाएँ समान आधार पर व्यवहार नहीं कर सकती हैं। जैसाकि पहले बताया जा चुका है कई स्थितियों में सेवा प्रदाता को वहाँ उपस्थित होना पड़ता है जहाँ सेवा दी जानी है। गैट्स समझौते में मोड-3 व मोड-4 विशेषकर मोड-4। सेवा आपूर्ति के इस तरीके के लिए यह आवश्यक है कि देश विदेशियों को बिना किसी अवरोध के आने-जाने की अनुमति प्रदान करें। लेकिन, विदेशियों का आवागमन देश की प्रवसन एवं विदेशी विनिमय नीतियों के अन्तर्गत आता है। इसलिए यदि सेवाओं के समझौते का मोड-4 बिना किसी प्रकार के अवरोध के लागू हो जाता है तो उसके अनुसार ही प्रवसन एवं विदेशी विनिमय नीतियों में भी परिवर्तन की आवश्यकता होगी। लेकिन, लगभग सभी देश इसका विरोध कर रहे हैं। इसीलिए गैट्स समझौते में सरकारों को यह सहूलियत प्रदान की गयी है कि वे अपने उद्देश्यों का अनुसरण कर सकें और उन्हें यह अनुमति है कि वे अपने समझौते में यह निर्धारित कर सकें कि वे किन अवरोधों को जारी रखना चाहते हैं।

उपर्युक्त प्रावधानों को दृष्टि में रखते हुए गैट्स के अधीन विभिन्न देशों ने प्रस्ताव तैयार किया है। यहाँ यह उल्लेखनीय है कि शिक्षा में व्यापार को संयुक्त राष्ट्र (UN) के सेण्ट्रल प्रोडक्ट क्लासिफिकेशन (CPC) के आधार पर सेवाओं के कुछ वर्गों में बाँटा गया है। इस वर्गीकरण में अलग-अलग शिक्षा सेवाओं को अलग-अलग कोड दिया गया है यथा-

तालिका- शिक्षा सेवा की वर्गीकरण सूची

शिक्षा सेवाएँ	कोड
प्राइमरी शिक्षा	921
सेकेण्डरी शिक्षा	922
उच्च शिक्षा	923
वयस्क शिक्षा	924
अन्य शिक्षा	929

**स्रोत:** सेण्टर फॉर WTO स्टडीज इण्डियन इन्स्टीट्यूट ऑफ फॉरन ट्रेड।

WTO समझौते में सभी सदस्य देशों से द्विपक्षीय या बहुपक्षीय परिचर्चाओं के लिए सामान्य/बातचीत प्रस्ताव रखने को कहा गया था। उल्लेखनीय है कि WTO समझौते के पूर्व ही 29 देशों (28+1 यहाँ यूरोपीय देशों को एक इकाई के रूप में मान लिया गया है) ने अपने प्रस्ताव तैयार कर लिए थे। यह आश्चर्यजनक प्रतीत हो सकता है, किन्तु यह महत्वपूर्ण है कि कुछ बहुत ही निर्धन विकासशील देश इन 29 देशों में हैं जिन्होंने उच्च शिक्षा में पूरी तरह बिना किसी शर्त या प्रतिबन्ध के समझौता (Commitment) किया है जैसे- कांगो, लेसेथो, सियरालियोन और जमैका आदि। इसका अर्थ यह है कि अपने देश में सेवा आपूर्ति के सभी तरीकों (Modes) में सभी प्रकार के विदेशी संस्थानों को प्रवेश की अनुमति दे दिए हैं। दूसरी तरफ कई विकासशील देशों ने अभी तक कोई समझौता नहीं किया है, जैसे - भारत, चीन, इण्डोनेशिया एवं मध्य-पूर्व के देश। हालाँकि भारत ने वर्ष

2002 में गैट्स समझौते के लिए एक विस्तृत प्रारूप (Draft) प्रस्तुत किया। 2005 में इसने अपने प्रारूप को पुनः संशोधित भी किया। फिर, भारत को कई विकसित एवं विकासशील देशों से समझौते का प्रस्ताव भी प्राप्त हुआ है। इनमें यू०एस०, यू०के०, जापान, न्यूजीलैण्ड, आस्ट्रेलिया, कनाडा और सिंगापुर जैसे देश भी हैं। भारत के उच्च शिक्षा पर पुनर्संशोधित प्रस्ताव को निम्न तालिका में दिया गया है—

तालिका—उच्च शिक्षा पर भारत का प्रस्ताव— 2005

क्षेत्र या उपक्षेत्र	बाजार पट्टे पर सीमाएँ	राष्ट्रीय व्यवहार पर सीमाएँ	क्षैतिजीय समझौते
शिक्षा सेवाएँ उच्च शिक्षा सेवाएँ -923	मोड-1 में कोई सीमा नहीं अर्थात् सेवा प्रदाता के किसी विषय वस्तु पर वह नियम-परिनियम लागू होंगे जो मूल देश के घरेलू प्रदाता पर लागू होंगे।  मोड-2 में कोई सीमा नहीं।  मोड-3 में कोई सीमा नहीं। इसमें जो फीस लगायी जाएगी वही किसी संबंधित प्राधिकरण द्वारा निश्चित की जा सकती है और इस प्रकार की फीस प्रति व्यक्ति ऊँची फीस (कैपिटेशन फी) अथवा लाभ को पोषित नहीं करेगी। इस प्रकार के नियमन या तो पहले से ही अस्तित्व में होंगे अथवा संबंधित विनियामक प्राधिकरण द्वारा निर्धारित किए जाएंगे। विदेशी निवेशकों के संदर्भ में जिन्होंने भारत में उन विशिष्ट सेवा क्षेत्रों में पहले से ही कोलावरेशन किए हुए हैं को विदेशी निवेश प्रोत्साहन बोर्ड (FIPB) से स्वीकृति (approval) लेना आवश्यक होगा।  मोड-4 के लिए भी क्षैतिजीय भाग को छोड़कर असीमित (Unbound) रहेगा।	मोड-1 में कोई सीमा नहीं  मोड-2 में कोई सीमा नहीं।  मोड-3 में कोई सीमा नहीं।  मोड-4 क्षैतिजीय भाग छोड़कर असीमित।	मोड-1 कोई नहीं (None)

स्रोत: वाणिज्य मंत्रालय।

तालिका से स्पष्ट है कि उच्च शिक्षा पर भारत सरकार द्वारा दिया गया प्रस्ताव क्षैतिजीय समझौते को छोड़कर किसी प्रकार की कोई

सीमा नहीं लगाता है। ऐसे में, उच्च शिक्षा को दीर्घकालिक स्थाई विकास का इंजन बनाने के लिए सरकार को पहले उन सभी नियमों एवं प्रावधानों को घरेलू संस्थाओं पर लागू करना होगा केवल तभी विदेशी संस्थाओं पर इन नियमों व प्रावधानों को लागू किया जा सकेगा। क्योंकि गैट्स के राष्ट्रीय व्यवहार सिद्धान्त के अनुसार राष्ट्रीय व्यवहार पर कोई सीमा घोषित न होने की दशा में घरेलू एवं विदेशी संस्थाओं के मध्य कोई भेद नहीं किया जा सकता।

#### भाग—IV

भारत सरकार का लक्ष्य उच्च शिक्षा में नामांकन अनुपात को बढ़ाकर 25% करना है। इसके लिए मात्रात्मक रूप से उच्च शिक्षण संस्थाओं में वृद्धि आवश्यक है। यही कारण है कि कुमार मुगलम बिडला समिति की संस्तुतियों पर अमल करते हुए सरकार द्वारा उच्च शिक्षा के क्षेत्र में सार्वजनिक-निजी साझेदारी (PPP) एवं निजी निवेश पर बल दिया जा रहा है। निस्संदेह इसके कारण शिक्षण संस्थाओं की संख्या में तेजी से वृद्धि हुई है। लेकिन, यदि इन शिक्षण संस्थाओं की संरचना पर दृष्टि डाली जाय तो स्पष्ट होता है कि इनमें मुख्यतः निजी शिक्षण संस्थाओं की संख्या ही बढ़ी है। उदाहरण के लिए उत्तर प्रदेश के उच्च शिक्षा संस्थानों में बी०टेक० के जहाँ सिर्फ 5 सरकारी संस्थान हैं वहीं यू०पी०टेक० के 250 से 300 निजी क्षेत्र के संस्थान हैं। यही अनुपात लगभग एम०बी०ए० संस्थानों में भी है।

यदि विश्वविद्यालयों और डिग्री कॉलेजों की स्थिति पर एक दृष्टि डालें तो स्पष्ट होता है कि यहाँ भी सार्वजनिक-निजी सहभागिता (PPP) का प्रारूप केवल निजीकरण की ओर ही जा रहा है। उल्लेखनीय है कि निजी डिग्री कॉलेजों को मान्यता विश्वविद्यालयों के द्वारा ही दी जाती है। लेकिन, यदि उ०प्र० में ही विश्वविद्यालयों एवं डिग्री कॉलेजों के अनुपात को देखें तो स्पष्ट होता है कि कई विश्वविद्यालय द्वारा 150 से 250 कॉलेजों को मान्यता दी गई है। जैसे—काशी विद्यापीठ ने 150 निजी कॉलेजों को मान्यता दिया है। लगभग यही स्थिति छत्रपति शाहू जी महाराज विश्वविद्यालय, कानपुर, वीर बहादुर सिंह पूर्वांचल विश्वविद्यालय, जौनपुर की भी है।

लेकिन, उच्च शिक्षण संस्थानों की बढ़ती संख्या के साथ-साथ भारत सरकार के सम्मुख गुणवत्ता प्रबन्धन की चुनौती भी बढ़ती जा रही है। प्रायः यह देखा जा रहा है कि अधिकांश उच्च शिक्षण संस्थानों से जो भी विद्यार्थी पास होकर आ रहे हैं वे मानव पूँजी के हिसाब से अनुपयुक्त हैं। ऐसे में, गुणवत्ता प्रबन्धन के लिए सरकार को सर्वप्रथम घरेलू उच्च शिक्षण संस्थानों के लिए मानक का निर्धारण करना होगा जिसमें शिक्षक-छात्र अनुपात, कमरों की संख्या, लैब एवं पुस्तकालय आदि के लिए मानक तय किया जाय। इनके लिए कोई ऐसी संस्था होनी चाहिए जो समष्टि स्तर पर इन मानकों का निर्धारण करे जैसे 'राष्ट्रीय उच्च शिक्षा एवं अनुसंधान आयोग' इस कार्य के लिए उपयुक्त होगा व्यक्ति स्तर पर जांच के लिए भी कुछ संस्थानों की स्थापना करनी होगी जो प्रगति रिपोर्ट की भी समीक्षा करें। इसके पश्चात् अंतिम रिपोर्ट को प्रतिवर्ष संसद में प्रस्तुत किया जाय।

इसी प्रकार सामाजिक न्याय के उद्देश्य को प्राप्त करने हेतु सरकारी आरक्षण की नीति एवं तिर्यक सब्सिडी (Cross Subsidy) की नीति को भी सबसे पहले घरेलू निजी संस्थानों में लागू करना होगा। इसके अतिरिक्त उच्च शिक्षा संस्थानों में होने वाले विवादों के निपटारे के लिए एक न्यायाधिकरण का गठन कर देना चाहिए जो सभी प्रकार के संस्थानों (सरकारी एवं गैर सरकारी घरेलू एवं विदेशी) के विवादों की सुनवाई करें।

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## Retreat of the State, Employment Pattern and Economic Growth in India

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**Abstract:** *This paper is attempted to examine the changing role of State in Capitalist economic structure. How the Indian bourgeois State, Which has adopted the neo-liberal policies during 1991 has shifted its path from Welfare or Interventionist State to capitalist State has been attempted to examine. The study highlights that the corporate hijack of Health and educational facilities has brought these two social services to the market as an attractive profit earning commodities which leads to the deterioration and inaccessibility of these facilities to the masses. The employment pattern highlights that the introduction of capital abundant technology has raised the proportion of constant capital (machines and related equipments) relative to variable (human labour) capital in major commodity producing sectors. The majority of the working population is involved in uncertain and insecure employment and presenting the active reserve army of labour in Marxian sense. The NSSO data states that the wholly unemployed persons are 28 million in India. If we combined the absolute reserve army with the unorganised informally employed workers than they will form the majority of population in India which are living under the shadow of uncertainty in each sphere of life whether its job security, health security, pension benefits etc.*

### Capitalistic Changes and Role of State in Global North

The classical liberal economic thought which has sharpened by the orthodox economists from the writings of Adam Smith and his followers was dominant in the world scene prior to great depression. The historical analysis of capitalism reveals that capital required a minimum compound growth as Harvey (2010) realised 3 per cent to sustain the capitalist system. Anything less than three per cent is problematic, while zero or negative growth defines crisis which, if prolonged, as in the 1930 defines a depression. The primary cause behind the 1929 to 1933 depression in world capitalist system was the growth of large scale financial sector along with professionally managed corporations and cartels; in the process, capitalist ownership became separated from daily business management, and a large capitalist rentier class, owning shares across multiple sectors, differentiated itself from a new class of professional managers and technocrats (Michl, 2011). The working class, which was main driving force for the circulation of capital, has experienced stagnation

in real wages that causes decline in demand for capitalistic production. The highly speculative financial sector tried their efforts to sustain the compound growth of capital through loans and credit creation had led to Great Depression in 1929. During this period, Keynes (1936), the well-wisher of capitalism has suggested the philosophy of State intervention in the form of investment and expenditure. It was now the belief that government needed to play a role in regulating their economies and that the laissez fair paradigm could not operate with only an 'invisible hands'. This new interventionist approach has replaced the classical liberalism and it became accepted belief that capitalism requires significant State intervention in economic affairs to sustain the growth of capital. Keynes argued that the main reason behind the depression in capitalistic system is decline in effective demand. This notion gave birth to concept of 'Welfare State' accompanied by strong workers movement relatively high social welfare spending, which resulted rise in general wage level and employment. The era between 1950 to 1970 was also marked as 'golden age of capitalism'. During this period, the organised working class accepted capitalist markets and property rights in exchange for political democracy, which enabled workers to achieve social security and higher wages on the one hand and it caused the rise in demand for capitalistic production on the other hand (Streeck, 2011). This was the period of balance between market and public goods. Keynesianism entered into crisis in the 1970s characterised by stagflation- high rate of inflation along with the high rate of unemployment which brought this system to demise.

In 1970s, the notion has been again developed to put the system (particularly capital) out of crisis but this time State intervention considered as an obstacle in the way of economic growth. The economists like Milton Friedman and his followers were argued to assign a very limited economic role to the State. They claimed that the excessive power of labour was the primary source of crisis because labour will not ready to accept the lower wages when the demand for their labour falls. They suggested the philosophy of free market economy again and referred the Keynesian philosophy an out-dated. They favoured the 'retreat of the State' from economic and social affairs with an argument that market has the capacity to settle any crisis. These policy recommendations have given birth to the 'neoliberalism' which is mainly concerned with regulationist Welfare State. These recommendations include deregulation of business, privatisation of public activities and assert elimination of or cutback social welfare programs, and reduction of taxes on businesses and investing classes (Kotz, 2002). During this period, capitalist class has made the reduction in number of employees (through intensive use of labour-saving technology) and in wage bill to meet the demand of shareholders for higher profits (Grahl,

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2011). It causes decline in taxes on factory owners and shareholders and reduction in subsidies to commons, which has raised the profits of capitalists. As a result of this, the situation of workers and common people started deteriorating. This response to the economic instability and capitalist crisis was again temporary. The alternative which the economists have suggested to solve the crisis was old one. These liberal ideas were nothing but the ideas of classical economists, which viewed State as an obstacle in profit earnings of capitalist class. The finance capital again rises up during this decade after the breakdown of Bretton Wood System (1973) because the industrial capital was seemed unable to maintain the minimum growth of capital. The speculative nature of capital which always looks for higher returns on loans are least interested in stability of the capitalist system. The unregulated growth of mortgage financial system which started in mid 1970s causes the collapse of financial system in 2008.

In the light of above facts present paper is an attempt to examine the role of State in India particularly after the advent of neo-liberal regime. In the first section the attempt has been made to examine the retreat of the State from economic and social activities. Second section of the paper deals with the employment pattern during the pre and post liberalisation phase. Under this section attempt has also been made to examine the unemployment rate and reserve army of labour in India.

## **Section-I**

### **Neo- Liberalism and Retreat of the State in India**

Lenin argued that State is an organ of class rule, an organ for the oppression of one class by another. In a capitalist society in the first place, the State comes into action in the economic sphere in order to solve problems which are posed by the development of capitalism. In the second place, where the interest of capitalist class is concerned, there is strong predisposition to use the State power freely. And finally, the State may be used to maintain the stability and functioning of the system as a whole (Lenin, 1964). After the break down of Soviet Block, there has been an enormous shift in direction of capitalist production base from global north to global south. To earn the higher profits capital is rapidly moving towards the emerging economies of Asia. The neo-liberalism is a tool which made this change possible. Since last two decades, the neoliberal economic policies dominating the third world countries due to continuous pressure from United States directly or indirectly through the International Monetary Fund and World Bank. These policies are concerned mainly with dismantling what remains of regulationist Welfare State among these economies.

During 1991, bourgeois State in India has shifted its role from interventionist to maintaining the law and order and providing the facilities to capital (both foreign and domestic) for more profitable use.

This is capitalism in India, whose pace has accelerated after the introduction of neo-liberal policies and in orthodox terminology during the period of globalisation. As patnaik (2011) mentioned the rapid growth of GDP, the spread of bourgeois life style, the destruction of traditional rural activities like petty production, the rapidity of technological and structural transformation in economy including the growth of knowledge intensive or capital-intensive industries are all together presenting the roots of capitalism which are spreading not only in urban metropolitan but also destroying the feudal structure of rural India. During the pre neo-liberal era, the State in India, for the fulfilment of the promise of anti-colonial struggle, protected to an extent of petty production sector against the encroachment of capitalist production, through a variety of measures ranging from cheap credit, to subsidies, extension services help in marketing, tariff protection and quantitative import restrictions. But with the advent of neo-liberalism, under the hegemony of global finance capital, with which India's big bourgeoisie has got progressively integrated, all this has changed. Now, the nature of the State has transformed to promote the interest of finance capital which resulted in retreat of the State form protective and social measures. In the present neo-liberal phase the State becomes an agent of capital without any veil. Now, State controls and regulates the economy through corporate strategy.

This neo-liberalism that represents the tyranny of capital in the most organised and atrocious manner and India's economic and political scenario for last two decades representing this tyranny. It is a State or a moment in capital accumulation that leads to an unprecedented expansion of capital by bringing into the commodified zone even aspects which have been considered as non-commodified such as education and health during the earlier period (Kumar, 2011). The State, which was welfarist, and had promised to take care of health and educational concerns of its people started saying that it was not possible for it to bear the burden of educating every child and taking health care of all the citizens. By such argumentation guided by corporate class, the private investment in education and health started rising and education and health services becomes commodities to earn the profits by exploiting the lower strata of society.

In India, after the introduction of neo-liberal policies, there is continuous tendency to cut down the public sector expenditure, no matter how essential these expenditures are. There is continuous tendency of decline in social sector spending in India. The social sector spending in India recorded 18 per cent during 2011-12 and it will expected to be same during 2012-13. Among the social indicators, healthcare and education are the two key components. Under the light of high GDP growth, India's common man surely deserves the educational and health facilities comparable no to those of U.S.A.



European Union, Socialist Cuba and China but at least to those in neighbouring and which has the same kind of political and economic set up (Dreze and Sen, 2011).

According to Human Development Report (2011), India ranks 134 out of 187 countries (Low Human Development Index Category) in terms of human development. India's public expenditure on health ranks among the lowest in world. In India, public spending on health as percentage of total public spending recorded 4.1 per cent (just around 1.2 per cent of GDP) as compare to 7.3 per cent Sri Lanka during 2009. It is among the lowest in the world. The life expectancy at birth is 65.4 in India whereas it has 79.9 in Sri Lanka. The infant mortality rate in India is more than three times as compare to Sri Lanka. The percentage of under nutrition children is more than double in India as compare to Sri Lanka. The main cause behind the deterioration of health indicators in India is the secular decline of public sector expenditure on health facilities since the introduction of capitalist path of growth. As Chandra (2010) highlighted, in India, three quarter of the advanced medical technology and 68 per cent of hospitals are in private sector. Due to the planned disinvestment policies, the government health services which were well reputed in past have hardly any patients today if there is any it is because of their inaccessibility to costly private hospital. There are no or very few medicines in government hospitals. The patients who stay in these hospitals have to often buy the medicines from private stores which are directly linked with the doctors through commissions. This capitalist health network has made the health services a commodity and it is exploiting the bottom strata of society and deepening the health inequality in India. The retreat of the State from health sector and rising private corporate sector investment through government incentives in this field put a question mark on the future of access to health facilities for the commons.

The case is almost same in education. In primary education, we are well behind the other nations which have comparable level of economic growth and per capita income. The mean year of schooling in India during 2011 was recorded 4.4 which were half as compare to Sri Lanka. Under the pressure of corporate bourgeoisie, the public expenditure on education as percentage of GDP has also recoded decline from 4.2 per cent in 2000 to 3.1 per cent in 2011-12. After the introduction of neo-liberal policies the education in India becomes a profit earning commodity. The corporate sector investment in education has increased sharply after the advent of neoliberal regime. The number of private schools and deemed universities has recorded sharp increase since last decade or so. These universities and institutions are more concerned about the quantitative addition in their strength and higher profits rather than quality of education. This planned low level expenditure on education and

health on the one hand and incentives to the capitalists to invest in these two priority fields are threat to the accessibility of these services to common masses.

## **Section-II Neo-Liberalism and Employment Pattern**

As Marx stated in a capitalist production process, the accumulation of capital has increased the demand for labour. This rise in demand for labour forcing up the wages and squeezing the profitability of capitalist Class. In such circumstances a counterforce came into being that would reduce the amount of labour needed for the given level of production with the introduction of new technology in production process and more capital which resulting in the displacement of labour. Marx further argued that the accumulation of capital, through quantitative change in its composition, i.e. through a continuous increase of its component component at the expense of its variable component. With this progress of accumulation, therefore the proportion of constant to variable capital changes. If it was originally say 1:1, it now becomes successively 2:1, 3:1, ..... 7:1 etc, so as capital grows, instead of 1/2 of its total value, only 1/3, 1/4, ..... 1/8 etc. is turned into labour power and on the other hand, 2/3, 3/4, ..... 7/8 etc. into means of production. Since the demand for labour is determined not by the extent of total capital but its variable constituent alone, that demand fall progressively with the growth of total capital (Marx, 1992). Here we made an attempt to examine the changing scenario of employment in India after the introduction of international bourgeois strategy i.e. globalisation.

### **1. Structure and Distribution of Workforce**

The movement of population from primary sector activities to secondary sector activities is an essential part of capitalist development. The workforce distribution of population in various industries is presented in Table 1. The data reveal that the rural as well as urban working population employed in agriculture has recorded decline during 1983 to 2009-10. The urban population employed in agricultural activities remained half in 2009-10 as compare to its proportion in 1983. The case was not same for the proportion of rural population employed in agriculture sector. The proportion of rural population employed in agriculture was 82.5 per cent in 1983 and it has recorded a steady and slow decline in its proportion. During 2009-10, the proportion of rural population employed in agriculture was recorded at 71.10 per cent. It is clear that after the period of more than two and half decades the rural population employed in agriculture has recorded only decline of 10 per cent, whereas the share of agriculture sector in GDP recorded sharp decline during the same period of time (from 39.93 per cent to 16.93 per cent). The proportion of population which is replaced from farming (usually small and marginal farmers) due to

the unviable conditions of cultivation has joined the same occupation at the low degree i.e. as agricultural proletariat.

The pattern of manufacturing growth under the open economic regime of India tends to be such that the responsiveness of employment growth to the growth of output declines (Ghosh and Chandershaker, 2007). The proportion of population employed in manufacturing activities in rural areas was 6.7 per cent in 1983 and it was increased to 7.25 per cent in 2009-10. It means the rural industrial sector which is referred as labour intensive in character, was not able to absorb the much of the surplus and underemployed rural population. The picture was also not very impressive in case of urban manufacturing employment. The proportion of population employed in manufacturing sector of urban areas has recorded 26.75 per cent in 1983 and it has recorded decline rather than increase in its proportion in 2009-10. During 2009-10, the proportion of urban population working in manufacturing was 24.85 per cent. The urban manufacturing sector which is referred as major force behind the urbanisation process and rural-out migration had failed to provide the productive employment opportunities to the working population. The stagnation or decline in proportion of manufacturing sector (both rural and urban) employment is mainly due to low and declining employment elasticity in manufacturing activities and the growth of this sector is mainly contributed by rising labour productivity. According to Patnaik (2006), due to the import of labour-saving technology, the capital-output ratio and labour productivity in manufacturing activities has been increased disproportionately which emerged as the major cause behind the decline in requirement of labour for given production process. The capitalist segment of the Indian economy (usually manufacturing sector) is interested to earn higher profit that's why they prefer the imported technology for production which is capital intensive in nature. It has emerged as the major reason behind the decline in employment elasticity of this sector.

The following figure highlights the extent of capitalisation in manufacturing sector in India. The figure states that with the introduction of neo-liberal policies the average of fixed capital per manufacturing unit has recorded increase from 33.03 lacks during 1981-82 to 143.25 lacks in 2007-08. Whereas the average number of workers (variable capital) employed has remained stagnant or declining. It clearly favouring the Marxian analysis of increasing organic composition of capital in production process as capital accumulation reaches to higher levels. Figure 1 in the annexure.

The proportion of population employed in construction activities has recorded an increase from 0.80 in 1983 to 8.85 in 2007-08 in rural areas and 4.10 in 1983 to 8.05 in 2009-10 in urban areas respectively. This increase is primary happen due to

the rise in infrastructural requirements for the profitable investment of capital. The workers which are involved in these activities are working on contract basis. In present phase of capitalism the use of contract workers is widespread. Among these workers a sizeable proportion is female and child labour which are working under low wage environment. These workers are not eligible for pensions, health insurance, job security or paid holidays. The same is true for the workers involved in trade, hotel, restaurant and transportation and communication activities.

## 2. Status of Employment and Workforce

Marx had breakdown the reserve army of labour into various components. He stated that it include not only those who were wholly unemployed but also those who were only partially employed. Marx used the word active reserve army of labour for those who are irregularly employed. It includes all sort of part time, casual workers and informal workers (Foster, 2011). Magdoff (2004), Classified the members of reserve army- a mass of people living in insecurity of fearful future job perspectives as given below:

- (a) the unemployed (including those officially recognised as unemployed because they have recently looked for work as well as those that have stopped looking because they can't find jobs).
- (b) part time workers that have desire to work full time but not able to get it.
- (c) self-employed workers doing odd jobs or getting occasional work due to lack of alternative jobs and have desire to get full time and regular work.
- (d) agricultural labour displaced by increasing use of capital in production process and are unable to get any full time employment in urban areas.
- (e) those not counted among the economically active population but available for employment under changed circumstances (such as prisoners and the disable).

All the above workers represents the total workforce in an economy. Here we will make an attempt to analyse the active and absolute army of labourers in India. As far as the status of employment is concern in rural areas, the pre-reforms (1983) period demonstrates that due to the domination of agricultural activities in rural India the proportion of population involved in self-employed activities was more than 50 per cent of the total rural employment. The proportion of population involved in regular employment activities was recorded 8.06 per cent in 1983. During this period, the share of casual workers was recorded as 33.72 per cent. On the other hand, in urban areas the higher proportion of population was working as regular workers followed by the self-employed activities during pre-reforms period. Table 2 in the annexure.

The recent data of 2009-10 highlights that the proportion of regular employment has recorded a decline in both in rural and urban areas. The proportion of population involved in self-

employment activities recorded a decline in rural areas due to capitalisation of agriculture which demonstrate the depeasantisation or casualisation of workforce in rural India. It is part of active reserve army which is displaced from regular farming activities to the irregular employment. The population casually employed in rural areas represents the 'stagnant population'. This stagnant population is part of active reserve army which involved in extremely irregular employment. In context of India, all sort of workers which are involved in part-time, casual and informal work represent the stagnant population in Marxian sense. The casual labour emerged as the second major occupation after the self-employment in rural areas. The proportion of rural workers employed as casual workers has increased from 33.72 per cent in 1983 to 38.95 per cent in 2009-10. Marx had used the word 'latent reserve army' for the workers who are replaced from agriculture occupation and in constant flow towards towns to find alternative due to fall in labour demand absolutely as capitalist production relations states developing in agriculture. The proportion of casual workers moved from rural areas and casually employed in towns represents the 'latent' reserve army of labour. In the era of globalisation and liberalisation the decline in regular workers presents the deterioration of employment environment and worsening of working conditions in India.

### **3. Growth and Shrinking of Organised Sector Employment**

Capital is more concerned with profits rather than with the workers security. Every time capitalists are in efforts to replace the workers from production process by introducing some new innovations. India has clearly adopted a capitalistic model of growth after the introduction of neo liberal policies in 1991. In other words, the government of India has reduced its role in employment generation and commodity producing activities with an argument that market can play better role to increase the efficiency in economic sphere. The growth rate of workforce employed in organised public and private sectors is presented in Table 3. The workers employed in all organised public sector activities have recorded the compound annual growth of 2.10 per cent during the pre-reform decade (1981-1991). During this decade, the highest growth was recorded in financial, insurance and real estate activities (4.79 per cent). The growth rate of employment in all the remaining occupations has remained positive during this period. During 1990s, rate of growth of employment in all public sector activities has declined to 0.04 per cent. During this period, four activities (Agriculture, hunting etc., mining and quarrying, manufacturing and construction) recorded negative growth of employment. During the period from 2001 to 2010, out of the total public sector activities, only three sectors have showed the positive growth. The overall

growth of employment in organised public sector was negative, i.e. minus -0.89 per cent per annum. This decline was primarily occurred on account of decline in public sector investment. The government policy of disinvestment with an objective to kept the fiscal deficit low leads to the negative growth of public sector employment in organised activities. Table 3 in the annexure.

The situation is also not very encouraging in regards to organised private sector employment. During the period from 1981 to 1991, the growth rate of organised employment in private sector was 0.37 per cent per annum and three sub sectors (Mining and Quarrying, Manufacturing and transportation and communication) has recorded the negative growth. During the next decade, the annual compound growth rate of employment in organised private sector was recorded as 1.20 per cent. During 2001 to 2010, the annual compound growth rate of employment in private organised sector recorded increase in comparison to previous decade. During this period, the growth rate of organised private sector employment was 2.23 per cent.

Government had provided the incentives for private sector and introduced measures that made the capital cheaper instead of labour during this period. The private manufacturing sector also experienced negative growth in organised employment during 1981-91. In the next decade, the growth of employment in this sector was positive but it was not very satisfactory. During the period 2001 to 2010, the growth rate of employment in this sector was 0.28 per cent. It is clear from the above facts that the higher growth of GDP in India has not been resulting in the real structural transformation in the organised sector labour market and a modern private manufacturing sector seems unable to absorb the surplus labour due to the use of labour-saving technology. The main driver of GDP growth is the increase in proportion of capital relative to that of labour in production process.

### **4. Informalisation of Employment and Crunch of Insecurities**

Every addition in total labour force reduces the bargaining power of active labour. The absolute reserve army of labour playing positive role for the worsening of working conditions for active workers because it increase the base for capitalist to choose and through the workers from production process. The distribution of workers in different type of employment activities presents the situation of workers and working conditions from many aspects. In formal employment activities, workers have some social security in terms of provident funds medical insurance etc. But the introduction of neoliberal policies has uprooted the social security mechanism. The present phase of capitalistic growth presents the worst form of insecurity for working class. In developing countries, particularly in those economies which introduced the globalisation and liberalisation

policies, the share of informal employment has increased very sharply. Table 4 in the annexure.

The above table (Table 4) provides the information regarding the distribution of workers among the different types of employment in India. The table shows that during the period of 1999-2000, out of the total Workers employment in unorganised sector, 99.60 per cent of the workers have involved in informal activities. During the same period, the majority of the organised workers (62.20 per cent) have involved in formal activities. The informal sector was sharing 91.17 per cent of the total employment in both unorganised and organised sector.

In 2004-05, the unorganised informal employment increased slightly and recorded at 99.64 per cent. There was sharp increase in informal employment in organised sector and it was 46.58 per cent in 2004-05. The situation improved slightly in 2009-10 but still remained worst. A mass of workers are living in insecurity and fearful environment. Any slowdown in capital's growth will push them to the absolute reserve army In India, the Welfare State becomes an old day story under the neo-liberal policy regime. In present capitalist regime the economic life of the large segment of population is working under uncertain and risky environment. The workers are facing the multiple insecurities including employment insecurity, job insecurity, income insecurity, pension or old age insecurity, skill related insecurity, medical and health insecurity etc. figure 2 in the annexure.

### **5. Unemployment Rate and Total Workforce**

The absolute reserve army refers to the proportion of working population which is eligible for work but not able to get any work. The following table provides the information of officially unemployed workers which are available for work if there is any. Table 5 in the annexure.

During 1983, the unemployment rate in urban areas was significantly higher, i.e., 10.55 per cent. During this period, the unemployment rate in rural areas recorded at 8.85 per cent. The absolute number of urban unemployed persons was 5.4 million and it was three times more in rural areas in comparison to urban areas during the given decade. In 1993-94, there was decrease in unemployment rate and it was 7.46 per cent of the urban population. However, the absolute number of urban unemployed persons has increased to 6.1 million (Table 5). In case of rural areas the percentage as well as absolute number of unemployed has declined.

Since 1990s onward, the government introduced the neo-liberal policies to tackle the unemployment problem in India. These policies mainly include the industrial deregulation from several respects. The policy makers were of the view that it will generate enough employment opportunities in urban industrial sector. But the situation remained same, the unemployment rate in

urban areas has recorded at 7.1 per cent in 2009-10. The absolute number of unemployed persons in urban areas have increased and reached to 7.2 million in 2009-10. The unemployment rate in urban areas remained higher than the unemployment rate in rural areas during the earlier two periods and it was recorded most the same during 2009-10. During this period, the absolute number of rural unemployed persons was 20.9 million. In Marxian sense the absolute reserve army of labour in India is 28 million. If we combined this number with active reserve army of labour which is involved in unorganised informal activities the number has reached to 413.08 million. It will surely present the majority of population if we calculate the dependents on these workers who are unemployed and underemployed.

### **Section – III**

#### **Concluding Remarks**

The acceleration of economic growth is nothing more than a illusion in capitalist economic structure. In capitalist set up higher growth is only beneficial for capitalist class and it has tendency to increase the gap between rich and poor because one class (capitalist) becomes more and more rich if they are exploiting the labour of other class (workers). So the richness of rich class totally depends upon the degree of exploitation. The higher economic growth under capitalist society means higher exploitation. So the higher growth of India economy during neo-liberal regime is characterised by the higher level of exploitation of the working class and pauperisation of them into worse circumstance of living. The Indian State has undermine the social security and key basic requirement (health and educational facilities) by withdrawing government sector investment in these two priorities on the one hand and announcement of incentives and subsidies to the private corporate sector for the investment in these two priority sectors on the other hand. After the introduction of neo-liberal regime, the production process among the two major commodity sectors (agriculture and industry) has rapidly transforming from labour intensive to capital abundance techniques. This technological shift leads to the replacement of labour by capital in a given production process and the former has been either thrown into agricultural proletariat or irregular employment and it has made an addition in active reserve army of labour. What will be the future of this population which is working under the shadow of insecure and irregular environment? The proportion of population which failed to get any employment due to introduction of capital deepening technology in capitalist industrial sector joining the rank of absolute reserve army and reducing the bargaining power of the workers who are already employed. So the need of time is to unionization of workers against the present exploitative socio-economic structure and finds the way towards the new socio-economic set up.

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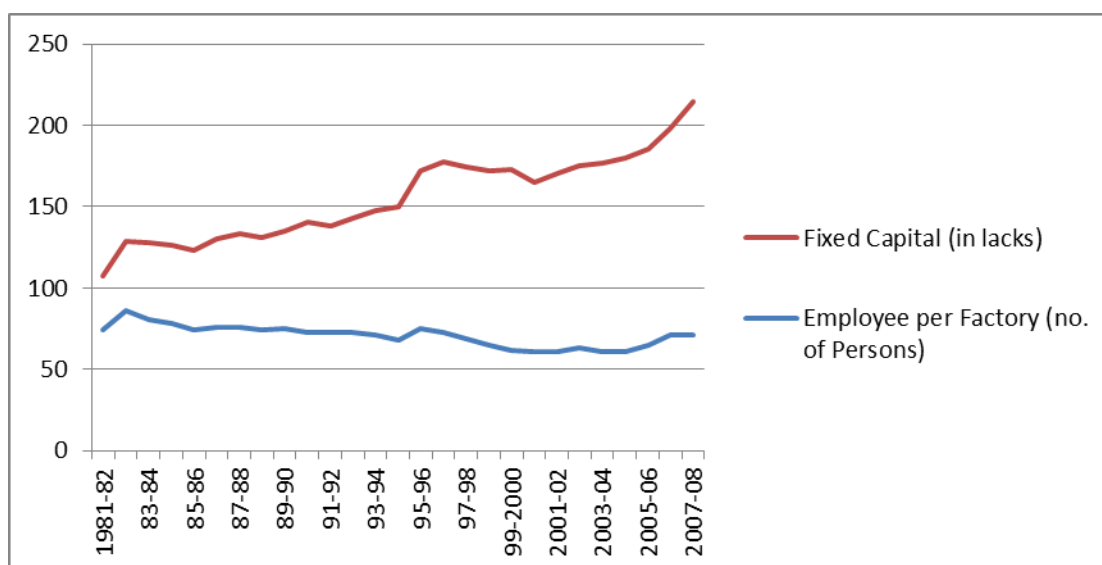
## Annexure

**Table 1: Distribution of Usually Employed Persons (PS+SS) by Broad Industrial Categories**

Sectors	1983		1993-94		2004-05		2009-10	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Agriculture	82.50	20.65	80.15	16.85	74.90	12.10	71.10	9.95
Mining and Quarrying	0.45	0.90	0.55	0.65	0.45	0.55	0.55	0.50
Manufacturing	6.70	26.75	7.00	23.80	8.15	25.85	7.25	24.85
Electricity and Water	0.10	0.65	0.15	0.75	0.10	0.50	0.10	0.55
Construction	0.80	4.10	2.05	5.50	4.15	6.50	8.25	8.05
Trade, Hotel and Restaurants	3.15	14.90	3.80	15.95	5.40	20.10	5.50	19.55
Transportation, Storage and Communication	0.90	5.70	1.65	5.50	2.00	6.05	2.15	5.90
Other Services	4.45	25.70	5.20	30.70	4.90	28.35	5.05	30.60

Source: NSSO, Employment and Unemployment Situation in India, 66<sup>th</sup> Round, 2009-10.

**Figure 1: Change in Employment of Fixed capital and Worker in Manufacturing Sector**



Source: Annual Survey of Industries

**Table 2: Distribution of Usually Employed (PS+SS) Persons by Status of Employment**

Years	Status of Employment					
	Self Employed		Regular Employed		Casual Labour	
	Rural	Urban	Rural	Urban	Rural	Urban
1983	57.82	39.68	8.06	42.07	33.72	18.11
1993-94	58.00	42.30	6.40	39.40	18.30	32.00
2004-05	60.20	45.40	7.10	39.50	32.80	15.00
2009-10	54.60	41.10	6.45	40.60	38.95	18.30

Source: NSSO, Employment and Unemployment Situation in India, 2007-08 and 2009-10.

**Table 3: Employment Growth in Organised Public and Private Sectors**

Employment in Organised Public Sector (In Lakh)					Annual Compound Growth Rate (Per Cent)		
Sectors	1981	1991	2001	2010	1981-91	1991-01	01-10
Agriculture, Hunting etc.	4.63	5.56	5.02	4.78	1.85	-1.01	-0.49
Mining and Quarrying	8.18	9.99	8.75	11.03	2.02	-1.32	2.34
Manufacturing	15.02	18.52	14.30	10.66	2.12	-2.55	-2.89
Electricity, Gas and Water	6.83	9.05	9.35	8.35	2.85	0.33	-1.12
Construction	10.89	11.49	10.81	8.59	0.54	-0.61	-2.27
Wholesale and Retail Trade	1.17	1.50	1.63	1.71	2.51	0.83	0.48
Transportation, Storage and Communication	27.09	30.26	30.42	25.29	1.11	0.05	-1.83
Finance, Insurance, Real Estate etc.	7.48	11.94	12.81	14.13	4.79	0.71	0.99
Community, Social and Personal Services	73.55	92.27	98.30	90.51	2.29	0.63	-0.82
<i>Total</i>	<i>154.84</i>	<i>190.58</i>	<i>191.39</i>	<i>175.05</i>	<i>2.10</i>	<i>0.04</i>	<i>-0.89</i>
Employment in Organised Private Sector (In Lakh)					Annual Compound Growth Rate (Per Cent)		
Sectors	1981	1991	2001	2010	1981-91	1991-01	01-10
Agriculture, Hunting etc.	8.58	8.91	9.31	9.23	0.38	0.44	-0.09
Mining and Quarrying	1.3	1.00	0.79	1.61	-2.59	-2.33	7.38

Manufacturing	45.45	44.81	50.13	51.54	-0.14	1.13	0.28
Electricity, Gas and Water	0.35	0.40	0.52	0.64	1.34	2.66	2.10
Construction	0.72	0.73	0.57	0.91	0.14	-2.44	4.79
Wholesale and Retail Trade	2.77	3.00	3.39	5.06	0.80	1.23	4.09
Transportation, Storage and Communication	0.60	0.53	0.76	1.66	-1.23	3.67	8.13
Finance, Insurance, Real Estate etc.	1.96	2.54	3.70	15.52	2.63	3.83	15.42
Community, Social and Personal Services	12.22	14.85	17.34	21.40	1.97	1.56	2.13
<i>Total</i>	<i>73.95</i>	<i>76.77</i>	<i>86.52</i>	<i>107.87</i>	<i>0.37</i>	<i>1.20</i>	<i>2.23</i>

Source: Economic Survey of India, Various Issues.

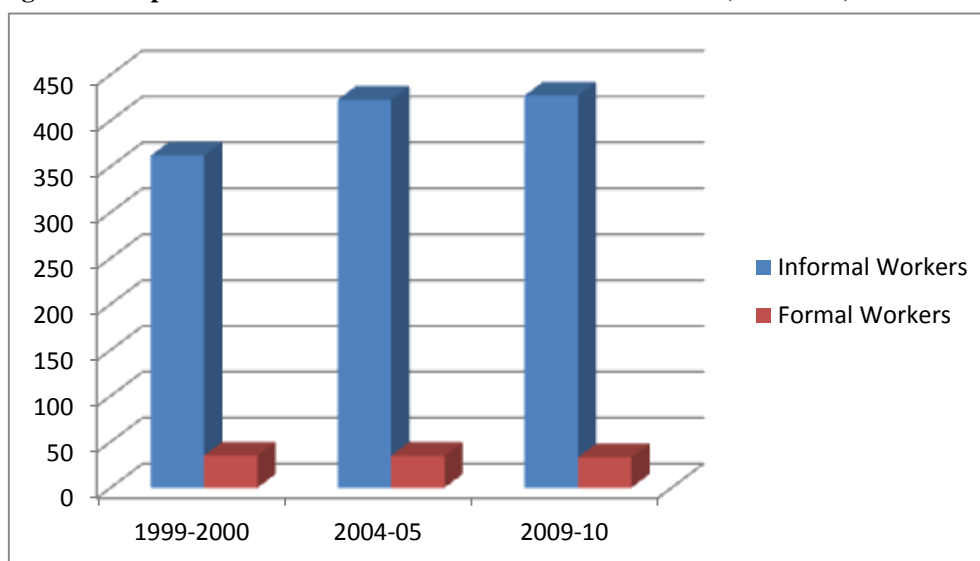
**Table 4: Distribution of Workers According to the Type of Employment and Sector (million)**

Sectors	1999-2000			2004-05			2009-10		
	Informal	Formal	Total	Formal	Informal	Total	informal	Formal	Total
Unorganised Sector	341.28 (99.60)	1.36 (0.40)	342.64 (100)	1.43 (0.36)	393.47 (99.64)	394.90 (100)	385.08 (99.40)	2.26 (0.60)	387.34 (100)
Organised Sector	20.46 (37.80)	33.67 (62.20)	54.12 (100)	33.42 (53.42)	29.14 (46.58)	62.57 (100)	42.14 (57.80)	30.74 (42.20)	72.88 (100)
<i>Total</i>	<i>361.74</i> <i>(91.97)</i>	<i>35.02</i> <i>(8.83)</i>	<i>396.76</i> <i>(100)</i>	<i>34.85</i> <i>(7.46)</i>	<i>422.61</i> <i>(92.38)</i>	<i>457.46</i> <i>(100)</i>	<i>427.22</i> <i>(92.80)</i>	<i>33.00</i> <i>(7.20)</i>	<i>460.22</i> <i>(100)</i>

Source: NCEUS (2007)

Note: Figures in brackets are percentages.

**Figure 2: Proportion of Informal and Formal Workers in India (In million)**



**Table 5: Unemployment Rate in India (Current Daily Status Basis)**

Descriptions	1983	1993-94	2004-05	2009-10
<b>Urban</b>				
Unemployment Rate (%)	10.55	7.46	8.28	7.1
No. of Unemployed (million)	5.4	6.1	9.4	7.2
<b>Rural</b>				
Unemployment Rate (%)	8.85	5.61	8.28	7.2
No. of Unemployed (million)	17.3	14.4	24.8	20.9

Source: Eleventh Five Year Plan 2007-12, Vol-1 and NSSO, Employment and Unemployment Situation in India, 2010-11.

## Growth of Micro Finance (SHG-Bank Linkage Model) in Chhattisgarh State of India

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### Abstract

Microfinance usually signifies a financial arrangement designed to help the rural poor transform their economic condition through formation of Self Help Groups (SHGs). The growth of Microfinance (Self Help Group -Bank Linkage Model) in Chhattisgarh State of India has been described with the help of Numbers of SHGs, Savings of SHGs, Bank Loan disbursed and outstanding against SHGs; Gross NPAs for bank Loans to SHGs. The finding of the paper reveals tremendous rate of growth on all aspects of growth. The study is based on secondary data collected from National Bank for Agriculture and Rural Development (NABARD).

**Key Words:** Microfinance, Self Help Groups, Poverty, NABARD, Financial Economics, Economics of Micro Finance.

### 1. Introduction

Micro finance is a financial service of small quantity, provided by financial institutions to the poor. These financial services may include savings, credit, insurance, leasing, money transfer, equity transaction, etc. that is, any type of financial services, provided to customers to meet their normal financial needs: life cycle, economic opportunity and emergency (Gupta and Rao, 2005). Actually, the failure of formal institutions in the world to serve the rural poor effectively led to a review of the informal financial systems. It was observed from very beginning that the informal financial system is very exploitative and charges very high rate of interest from the poor. To bridge the gap between the formal and informal systems, Prof. Mohammad Yunus started a research project in Bangladesh in 1979 and established Grameen Bank (GB) in 1983. It changed the life of many poor people by improving their economic condition from below poverty line in Bangladesh (Sarkar, Debnarayan, 2008). The micro financing schemes in India came with the introduction of Self Help Group (SHG) concept by National Bank for Agriculture and Rural Development

(NABARD) for the first time in the government sector. At the non-government level, Self Employment Association of Women (SEWA) founded by Ela Bhatt was the first of its kind as Grameen bank in Bangladesh. Later on, several other micro finance organizations were established in India. There are mainly two microfinance approaches namely SHG Bank Linkage Model and Grameen Model/or Micro Finance institution model working in India. But ninety nine per cent micro finance institutions in India are practicing SHG Bank Linkage Model (Manimekalai, 2004).

Linked with the microfinance approach, the Self Help Group (SHG) movement has now been accepted by all countries of the world as an effective strategy for poverty alleviation. Microfinance through SHGs has become a ladder for the poor to bring them up not only economically but also socially, mentally and attitudinally. Nowadays, the SHG movement has been accepted as an effective intervention strategy for poverty alleviation through generating income, empowering the poor and reducing unemployment. SHG linked micro finance includes such credits which are provided to the rural poor on easy terms and conditions and give access to several income generation activities.

SHG is a small voluntary association of poor people preferably from the same socio economic background. They come together for the purpose of solving their common problems through SHGs. They provide the benefits of economies of scale, cost effective alternative for different financial services, collective learning, democratic and participatory culture, affirm base and platform for dialogue and co-operation (Dasgupta, 2005). The groups have been recommended to be informal and to keep themselves away from bureaucratic and corrupt practices, unnecessary administrative expenditure and profiteering constraints. Groups are expected to be homogeneous so that the members do not have conflicting interests and all the members can participate freely without any fear (Anjugam and Alagumani, 2001). There is however something beyond this. These groups are expected to foster true democratic culture where all the members participate actively by taking part in the debate and decision – making process which is possible only in small groups. After being formed, generally by External Agency, Group starts collecting a fixed amount from each member regularly. A SHG can be all women group, all men group, or even a mixed group. However, it has been experienced that women's groups perform better in all the important activities of SHG (Sharma, 2001). In many countries of the world, SHGs have succeeded in generating self – employment and income by providing access to small capital to people living in poverty. A number of institutional weaknesses have been identified like poor recovery, lack of recycling of funds, poor deposit mobilization

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and ineffective lending. Against this backdrop, SHGs are an effective tool in generating income or employment and empowering poor (United Nations, 1998).

There are not yet any formal official publications on different statistics of SHGs in India. However, NABARD has brought out some basic data of SHGs. According to this, ninety per cent SHGs are women groups and more than ninety seven million households are associated with it. On March 31, 2011, more than seven million SHGs are working in India. In view of the large outreach and pre- dominant position of the microfinance programme, it is very important to know the growth of Micro Finance (SHG- Bank Linkage Model) in Chhattisgarh State of India.

## 2. Objective of Paper

The present paper undertakes the specific objective of knowing the Micro Finance (SHG- Bank Linkage Model) in Chhattisgarh State of India. It has been done with the help of following sub variables.

- Growth in number of SHGs Chhattisgarh State of India.
- Growth in savings of SHGs and Bank Loans disbursed to SHGs Chhattisgarh State of India.
- Growth in bank loans outstanding against SHGs and Gross NPAs for Bank Loans to SHGs in Chhattisgarh State of India.

## 3. Methodology of Paper

This paper is based on the secondary data. The data is quantitative in nature. The sources of data are NABARD's Reports on Micro Finance in India for various years. The data pertain to the period from 2006-07 to 2010-11 due to unavailability of data for earlier years. Tables, charts, percentage and average etc have been used for analyzing the data.

## 4. Growth of Micro Finance (SHG- Bank Linkage Model) in Chhattisgarh State of India.

### (A) Growth in number of SHGs in Chhattisgarh State of India.

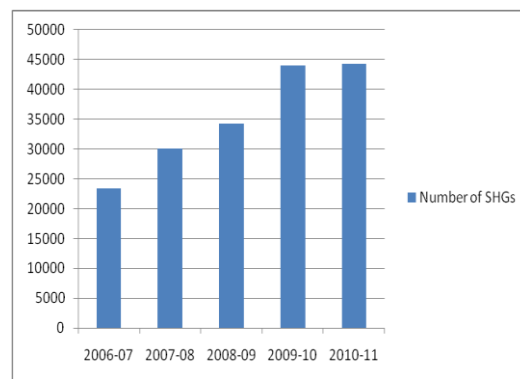
The findings on growth in number of SHGs in Chhattisgarh State of India have been presented in Table- 1 and Chart 1. The figures show a tremendous growth in number of SHGs over last years. The number of SHGs has increased from 2 in 1992-93(which was starting stage of SHGs model by NABARD in India) to 23444 in 2006-07. During the period of twenty years, this number has crossed the mark of 40 thousands. The table also shows percentage increase in number of SHGs. However, there is a percentage increase with decreasing rate of growth in number of SHGs after 2009-10.

**Table 1: Growth in number of SHGs in Chhattisgarh State of India**

Sr. No	Years	Number of SHGs	Percentage increase in Number of SHGs
1	2006-07	23444	---
2	2007-08	30078	28.29
3	2008-09	34302	14.04
4	2009-10	43947	28.11
5	2010-11	44295	0.79

Source: NABARD's Reports on Microfinance in India in various years

**Chart 1: Growth in number of SHGs in Chhattisgarh State of India**



### (B) Growth in savings of SHGs and bank loans disbursed to SHGs in Chhattisgarh State of India.

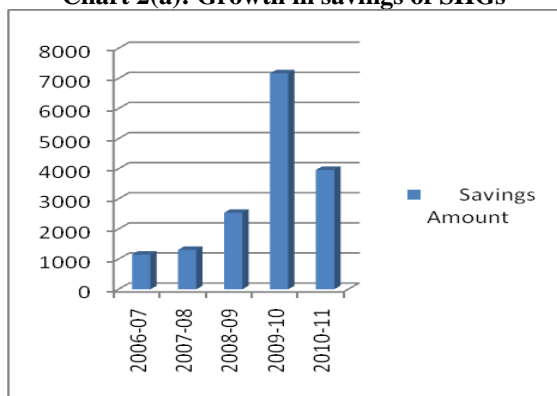
The growth in savings of SHGs and bank loans disbursed to SHGs in Chhattisgarh State of India was studied, the results of which have been presented in Table- 2 and Chart-2(a,b). It can be seen from the table that there has been rapid increase in savings of SHGs and bank loans disbursed to SHGs in India over the period. The growth in savings of SHGs and bank loans disbursed to SHGs was more in 2009-10 and 2008-09 respectively as compared with other years. There has been a decline in percentage growth of both the sub variables after 2009-10 and 2008-09 respectively.

**Table 2: Growth in savings of SHGs and bank loans disbursed to SHGs in Chhattisgarh State of India. (Amounts in Rs. Lakh)**

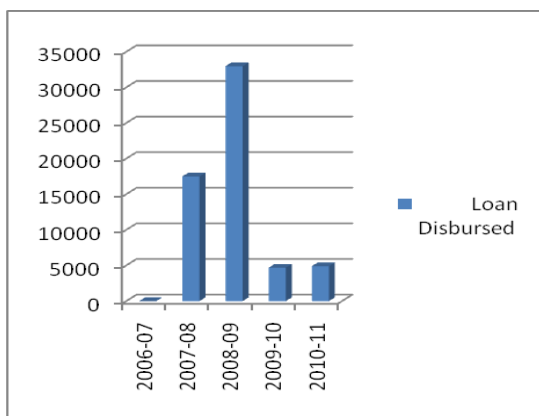
Sr. No	Years	Savings Amount	Loan Disbursed
1.	2006-07	1150.52 (--)	--- (--)
2.	2007-08	1310.88 (13.93)	17499.72 (--)
3.	2008-09	2540.52 (93.80)	32979.15 (88.45)
4.	2009-10	7170.41 (182.24)	4676.33 (-85.82)
5.	2010-11	3965.37 (-44.69)	4897.53 (4.73)

Source: NABARD's Reports on Microfinance in India in various years  
(Figures in the brackets represent percentage)

**Chart 2(a): Growth in savings of SHGs**



**Chart 2(b): Growth in bank loans disbursed to SHGs in Chhattisgarh State of India.**



**(C) Growth in bank loans outstanding against SHGs and gross NPAs for bank loans to SHGs in Chhattisgarh State of India.**

The results of growth in bank loans outstanding against SHGs and gross NPAs for bank loans to SHGs in Chhattisgarh State of India have been presented in Table- 3 and Chart-3(a, b). It can be seen from the table

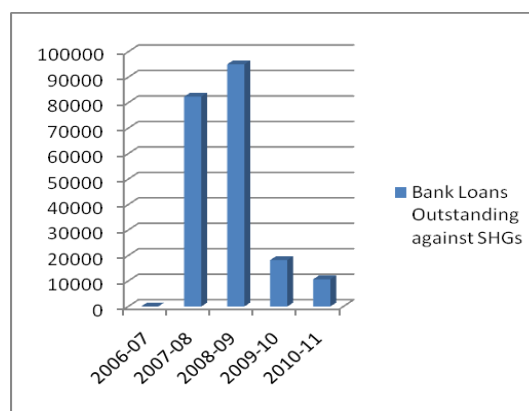
that there has been steady increase in growth in bank loans outstanding against SHGs and gross NPAs for bank loans to SHGs in India over the period. The growth in bank loans outstanding against SHGs and amount of gross NPAs for bank loans to SHGs was more in 2008-09 as compared with other years.

**Table-3: Growth in bank loans outstanding against SHGs and gross NPAs for bank loans to SHGs in Chhattisgarh State of India. (Amounts in Rs. Lakhs)**

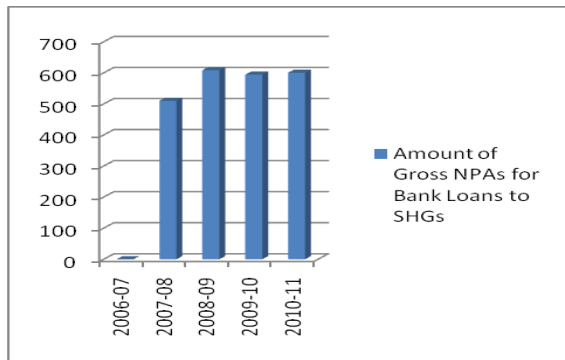
Sr. No	Years	Bank Loans Outstanding against SHGs	Amount of Gross NPAs for Bank Loans to SHGs
1.	2006-07	--- (-)	--- (--)
2.	2007-08	82381.04 (--)	510.01 (--)
3.	2008-09	95086.26 (15.42)	608.44 (19.29)
4.	2009-10	18232.58 (-80.82)	594.17 (-2.34)
5.	2010-11	10693.13 (-41.35)	600.39 (1.04)

Source: NABARD's Reports on Microfinance in India in various years  
(Figures in the brackets represent percentage)

**Chart 3(a): Growth in bank loans outstanding against SHGs in Chhattisgarh State of India.**



**Chart 3(b): Growth in gross NPAs for Bank loans to SHGs in Chhattisgarh State of India.**



## 5. Conclusion

This paper concludes that the numbers of SHGs in Chhattisgarh State of India are increasing every year. Further, the amounts of savings of SHGs and Bank Loan disbursed to SHGs in Chhattisgarh State of India, are also increasing with a tremendous rate of growth. It has also been found that the bank loans outstanding

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against to SHGs and the Gross NPAs for bank loans to SHGs are increasing with steady rate of growth. Here, it is worth mentioning that this program has performed well, but the benefits of this program have not been distributed equally. Still a large number of poor people are living in Chhattisgarh state of India. In the light of discrepancies emerging from the above analysis some suggestions can be made that Banks should expand their services to suggest various income-generating activities to the NGOs and self-help group members and provide them training assistance in training. NABARD should provide special funds to the banks that should be used particularly in those areas where SHG bank linkage program is not performing well due to various reasons. These funds should act as incentives to the banks to intensify their efforts in those regions. Banks should put more attentive efforts for the promotion of this program. Moreover, large sized NGOs should also be promoted in those regions.

## Analysing the Indian Growth Story

Sharanjit S. Dhillon\* and Ajay Sehgal\*\*

### Abstract

Public financing system in India is characterised by stagnant and inadequate levels of public spending on social sector providing a major impetus to the private sector for an investment which is more inequitable and less regulated. This paper aims to analyse the Indian growth story during post-reforms period in the light of objective of achieving inclusive growth. Post-reforms macro development experiences in India show that higher rate of economic growth has been achieved with disproportionate poverty and inequalities across groups and regions. Liberalisation and globalisation have resulted in wooing the private investors by giving special tax incentives, outright gifts and the right to make monopoly profits and thus the aim of social inclusion could not be achieved. Apart from the need to increase allocations for the social sector, there is imperative need to raise substantially more tax revenues which will make the former possible. To accomplish this, the tax base definitely needs to be expanded, but more immediately, better tax compliance and reduction in revenues forgone through various tax incentives to wealthy and corporate sector needs to be focused on. This calls for a concerted effort to make India's growth more inclusive in the future.

### Introduction

Rapid pace of growth is necessary for substantial poverty reduction, but for this growth to be sustainable in the long run, it should be inclusive and broad-based across sectors. Therefore, rapid and sustained poverty reduction requires inclusive growth that allows people to contribute to and benefit from economic growth. Indian government has made 'inclusive growth' a key element in the Eleventh Five Year Plan (2007-12) document. Eleventh Plan focuses not only on growth in income but also on its impact on the poor so as to make the growth inclusive.

In the post-reforms period, India's economy has grown at a higher rate, but the share of social sector expenditure has not increased in consonance with high growth rate. Post-reforms macro development experiences in India show that higher rate of economic growth has been achieved with disproportionate poverty and inequalities across groups and regions leaving more space for socio-economic exclusions to continue, especially in lagging states and regions. This has been reflected in terms of uneven human development, pervasive gender inequalities, inter-state poverty disparities and fluctuating growth (Sahu, 2011). Socialism as practised in India seems to be a fraud. Indian brand of socialism did not result in

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transfer of wealth from the rich to the poor but only from the honest rich to the dishonest rich (Chowdary, 2011). Indeed, that is precisely what has happened in India; the rich have been benefited more than the poor from economic growth since 2000. Therefore, in real sense, economic growth in India has been pro-rich and is no way an inclusive growth.

There is a plenty of evidence to show that India is among the world's most unequal countries. According to Asia-Pacific Wealth Report 2011, the population of High Networth Individuals (HNIs)<sup>1</sup> in India grew by 20.8 per cent to 1,53,000 in 2010 as compared to 1,26,700 in 2009. In 2009-10, HNI's wealth in India grew by 22 per cent to \$ 582 billion as compared to \$ 477 billion in 2008-09 which means that the wealth of 1.53 lakh Indians amounted to ` 28,51,800 crore. This signifies the fact that about .01 per cent of Indian population are holding around 44 per cent of GDP in the form of their wealth. This is an indicator of concentration of wealth and income in few hands. This paper attempts to analyse the Indian growth story during post-reforms period in the light of objective of achieving inclusive growth.

### Government Expenditure on Social Sector

Social spending in India is stagnant and there is an inadequate level of public expenditure thus providing a major impetus to the private sector for an investment which is more inequitable and less regulated. Table 1 represents the government expenditure as percentage of GDP on various components of social sector during the post reforms period. UPA government has pledged in its Common Minimum Programme in 2004 to raise public spending on education to at least 6 per cent of GDP and public health spending up to 3 per cent of GDP. During the period of last eight years, there has been virtually zero progress in this direction. Despite a 'robust economic growth rate' of 8 to 9 per cent in GDP and a rising Tax-GDP ratio (see Table 2), the government could barely manage to keep public spending on education at 3.1 per cent and on health at 1.3 per cent of GDP in 2011-12. Thus, the growth in GDP did not translate into corresponding increase in public spending on education and health. Although the expenditure both public and private on health is not less but private expenditure favours the rich quintile of the Indian society. UPA government during its first tenure showed intent for social reforms by starting various flagship programmes like Bharat Nirman, National Rural Employee Guarantee Scheme, National Rural Health Mission etc. but could not raise the required budgetary commitments for realising them. Higher commitments in the budgets are no guarantee that overall budgetary commitments will rise (Duggal, 2011). Thus, social sector spending especially on education and health has remained stagnant during the post reforms period.

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<sup>1</sup> HNIs are those individuals having investable assets of \$ 1 million or more, excluding primary residence, collectibles, consumables and consumer durables.

**Table 1: Government Expenditure on various Components of Social Sector (Centre+States) (As a Percentage of GDP)**

Year	Social Services	Education	Health
1995-96	4.9	2.7	1.0
1996-97	5.0	2.7	1.0
1997-98	5.2	2.8	1.1
1998-99	5.5	3.0	1.2
1999-00	5.7	3.3	1.2
2000-01	6.3	3.2	1.3
2001-02	6.0	3.0	1.3
2002-03	5.8	2.9	1.2
2003-04	5.6	2.7	1.2
2004-05	5.5	2.7	1.2
2005-06	5.7	2.7	1.3
2006-07	5.6	2.7	1.3
2007-08	5.9	2.6	1.2
2008-09	6.8	2.9	1.3
2009-10	6.9	3.1	1.4
2010-11(RE)	7.3	3.3	1.4
2011-12(BE)	6.7	3.1	1.3

Source: Economic Survey, GOI (various years)

#### Tax-GDP Ratio

An important key factor which is critical to higher social spending is the Tax-GDP ratio presented in Table 2. Tax-GDP ratio has increased from 14.3 per cent in 1995-96 to its maximum level of 16.9 per cent in 2006-07. The country has also achieved the maximum growth rate of 9.6 per cent in GDP in the same year. Presently India's Tax-GDP ratio for central and state governments combined is less than 17 per cent which is one of the lowest among emerging economies and certainly very low compared with developed economies. Worldwide experience shows that countries with high social sector spending have Tax-GDP ratios of over 30 per cent (Duggal, 2011). Thus, apart from the need to increase allocations for the social sector there is imperative need for raising substantially more tax revenues which will make the former possible. To accomplish this, the tax base definitely needs to be expanded substantially, but more immediately, better tax compliance and reduction in revenues forgone through various tax incentives and rebates especially to the corporate sector and wealth creating sections (HNIs) needs to be focused on.

**Table 2: Tax-GDP Ratio and Growth Rate in GDP**

Year	Tax-GDP Ratio	Growth Rate in GDP
1995-96	14.3	7.3
1996-97	14.1	8.0
1997-98	13.8	4.3
1998-99	12.9	6.7
1999-00	13.7	6.0
2000-01	14.1	4.4
2001-02	13.4	5.8
2002-03	14.2	3.8
2003-04	14.6	8.5
2004-05	15.0	7.6
2005-06	15.6	9.5

2006-07	16.9	9.6
2007-08	16.0	9.3
2008-09	16.5	6.7
2009-10	15.3	8.4
2010-11(RE)	16.2	8.4
2011-12(BE)	16.5	6.9

Source: Computed from data in Handbook of Statistics on Indian Economy 2011-12, RBI & Databook for use of Deputy Chairman, Planning Commission (2012)

#### Revenue Forgone on Direct Tax

In recent years, there is a large shift of taxation from the rich to the poor through direct tax concessions to corporate sector and a steep rise in indirect taxes. This is one of the important factors which can be held responsible for widening up the gap between the rich and the poor in India. So, there is an immense need to look at the revenue forgone by the government on direct tax concessions to the corporate sector and well-off income tax payers. The revenue forgone by the central government on account of various direct tax incentives and rebates to the corporate and non-corporate sectors during 2004-05 to 2011-12 is depicted in Table 3 (refer annexure). Total revenue forgone by the central govt has increased from `71,081 crore in 2004-05 to `93,612 crore in 2011-12. During 2011-12 the total revenue forgone accounts for 17.6 per cent of direct tax revenue. Therefore, it is clear the government is giving huge concessions to corporate sector and HNIs. This shows the bias of government policies in favour of corporate sector. However, instead of giving direct tax concessions to the wealthy and corporate sector, the government should utilise this substantial amount for the welfare of the poorer section of the society.

#### Government Expenditure

Fiscal deficit of the country is continuously rising in the past few years. To bring down the fiscal deficit, the government is trying to cut its expenditure by slashing the subsidies. In order to determine the expenditure policy of the government, the central government expenditure and total government expenditure (centre+states) as a percentage of GDP have been examined in Table 4. In fact, India's total government expenditure as a percentage of GDP is very low in comparison not only with the advanced economies but also with some major developing economies. India is presently spending around 26-27 per cent while the advanced economies are spending on an average of 43.3 per cent of their GDP (Economic Survey 2011-12). Despite the fact that the economy has clearly been slowing down, the government is still trying to reduce its expenditure even further, thus contributing more to the slowdown. Thus central government expenditure as a percentage of GDP has been continuously falling every year since 2009-10. The government policy to reduce its expenditure is simply a drive to suppress the working people's share in the social product. Indeed the crux of the policy of the government is to provide attractive direct tax incentives to the private sector in the hope that it will invest and revive growth and thus

giving private investors the right to make monopoly profits.

**Table 4: Government Expenditure as a Percentage of GDP**

Year	Central Govt. Expenditure	Total Govt. Expenditure (Centre+States)
1995-96	14.2	24.2
1996-97	13.9	23.4
1997-98	14.2	24.2
1998-99	14.7	25.4
1999-00	15.4	26.6
2000-01	15.6	28.1
2001-02	15.9	28.3
2002-03	16.8	28.3
2003-04	17.1	28.5
2004-05	15.8	27.3
2005-06	14.1	26.8
2006-07	13.6	25.8
2007-08	14.3	26.4
2008-09	15.7	28.4
2009-10	15.9	28.7
2010-11(RE)	15.6	29.2
2011-12(BE)	14.1	26.8

Source: Economic Survey, GOI (various years)

#### Sectoral Composition of GDP

Sectoral composition of GDP has been analysed in Table 5 in order to determine whether the growth of economy in India is inclusive enough or not. GDP in India can be divided into three broad sectors- Agriculture (primary sector), Industry (secondary sector) and Services (tertiary sector). Poverty in most developing countries like India is concentrated in rural areas, so growth in the agriculture sector and in the rural economy has been highly beneficial to reduce rural poverty. Recent studies confirm that growth origination in agriculture generates among the highest benefits for the poorest households and the unskilled workers (Grewal, Malhotra and Ahmed, 2011). The table reveals that the contribution of agriculture to GDP in India has been on the decline in recent decades, dropping from 53.1 per cent in 1950-51 to 13.9 per cent of GDP in 2011-12 whereas the share of labour force dependent on agriculture is still very high. India's GDP growth has essentially been called services-led growth as its share in GDP has increased from 30.3 per cent from 1950-51 to 59 per cent in 2011-12. Moreover, the contribution of industrial sector to GDP has become stagnant around 27 per cent since 1990-1991. This has naturally meant that growth of economy in India has not been inclusive enough.

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**Table 5: Sectoral Composition of GDP**

Year	Agriculture	Industry	Services
1950-51	53.1	16.6	30.3
1960-61	48.7	20.5	30.8
1970-71	42.3	24	33.8
1980-81	36.1	25.9	38
1990-91	29.6	27.7	42.7
2000-01	22.3	27.3	50.4
2010-11QE	14.5	27.8	57.7
2011-12AE	13.9	27	59

Source: Economic Survey, GOI (2011-12)

#### Conclusion

Growth of economy can be considered to be pro-poor or inclusive growth as long as poor people also benefit in absolute terms. Inclusive growth should include all sections as beneficiaries as well as partners in growth and that inclusion of the excluded should be embedded in the growth process. In the post-reforms period while there has been improvement in the rate of economic growth, increases in foreign exchange reserves, acceleration in export growth etc. but share of social sector expenditure has not been increased inconsonance with the accelerating pace of economic growth. Public financing system in India is characterised by stagnant and inadequate levels of public spending on social sector providing a major impetus to the private sector for an investment which is more inequitable and less regulated. Liberalisation and globalisation have resulted in wooing the private investors by giving special tax incentives, outright gifts and the right to make monopoly profits and thus the aim of social inclusion could not be achieved.

The aforesaid analysis suggests that rates of poverty reduction have been helped by rapid growth in agriculture, public expenditure on social services particularly education, health and infrastructure and the quality of governance. Rapid growth in agriculture sector generates not only more opportunities for the poor to get employment and earn income but also generates higher demand for industrial products and assist the budgetary situation of the government through higher growth of tax revenues which could then be used to finance various anti-poverty programmes. Thus apart from the need to increase allocations for the social sector, there is imperative need to raise substantially more tax revenues which will make the former possible. To accomplish this, the tax base definitely needs to be expanded, but more immediately, better tax compliance and reduction in revenues forgone through various tax incentives to wealthy and corporate sector needs to be focused on. This calls for a concerted effort to make India's growth more inclusive in the future.

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#### Annexure

**Table 3: Revenue Forgone by Central Government on Direct Tax Concessions ( ₹ crore)**

Financial Year	Corporate Sector	Revenue Forgone from Corporate Sector as % of Direct Tax Revenue	Non-corporate Sector	Revenue Forgone from Non-corporate Sector as % of Direct Tax Revenue	Total Revenue Forgone	Total Revenue Forgone as percentage of Direct Tax Revenue
2004-05	57852	43.5	13229	10.0	71081	53.5
2005-06	34618	20.9	15182	9.2	49800	30.1
2006-07	45034	19.6	32143	13.9	77177	33.5
2007-08	58655	18.8	42161	13.5	100816	32.3
2008-09	66901	20.0	37570	11.1	104471	31.1
2009-10	72881	19.3	45142	12.0	118023	31.3
2010-11	57912	13.0	36826	8.2	94738	21.2
2011-12	51292	9.6	42320	8.0	93612	17.6

Source: Computed from data in Budget Documents, GOI (various years) & Handbook of Statistics on Indian Economy 2011-12, RBI

## Internal Migration in Unorganized Sector in India: Impact on Migrant Labourers

Bhaskar Majumder<sup>1</sup>

### Abstract

Internal migration of workers from the root to the destination in an economy occurs at the point at which the trajectory of economic opportunities at the root at its downswing intersects with the trajectory of economic opportunities at the destination at its upswing with the latter exceeding the former beyond that point. The impact of internal migration on the migrants varies depending on the availability of and access to economic opportunities.

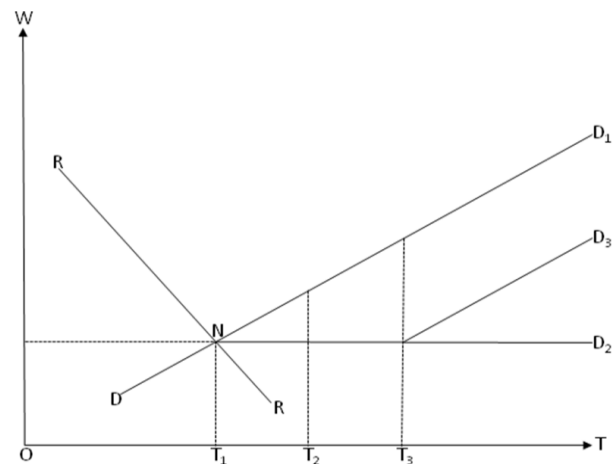
Internal migration in India at the root reflects a mix of factors like declining economic opportunities, declining community support, divisions within the rural society, crippling social environment, and obstructive local power structure. Following migration, several crises emerge at the destination that affect the migrants like the identity question, political unrest, gender discrimination, unpaid labour, wage imbalance, displacement, and dehumanization. Despite these crises, based on the observations and responses from the migrants within India over the last one decade, the paper argues in favour of migration that breaks local confinement and opens up new horizons of development. At the same time, the paper pleads for protection of migrant workers through implementation of appropriate Acts.

### I. Introduction

Migration refers to the 'relocation of individuals to a new geographic area. These changes in an individual's place of residence from country to country, state to state, or town to town are all considered forms of migration' (Magill 1997: 978). Internal migration is the unrestricted movement of people from one region to another within the geographic boundary of a country in search of economic opportunities. In a national economy these movements include (i) inter-state movements by in-migration and out-migration with variations across states, and (ii) intra-state movements. The directions of these movements of people in a rural-urban frame may be (a) rural to rural, (b) rural to urban, (c) urban to rural and (d) urban to urban (Majumder, 2007). In a time-frame migration may be both short-term and long-term. In space, migration may be both short distance and long distance. The time point for movement of the person from the root to the destination is shown by the point at which the trajectory of economic opportunities at the root at its downswing

intersects with the trajectory of economic opportunities at the destination at its upswing with the latter exceeding the former beyond that point.

**Diagram 1: Time Line of Migration**



In Diagram 1, the horizontal axis OT shows time of migration and the vertical axis OW shows economic opportunity. The horizontal line D<sub>2</sub> shows subsistence wage rate at the root. The line RR shows opportunity curve at the root. The line DND<sub>1</sub> shows opportunity curve at the destination. Up to the time point T<sub>1</sub> the workers remain rooted with no migration. Corresponding to point N, opportunity at destination starts increasing to exceed that at the root. Thus, after point T<sub>1</sub> migration occurs that continues up to point T<sub>3</sub> along the DD<sub>1</sub> line. The more the opportunity at the destination, the higher is the time span of migration. After time point T<sub>3</sub> the destination may show exhausted possibilities of expansion or crowding out, so that after T<sub>3</sub>, either a section of the migrant workers feels forced to come back to the root shown by D<sub>2</sub>, or moves to another destination represented by D<sub>3</sub>. The positively sloped lines D<sub>1</sub> and D<sub>3</sub> show rising economic opportunities at multiple destinations above subsistence level at the root, and not comparative wage rates for the destinations.

Migration based on economic reasons like wage-work, particularly in the unorganized sector, pose problems for the inhabitants at the destination who may feel crowded out due to the entry of the migrants. The impact of internal migration on the migrants also varies depending on the availability of and access to economic opportunities. People often migrate without foreseeing the consequences – immediate or remote. This is because they often move directionless, sometimes to be engaged in short-term multiple jobs to support primary income earned at the root, sometimes to get engaged in hazardous jobs at the destination involuntarily, and sometimes in illegal practices unknowingly. These are all manifestations of the survival instinct of the migrating workers.

The rural economy in India is basically unorganized and limited to agriculture and land-based activities like

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brick kilns, stone breaking, mining, construction of link roads, and other public works like digging of ponds, and construction of canals. 'The agriculture sector consists of almost entirely unorganised workers who are mainly the self-employed (65 per cent) and the casual workers (35.0 per cent). Even in the non-agriculture sector nearly 72.0 per cent of the workers are in the unorganised sector...' (NCEUS, 2008, p. 4). Around 93 per cent of the workers in India are in the unorganized sector and are engaged in these activities (NCL 2002). The agriculture sector consists almost wholly of unorganized workers, while in the non-agricultural sector around 72.0 per cent of the workers are in the unorganized sector (NCEUS 2008, p. 4). Hence, the workers in both these sectors move around all over the country in search of wage-labour.

The rest of the paper is structured as follows. In Section II we explain the nature of internal migration in India by market forces in the unorganized sector. In Section III we examine the impact of migration on the migrant labourers. In Section IV we talk about the rights of migrant workers and the role of the state in India. Finally, in Section V we offer concluding comments.

## **II. Internal Migration in India by Market Forces**

Generally the labour market is characterized by demand and supply forces for purchase and sale of labour power at the prevailing wage rate. The market operates in a condition of prior knowledge of prevailing wage rate and structure specific to works to be executed by the worker. Generally the work-space or work destination is also known to both the sections – the seller and the buyer of labour power. The wage rate follows the productivity of labour.

The conventional twin factors that explain migration are push and pull. Lewis explains migration in a dual economy as transfer of labour from the labour-surplus to the labour-deficit sector (Lewis, 1954). Todaro explains migration as a function of expected rural-urban wage-differential and the probability of getting a job in the urban region (Todaro, 1969). The push factors generally follow from the declining opportunities at the root while the pull factors centre on rising opportunities at the destination. The endogenous factors that push workers out include inability or reluctance of the individual to work in agriculture because of being economically less remunerative and socially less acceptable, being inconsistent with western education, and existence of socio-cultural barriers to being engaged as wage-workers at the root. A latent cultural taboo prevails for the high caste households in India who either decline to or are denied the opportunities to be engaged in manual works at the root. They migrate elsewhere to exercise their competitive advantage there. The pull factors arise from the components of urbanization and expanding labour market.

### **II.I Supply Side of Migration**

For the income-asset-poor people in India, migration is generally supply-driven or distress-driven, often called 'push' of the workers from the root. Regional uneven development often leads to both pull and push factors causing migration of labourers in India (NCRL 1991:309). If production cycle shows seasonality, seasonal migration is a corollary. The low-paid seasonal workers borrow money for maintaining their livelihoods during off-agricultural season from local non-institutional sources, thus becoming indebted. The indebtedness compels them to migrate in search of wage-work. This locks the workers into a debt-migration cycle (Srivastava 2010: 5). Rural indebtedness is reported to be one of the major reasons for workers standing on 'labour corners' in the cities in India in search of work (Source: conversation with workers in labour chaurahas in Allahabad, UP, May 2010, and Chattarpur, MP, July, 2011). Other reasons, like economic oppression including land grabbing by the dominant sections and land acquisition by the state for 'public purposes', also force the vulnerable people to move out. Generally migration at the bottom of the society shows exit from the root in search of job opportunities for earning support income by being engaged in multiple jobs at the destination. The reason is that no single job in the unorganized labour market for the migrant worker is long-term or secure because of the seasonality of work, labour obsolescence by requirement of new skill and so on.

Migration from the root also follows from declining economic opportunities, declining community support, emerging nuclear families, divisions within the rural society, local politics and power. Cultural taboo for practicing a particular type of work, caste coercion, unwelcome social environment, and outstanding debt may force the individual to migrate. Declining opportunities at the root, however, are neither universal nor specific to rural regions in India, particularly in the context of large number of population migrating from rural Bihar to rural Punjab, for example (Source: Informal conversation with migrant workers from Bihar during train journey to Bhatinda, Punjab, December 2009). The information about work opportunities and environment received through social network that works as a link between the root and the destination usually determines the destination of the migrants.

### **II.II Demand Side of Migration**

The controllers of capital searching for cheap labour prefer to use migrant workers because of their being dislocated from the root even if for a temporary period and hence, lesser bargaining power of these workers and consequently their acceptance of low wage rate. The determinants on the demand side are clubbed together as 'pull' factors. The migrant workers feel compelled to remain loyal to the controllers of capital with whom they had worked earlier as they feel secure with them. This 'security' is actually 'less insecurity'

relative to perceived 'invisible insecurity' elsewhere in other employment. The migrant workers are compelled to work more number of hours to yield more output per capita than what they had been producing at the root and also more than what had been or could have been produced by the original workers at the destination. As a result, the nature of migration often becomes family migration in order to produce more, with the children supplementing the 'parents-workers' output and raising the average product of the two by invisible and hence unpaid child labour.

In order to keep the migrants from consolidating against the excess use of labourers by labour hour per labourer, the employer of migrant workers tries to obstruct trade unionism and often gets works done by proxy. He also engages one labour contractor and one production manager to run the production unit. The pattern of employment remains seasonal and short-term. The names of the migrant workers do not figure in muster rolls maintained by the employer which helps the latter to avoid paying any compensation to the migrant workers if the need arises. The employers also select in and select out the workers at the destination depending on the role of the labour contractor, the local power structure, and oiling the government machinery, if necessary. After the end of the production season often some of the migrant workers continue to stay at the destination by engaging in multiple short-term wage-works to earn support income (Source: Informal conversation with brick kiln owners and workers at Barasat, West Bengal, 2001).

#### **Example I - Labour Market for Workers: Location Specificity**

In case of labourers standing on the street corners/squares, the a priori knowledge base is absent, even on the assumption that the particular worker had been engaged in work previously from the same corner. This is because not only the employee differs, but also the work differs. The work location and quantum also differs.

The workers in most of the cases do not know the employer or knows at best multiple employers. The fact remains that the worker is not in a position to enhance his bargaining power when there exists potentially a large number of employers. In reality, the presence of large number of workers on the squares on a daily basis keeps them vulnerable; this number far outweighs the potential large number of employers. Thus, in outward appearance, the squares show a competitive labour market. In reality, it shows monopsony (single buyer-large sellers). The employers are local with adequate knowledge about the local activities, while the workers are migrants with no or limited information about the prevailing conditions and environment at the prospective work place.

Labour squares (popularly known as Labour Chaurahas in UP) show the bottommost layer of labour market in India. In conventional economic parlance, the

square or the location cannot portray the market – but then it exists on a daily basis, whether or not it draws the attention of the policy makers in the public domain. The squares are also not pre-fixed or earmarked by the local administration – workers in search of job assemble at a particular public location, generally a location that may draw the attention of the potential employers. The workers are free hand, excepting a few like the workers skilled to work as mason.

More often the workers are engaged through labour contractors who move within the cities. Labour square is typically an urban phenomenon – there cannot be any rural labour squares. In fact, the very topography of a village in India shows the absence of three or four public roads meeting at some prominent point to be called a square. Also, rural India does not show any existence of labour squares for the free labourers to stand on for an indefinite period to get 'search employment'.

#### **III. Impact of Migration on Migrant Labourers**

Though most of the internal migration in India is rural to rural, the distribution of migration is skewed towards economically attractive cities in India. Since there exists a limit to the carrying capacity of the cities, increasing city-directed migration sometimes leads to socio-political unrest. The magnitude of the problem is lessened if the required urban public utilities are more than what are additionally required by the migrants. The problems often lie in sharing limited utility services provided by the local government like residential water supply and public sanitation facilities which get reduced per capita because of in-migration. However, there is often natural assimilation in the destination following in-migration long back, for example in the city of Surat in the state of Gujarat which started attracting migrants many decades ago (Source: Informal conversation with migrants settled in Surat, Gujarat, March, 2010). But the immediate concern is access to wage work of the original workers at the destination since the entry of the migrants reduces the available wage work there since the migrant workers subsidize the labour market and break the downward wage rigidity. The economic displacement of the original workers at the destination may create commotion among them and a reaction is likely to emanate from the reserve army of workers at the destination lest they are crowded out in the labour market by the new migrant labourers. Alongside, with the rising number of migrant workers the cultural composition at the destination may change, thereby threatening the existence and domination of the traditional culture.

We collected data based on diary notes through conversation with workers in circulation all over India over last ten years. The observations thus recorded on internal migration in the unorganized sector in India show the following impact on the migrants (Majumder 2011):

1. **Identity Crisis:** The original local people at the destination often get reduced to minority as the influx of migrant population renders their numbers to fall below some critical percentage in their own location. The migrants may also lose their original identity by social acknowledgement when they come back to the root. If the migrants stay back at the destination then their new identity takes time to be socially acknowledged.
2. **Wage Imbalance and Displacement of Local Workers:** Inflow of migrant workers may crowd out job seekers at the destination. Workers migrating from states like Bihar, Jharkhand, Orissa, and Chhattisgarh are ready to work at wage rates much lower than those prevailing in states like Punjab and Maharashtra. This helps the controllers of capital and contractors (controllers of labour), but may displace the workers at the destination.
3. **Political Unrest:** The long-duration migration may change the political scenario at the destination in favour of the migrants by the size of vote bank. This may invite conflicts in a number of forms like ethnic, linguistic, parochial, and political. It may be community-based, skin-colour-based, and caste-based.
4. **Gender Discrimination:** In any involuntary relocation, the first victims are women. In case of resource crisis at the destination, migrant women will first face problems in collecting drinking water, fuel for cooking, find CPR for animal grazing, and space for sanitation. The vulnerability of migrant women is multiplied by sexual harassment and the probability of being forced into prostitution.
5. **Unpaid Labour:** Often the migrant workers are used by adjoining affluent inhabitants to do menial works for little or no payment, like collecting garbage for safe disposal, collecting residue cooked food following festivals for self-consumption and disposal. The helplessness in an unknown environment compels these workers to do the work forced on them. This labour often becomes forced labour.
6. **Human Development:** Family migration leads to de-schooling of children, leading to not only drop out from school at the root but also non-entry into the school at the destination.
7. **Assimilation:** The migrant workers find it difficult to get assimilated in the destination because of difference in culture. This may bring about conflicts in the public space.

The vulnerability of the migrant workers continues at the destination by accidents at the workplace, non-availability of medical benefits, occasional disappearance of workers, delayed payment of wages, sexual harassment, labour bondage, absence of any

bargaining power, and no membership in labour organizations. While some workers learn new types of works in the process, usually only those who are at the learning age bracket are benefitted and not those who are aged, or who inherited skills long back and accumulated expertise by doing a particular type of work over decades. For the latter, in the new context and location of migration either the historically practiced specialization may be irrelevant or the new technologies make the traditional skill obsolescent. Thus, unlearning of the traditional skill as a result of 'market non-accommodation' is the consequence more than new learning. Sometimes the migrant workers specially brought in for hazardous works at risky locations are virtually kept confined by labour contractors by non-payment or delayed payment of wages. Sometimes the migrant workers settle down at the destination by matrimonial relations as we found in the case of migrant workers from the state of Bihar engaged in road construction in hazardous locations in Munsiairy block in Pithoragarh district in the state of Uttarakhand who subsequently settled down there by matrimonial relations (Source: Interview of Migrant Workers in the Munsiairy block in Pithoragarh district in the state of Uttarakhand, 2008). Over time the destination may become a melting pot of migrant workers from different parts of India resulting in a minimization of the socio-cultural gap between the original inhabitants and the migrants.

#### **Migration-led Mobility and its Impact**

What we posed above is based on what happens for the migrants as a whole in the destination by first relocation for job search by selected socio-economic indicators. There is a 'rainbow' effect of migration also – the effect that shows the door open for mobility. This we may term 'rainbow migration effect' where the migrant learns by doing at the first destination, develops adequate skill-competence to get relocated to a new destination. This second destination is not only choice-determined but also provided better economic benefits to the migrant. While some workers learn new types of works in the process, it benefits only those who are at the learning age bracket and generally not those who are aged, who inherited skills long back and accumulated expertise over decades 'by doing' a particular type of work. Also, migration-led mobility works for the individual worker if he is not tied at the first destination by informal credit market or muscle power of the employer at the first destination. This rainbow effect, however, is limited by whether or not it is individual migration. In case it is repetitive family migration, the costs of family disintegration may overshadow the benefits of migration-led mobility.

A movement along DD1 is migration to first destination, while a movement along D3 is mobility (Diagram 1). While D3 shows better economic opportunity to the individual migrant worker, it may show adverse environment for the family, in case it was

a family relocation to first destination. This is because of socio-cultural reasons like social accommodation of the spouse, schooling of children at the first destination etc. Thus, while mobility that springs up from migration shows positive economic benefits, it may show negative socio-cultural costs, and these are non-comparable because the direct economic beneficiary that is the migrant himself is different from the other dependent members in the family who bear invisible costs.

Migration-led mobility, however, happens for a very small fraction of the total migrant workers. While in case of short-run rural to rural migration the chance is virtually absent, in case of rural to urban migration the chance is positive but very limited, and in case of urban to urban migration, the chance remains more than the first two. This is because of the state of technology in urban works and hence the skills required for such works, which the rural workers may lack. The other is rural rootedness whereby the rural to rural migrants come back to the root after completion of the production season, be it crop season or brick production season.

There is, however, no defined boundary for 'repetitive migration' and mobility. In case repetitive migration is compulsion-determined, it adds little net worth to the migrant. In case, migration shows choice on the second round, it adds net benefits to the migrant. The latter is, however, subject to family in integration or disintegration. In India, most of the decisions are family decisions. Migration and mobility are no exceptions.

#### **IV. Rights of the Migrant Workers and the Role of the State**

Although several Acts have been passed by the Government of India for safeguarding the interests of workers in keeping with the pledge in the Constitution of India, they all encompass workers as a category. As reported by the NCEUS, 'Among the existing laws some laws that are for all workers are also extended to the migrant labourers. These include Minimum Wages Act 1948, Contract Labour (Regulation and Abolition) Act 1970, the Equal Remuneration Act 1976, the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, the Workmen's Compensation Act 1923, the Payment of Wages Act 1936, the Child Labour (Prohibition and Regulation) Act 1986 and the Bonded Labour Act 1976' (NCEUS, 2008, p. 165). However, the Planning Commission, Government of India, opines that hardly any Act has been passed specially for the welfare of migrant workers as a particular category (Planning Commission, 2006, p. 6-8). Broadly, Chapter III (Articles 16, 19, 23 and 24) and Chapter IV (Articles 39, 41, 42, 43, 43A and 54) of the Constitution of India pledges the dignity of human labour and the need for protecting and safeguarding the interest of labour as human beings (Planning Commission, 2006). Labour

laws influenced by United Nations (UN) Conventions and Standards also evolved in India to protect the labourers though some of those preceded the formation of the UN itself. There is only one Act namely The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979, which aims to safeguard the interests of migrant workers through the following measures:

- Registration of all principal employers/contractors employing migrant labour
- Mandatory licensing of contractors
- Issue of passbook affixed with a passport-sized photograph of the workman describing his socio-economic position
- Payment of minimum wages fixed under the Minimum Wages Act, 1948
- Payment of equal wages for migrant workmen performing similar nature of work along with the local labourers
- Payment of journey allowance including payment of wages during the period of journey
- Payment of displacement allowance
- Providing for suitable residential accommodation
- Providing for medical facilities free of charge
- Providing for protective clothing (Website, Ministry of Labour and Employment, January 04, 2007).

The Inter-State Migrant Workmen Act, which came into force in 1987, says that 'Every principal employer and every contractor shall maintain such registers and records giving such particulars of the inter-State migrant workmen employed, the nature of work performed by such workmen, the rates of wages paid to the Workmen and such other particulars in such form as may be prescribed' (GOI, 1987, p. 14). Also, that 'It shall be the duty of every contractor ...to issue to every inter-State migrant workman a pass-book affixed with a passport size photograph of the workman (containing) the name and place of the establishment wherein the workman is employed, the period of employment, the proposed rates and modes of payment of wages...' (GOI, 1987, p. 8).

As reported by the NCEUS, 'The Inter-State Migrant Workers Act (1979) has been ineffective because of the lack of implementation as also the lack of awareness among the workers regarding existence of the laws and their rights' (NCEUS, 2008, p. 165). The reasons cited by the NCEUS for the non-implementation or ineffective implementations are the following:

- Very small number of contractors has taken licenses,
- Very few enterprises employing interstate migrant workers have registered under the Act,
- Migrant Workers do not possess pass books, prescribed by law, to reveal and record their identity (NCEUS, 2008, p. 165).

During our study of migrant workers across regions in India over the last one decade we found that the provisions of this Act are systematically violated across the country. The recommendations of the National Commission on Labour, which recommends enactment of a general law relating to hours of work, leave and working conditions, safety at the work place, and photo identity cards of the workers, have also remained unfulfilled so far. The migrant workers have to ensure their own security by joining some prevailing union specific to works-cum-location, like the IMF-initiated efforts to organize the Migrant Workers at the Shipbuilding Yard at Mumbai and Alang through Steel, Metal & Engineering Workers' Federation of India (SMEFI) (Sarde, n.d. p. 6).

#### V. Concluding Comments

Migration from one place to another in search of new opportunities has been in practice since the beginning of imaginable human history. Migration by choice-determined relocation shows social accommodation and inter-mixing of different socio-economic-cultural categories of population. It also opens up new horizons of development and breaks local confinement.

What follows from our discussion above is if migration leads to mobility, it shows apparent economic advancement, the unit of analysis being the individual migrant. However, in case the first migration had been family migration, the members of the family may not be in a position to be net beneficiaries by such migration-led mobility, the unit of analysis being family here. By extension of the same, summation of individual net benefits does not lead to social welfare

maximization. Second, migration once is not the end of it – there occurs repetitive migration. This is either routine based on repetitive skill, or mobility that shows higher stage for the individual. Third, migration has multiple and differential impact not only on the migrants but also on the original people thought of as destination for the migrants. Third, apparently migration within the national economy is a zero-sum game by relocation of the same size of labourers. This may be untrue, even if the works are the same, since the migrant worker is generally expected to contribute more at the destination relative to at the root. Fourth, because of the above, use of migrant workers more is a rational choice for the controllers of capital. Fifth, poverty-debt-migration cycle for the workers at the root compels them to move out. Hence, the suppliers of labour and the controllers of capital meet each other at the destination.

However, forced migration from the root which is supply-driven or distress-driven, called 'push' of the workers, often has adverse impact on the migrant labourers. Many of the indicators that could have revealed the adverse impact remain invisible like always being suspected and accused by the police and public administration, apathy or being looked down upon, harassed by the labour contractor, providers of loans, employers or paymasters, and mafia. The adverse impact of internal migration has to be addressed by the state in India through declaration of a National Migration Policy (NMP). Rather than chalking out multiple Acts to protect the migrant workers, a single appropriate Act will help if it is implemented in right spirit. This requires fixing responsibility on an appropriate institution under the Ministry of Labour, Government of India.

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**Diary Notes** (All the cities mentioned below are in India)

Informal conversation with (i) migrants settled in the city of Surat, Gujarat, March, 2010, (ii) workers in labour chaurahas in the city of Allahabad, Uttar Pradesh, May 2010, (iii) workers in labour chaurahas in the city of Chattarpur, Madhya Pradesh, May 2010, (iv) migrant workers from Bihar while in Train journey to Bhatinda, Punjab, Dec. 2009, (v) local people and Taxi drivers in Mumbai, Maharashtra, December, 2009, (vi) taxi drivers in Howrah, West Bengal in Jan. 2010, (vii) Migrant Workers in the Munsiaary block in Pithoragarh district, Uttarakhand, 2008, (viii) brick kiln owners and workers at Barasat, West Bengal, 2001.

## The Rusted Rainbow: Changing Education Trends in BIMAROU States after Neoliberal Reforms

Navneet Kaur Manchanda<sup>1</sup> and Nikita Pahwa<sup>2</sup>

### Abstract

*Two decades of neoliberal reforms in India have undoubtedly recorded myriad achievements for the economy in different sectors; so much so that India camouflaged the growth patterns of developed economies witnessing a transition from primarily an agricultural to a service economy. However, it cannot be denied that the post-reform period with high growth rates, has witnessed higher inequality among states when seen in context of social indicators. Today we have two India's existing simultaneously-a developed West and South on one hand and a still struggling North. This paper attempts to analyze the impact of neoliberal reforms and structural adjustment Processes on education sector specifically in context of BIMAROU states. The paper presents an analysis of expenditure on education by the states for the period 1980-2009. The analysis shows that the education expenditure as a proportion of GSDP as well as Revenue Account has remained more the less same since 1980s in BIMAROU states, with little state wise fluctuations during the last two decades. The outcome of this expenditure trend has been persistently high dropout rates in primary, elementary and secondary education, lower female literacy and high pupil-teacher ratios vis-à-vis national average. It cannot be ignored that gross enrolment rates (at all stages) and overall literacy rates have improved significantly in these states over the last twenty years and much of which is attributed to enhanced infrastructure and plethora of targeted programs but quality of infrastructure is still a question. While presenting an analysis of each of these issues, this paper dwells into the plausible reasons and suggestions for development of education sector in these states, in order to fix the existence of this dual India.*

Key Words: Education, Neoliberal reforms, BIMAROU

### I. Introduction

“Illiteracy and Innumeracy are forms of insecurity in themselves. Not to be able to read or write or count or communicate is a tremendous deprivation.”

- Amartya Sen

According to noble laureate Amartya Sen, education is the foundation stone of an individual's as well as a society's future because it is literacy which ensures social cohesion and strengthens democracy. The last sixty years of independent India have witnessed myriad changes in the priority accorded to the education sector

and the financial expenditure incurred by the Center and the State on this front. The policymakers today are striving to achieve economic growth with human development and that has precisely been the reason for increased budgetary allocations for education for instance 1percent of GDP in 1950-51 to 4.02 percent in 2000-01. The paradigm shift in the Indian Economy marked by the New Economic Reforms 1991, did impact education sector a big way, not only in terms of education expenditure but also in terms of associated outcomes like gross enrolment rates, dropout ratio, literacy rates and infrastructure availability. However the variations and the inequalities which persisted prior to economic reforms in this sector did continue after the reforms too especially when the trend in the country's so called BIMAROU states are analyzed. It was prior to 1991 that Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh were tagged as BIMAROU states not only because this stands to be the acronym for these states but also to describe the poor performance of these states socially and economically. Later on to join the league was Orissa for its abysmally low performance on social and economic fronts.

Although the State and Centre's expenditure on education has increased(in absolute terms) since 1980 in BIMAROU states, but does higher expenditure levels reciprocate in form of better enrolment rates and associated outcomes? The existing literature in this dimension presents a mixed scenario. On one hand the studies reveal that increased public expenditure on education confers a positive impact on the enrolment rates, reduced drop out ratio and other associated key educational outcomes (Gupta et al., 2002). Mehrotra (1998) in his study postulates that relatively high public spending on education with high share of primary education in total education expenditure, leads to higher education attainment rates. Gallagher (1993) concludes that the expenditure so incurred on education, positively affects key education outcomes only after correcting for its quality and efficiency. On the other hand there exist studies which argue the presence of a weak relationship between the public expenditure and educational outcomes and instead conclude that there are other crucial factors at play like per capita income (Mingat and Tan, 1992), perceptions of parents about the opportunity cost of sending the child to school (Appleton et al., 1996) and parental education (Flug et al.,1998).

There has been extensive research on the socio-economic outcomes of the public expenditure on education at a cross country level. Raj Kumar and Swaroop (2008) empirically analyses the effect of public expenditure on primary education in improving the key educational outcomes in countries with good governance. The results are based on 101 observations from 57 countries and exhibit that the coefficient of expenditure on primary education becomes significant only after adding an interaction term of good

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governance with spending. At the state level there are several studies like Anbalagan (2011), this study presents an account of interstate variation across states, in public expenditure on education in the post liberalization era. Similarly, Tilak (2006) in his study presents a contrast between two educationally backward states namely Andhra Pradesh and Rajasthan on the grounds of public expenditure. However not many studies have exclusively examined the public education spending and its relation with various education outcomes like literacy rates, dropout ratio, pupil teacher ratio etc, in pre and post liberalization era, in the BIMAROU states per se. This paper presents a detailed account of education sector in these states taking into account states expenditure on the education sector. A deliberate attempt has been made in this paper to restrict the focus on state education expenditure as the research so far in this dimension highlights the fact that some states have become entirely dependent on the central grants for even minimal expansion of their education systems (Govinda et al., 2008). Hence it becomes requisite to study the pattern of education related variables overtime in these states, to see the true development of the country, after the paradigm shift and to understand the role of state. The remainder of the paper is structured as follows: Section II presents a detailed account of performance of Bihar in education sector followed by that of Madhya Pradesh in section III. Section IV highlights the trends of Rajasthan. Section V describes education expenditure overtime and performance of associated outcomes for Orissa accompanied by Uttar Pradesh in section VI. The paper rests with conclusion and policy suggestions in section VII. The reference period for the outcome variable analysis has been 1980-81 to 2007-2008.<sup>3</sup> Expenditure analysis period has been 1980-2009.

## II. Bihar

Bihar is a highly populous state with its population increasing at a compound annual growth rate of about 3 percent vis-a-vis 2 percent for all India (Table A.1 in Appendix)<sup>4</sup>. However with the growth of population the per capita expenditure on education too has increased overtime. The figure stands at Rs 34 for the year 1980 and approximately Rs. 900 for the year 2009 (Table A.2). The education expenditure as a proportion of GSDP showcases a visibly constant trend over the period of 1980-2009 (Table A.3). But even more surprising are the trends exhibited by education expenditure as a proportion of revenue expenditure. It has fallen to 20 percent for the year 2009 as against 26 percent in 1980-81, which is not a desirable state of

affair for a rapidly catching up economy like Bihar (Table A.4).

The Literacy rate for the state has improved considerably. It was 66percent for the year 2011 as against merely 26percent in 1981. But despite recording a tremendous increase in the rates; the figure still stands below the national average. Also gender disparity exists between male and female literacy rates, as the female literacy rate has increased by 22 percent between 1980-81 and 2000-2001, while for males it has increased by 25 percent for the same period (Table A.5). But delving deep the figures, reveal that female literacy rate in the state has caught up in the post liberalization period as exhibited by figure 1. The Gross Enrolment Ratio since the beginning of 1990s has grown rapidly for females than males. In the 6-11 age group (I-V) the ratio has increased from merely 74 in 1980 to 129 in 2007, which is in fact well above the national average of 114 for the year 2007 (Figure A.6 & Table A.7). One of the reasons for such a trend could possibly be that the GER for males has been either around or above 100percent already for the period under study. (Figure 1 is mentioned in the annexure)

There remains an overall difference of ten percentage points between male and female enrolment rates at the primary level. The scenario is of high concern at the upper primary level wherein the enrolment rates for female falls below 50percent. Though, the enrolment ratio has increased from 10 to 45 between 1980-81 and 2007-2008 but the figure is still significantly below the national average (74) (Figure A.8 and Table A.9). Although the GER have improved but the dropout rates in Bihar continue to remain above national average overtime. In fact Dropout rate is a universal feature of the Indian education system apparent in virtually all the states of India and spreading over all the stages of education. The dropout rate at the primary level (I-V) has fallen from 56percent in 1995 to 28percent in 2007. In the (I-X) level also the dropout rates are exceeding the national average and the fall in the rates have been virtually negligible which can be due to the quality of education imparted<sup>5</sup>. (Figures and Tables from A.10 to A.15)

One cannot deny that the key to educational development is the presence of a well qualified, trained and a focused teacher in the classroom. The countries today recognize this fact and have been spending significant resources in form of improving their pay scale and offering cross county teacher exchange programme and providing professional training. The available data on BIMAROU states reveals an increase

<sup>3</sup> The latest figures available have been used. For literacy rates provisional figures of 2011 are referred. Data for dropouts for the period of 1980-1990 was not available so analysis for this variable begins from 1995-96.

<sup>4</sup> All Tables and Graphs have been placed in appendix.

<sup>5</sup> According to a UNICEF study (2003), a teacher spends about 2 months of the year in classroom in Bihar if official work and holidays are taken together. Furthermore, high pupil-teacher and pupil-classroom ratio coupled with high teacher absenteeism adversely affects the classroom learning.



in the number of teachers as well as massive expansion of the available infrastructure. In fact the number of trained teachers at all three levels i.e primary, middle and higher level is well above the national average and all the figures are above 90percent. But it is a disturbing feature that while there has been a significant acceleration in the primary enrolment rates, the adequate number of teacher recruitment did not happen in the post liberalization era. The teacher pupil ratio for the year 2007 was recorded to be as high as 1:71 at the primary and the middle level, which is far above the norm of 1:42 and 1:35 respectively (Table A.16 & A.17). In a nutshell, mere expenditure, improved GER and trained teachers may not necessarily ensure quality education and efficient learning for the children if the pupil teacher ratio remains to grow at the present rate in Bihar.

### **III. Madhya Pradesh**

Madhya Pradesh, a low income state in terms of its GSDP, has even performed poorly in terms of its expenditure on education as proportion of GSDP. The expenditure was hovering around 2 to 2.9 percent till 2005; only in 2009 it has increased to 3.1 percent. An increase of .9 percentage points since 1980's is very poor. As compared to national target of 6 percent, these figures are abysmally low. In terms of per capita expenditure on education, just like other states, highest increase has been seen in 1985. An increase by 114 percent i.e. from Rs 63 to Rs 135 was witnessed. In 2009, the per capita expenditure stands at Rs 997, which is third best among BIMAROU states, after Orissa and Rajasthan. A similar disheartening picture is of education expenditure as proportion of total revenue expenditure, the expenditure has remained constant at 17 percent from 1980 to 2009. Even though a moderate increase by 2 percentage points was seen during 1985 and 1990, but that started to fall after 2000. This decreasing importance given to education sector in Madhya Pradesh can come across as major issue in future.

With regard to literacy rates in total, an increase of 43 percentage point has been witnessed since 1981. In 2011, literacy rate stands at 71, but it is still less than the national average of 74 percent. Also target of 100 percent literacy like other fellow states looks like a distant dream. Like all other BIMAROU states, huge gender disparity among literacy rates can be witnessed. Female literacy stands at 51 percent in 2001, which is lesser than the Indian average of 54. However, male literacy rate (77) are well above the Indian average in 2001. Also the gap between the male and female literacy is large, which again validates the presence of gender disparity in current scenario.

Gross enrolments ratio on the whole for class I-V and VI-VIII have consistently remain higher than the Indian average since 1980's. Among class I-V, the enrolments were higher than national average for boys,

however for girls the enrolment rate was merely 44 in 1980, this situation started changing after liberalization and even among girls the GER has crossed the national average in recent period. In class VI-VIII, situation among boys followed the similar trend of that in class I-V, however for girls the GER has crossed the national average only after 2005. With decent trends in GER; the dropout rates have also shown a good progress. In 1980, the dropouts in MP for class I-V, I-VIII and I-X were lowest among the BIMAROU states. This trend has further improved and dropouts have fallen to 16 in class I-V, 46 in I-VIII. However dropouts have increased to 69 in I-X class in 2009. Similar pattern can be seen for boys and girls in class I-V, their dropouts have remained consistently lower than national average and no such gender disparity is visible at this level. In class I-VIII, dropout rates have increased for both boys and girls to 46 in 2007. In class I-X in 2005, dropouts for boys and girls have crossed the national average of 60 and in 2007 they increased from 61 to 64 for boys and 70 to 74 for girls from 2005.

Percentage of trained personnel has been a problem for Madhya Pradesh, even though other BIMAROU states are not affected by this problem and had ample number of trained teacher for primary, middle and higher education. Madhya Pradesh is the only state among them to have facing this problem. In primary education only 77 percent of trained teacher are available, at middle school level 80 percent and at higher level 77 percent of trained teachers are available in 2007. Non availability of trained staff is a major supply side issue needs to be looked upon. Teacher pupil ratio is not a major problem for the state. However, gender disparity is an issue in all BIMAROU states and requires serious attention as one of the policy recommendations.

### **IV. Rajasthan**

Rajasthan, the largest state of India in terms of area, has witnessed an increase of 1.1 percentage point in its education expenditure as proportion to GSDP, from 1980-2009. In terms of education expenditure as proportion of revenue expenditure, the value has stagnated at 21 percent, with very little variations between 1980-2005, in 2009 this value increased to 23 percent.

Rajasthan has improved its literacy rate by 43 percentage point during 1980-2011. But the gender disparity can be clearly seen, as the male literacy rates which were once below the national average, have successfully managed to jump above average. However, the female literacy rates still remain below the mark in 2001. The female literacy growth rate has been slightly higher than that of the males, after the economic reform of 1991. The gross enrolment ratio for the primary level has improved significantly from merely 61 in 1980's to 118 in the year 2007. But as apparent in case of Bihar, female GER has moved up at

a faster pace than those recorded by males. Not only this both males and females have surpassed the respective average mark since mid-2000s. In the middle level too, (VI-VIII) the state has witnessed an increase in GER by 50 percentage point, but this ratio is lower for females vis-a-vis their respective national average. However, enrolment does not necessarily imply education to every enroller. Although the primary enrolment ratio has recorded impressive improvement overtime but the dropout rates for primary level, have not fallen significantly. It has fallen from 57 percent to 47 percent from 1995-2007, and is much above India's national average of 25 percent. The female dropouts are higher at the primary level relatively to male dropouts and the picture is no better at the levels till standard X.

In terms of trained teachers, all the figures exceeds the national average during 1980-2007, mostly the percentage of trained personnel are above 90 percent, which is a good sign. But in middle education level, the data records a relative decline in the percentage of the trained teachers since mid 2000's vis-a-vis 1980's. The situation is rosy incase of higher education, as all the figures in the reference period are more than 90 percent and above the national average.

In terms of teacher pupil ratio, although the figures have been above the norm but the situation has improved post 2005 with the ratio of 1:43, for primary level (2007). At the middle level it was 1:32, while at the higher education level the teacher pupil ratio stood at 1:28.

## V. Orissa

The expenditure on education as a proportion of GSDP in Orissa does exhibit fluctuations between 1980 and 2007 with ultimate increase being 0.7 percentage points but as a proportion of Revenue expenditure the expenditure on education has fallen in the post liberalization era. In fact for the period 1990-91 to 2000-01 the figures for Orissa hovers around 20percent. The per capita expenditure on education has increased overtime (from Rs. 40 in 1980 to Rs.1400 in 2009).

The literacy rates in Orissa have improved by 47 percentage points and like other states the gender disparity exists even in case of Orissa as the female literacy rate has increased from 14 percent in 1980 to 51percent in 2001 but remains below national while that for men rates have reached at 75percent which is the national average for the year 2001. The GER at the primary level has improved by 35percent while for middle level it has accelerated by 48percent. The growth rate for primary enrolment has been faster for females given the fact that for both males and females the enrolment figures are above their respective national average and a similar variation in trends is apparent at middle level enrolment rates for boys and girls. However, on comparing the decade of 1980s with 1990s reveals either a stagnation or deceleration in the

annual average growth rate of enrolment. The figures for the primary level are 2.71 percent and 2.78percent at the primary level; 5.86 percent and (-)1.74percent at the middle school level; and for the high level school level figures being at 9.765 and 4.13percent in 1980s and 1990s respectively. The poor enrolment during this phase can be attributed to poor financial background, illiteracy among parents, the burden of domestic work, to take care of siblings at home and also due to lack of interest among children to study.(Misra and Behera 2000).

The dropout rates at the primary level have fallen by 25percent points since 1995 till 2007 and the dropout rates for both males and females are lower than the national average which is a positive sign. However for standards I-VIII the fall in dropout rates is very marginal as it has fallen only by 5percent since 1995. The dropout rates for both males and females are significantly higher than the national average which is a cause of concern and the same is true for dropout rates in class I-X for the reference period. The problem of dropouts in the state is of concern because when a child drops out it is not merely rejection of an institution but also the wastage of resources invested in the school. Juxtaposed it also signals some internal inefficiency in the system. The sixth All India educational Survey report (Government of Orissa 2000) shows that more than 3.6 lac children are being *pushed out from the upper primary education* every year due to inadequate number of upper primary schools. So it is more of a dropout versus push out case in Orissa.

The teacher pupil ratio at the primary level is 1:42. At the middle level it 1:35 while at the higher education level it is 1:17 which is a positive signal in terms of quality of education being imparted in the schools of Orissa. Although at the primary level the percentage of the trained personnel is 88percent but it is below the national average and moreover it has fallen in due course of time. At the middle and the higher levels the percentage of trained personnel has reached at 90percent and 100percent respectively in 2007 which is a marked improvement from the rates in pre liberalization era.

## VI. Uttar Pradesh

Uttar Pradesh, a state consisting of 18 percent (2009) of the total Indian population has performed moderately in terms of expenditure on education since pre liberalization era. Expenditure on education as percent to GSDP has increased by 1.3 percentage points from 1980 to 2009. The expenditure was below 2 percent till 1990, after Liberalization, this proportion increased to 3.2 percent in 2000 and reached 3.5 percent in 2009.

In terms of per capita expenditure, the highest growth has taken place in 1985. A massive increase from Rs 61 to Rs 150 can be considered as one of the commendable efforts. Even after this period the government has maintained a consistently increasing

per capita expenditure, with it being Rs 916 in 2009. With population growth at the same level as in all India; an increased per capita expenditure was demanded in state of Uttar Pradesh. However, as compared to other BIMAROU states like Rajasthan (Rs 1449) and Orissa (Rs 1408), which consist not more than 8 percent of total Indian population, this amount is very less. An even more concerning picture emerges from the trends of education expenditure as proportion of total revenue expenditure. Being constant at 20 percent from 1980 to 1985, this expenditure increased by 2 percentage points in 1990. However after 1990, a fall in this expenditure has been witnessed, except in 2000. In 2009, it stands at 18 percent of total revenue account, which shows the decreasing importance of education in Uttar Pradesh in post liberalization era.

In terms of outcome variables, overall literacy rate has increased from an initial level of 27 percent in 1981 to 75 percent in 2011. However gender disparity in literacy rate, among male and female has persisted since pre liberalization era and is still a major issue for the state. Literacy rate for male was 39 percent in 1981 as against 14 percent for females. In current scenario this has increased to 76 percent for males, but for females it is still at 51 percent (2001). An interesting observation is that for all the BIMAROU states the literacy rates have been below national average for both male and females from 1981 to 1991. In 2001 the picture changes a bit and Orissa, Rajasthan and Uttar Pradesh have witnessed a higher literacy for males, higher than national average. But for female literacy, these states are still struggling to even achieve the national average. A very stronger case of gender disparity is clear from these figures.

In terms of gross enrolment ratio, the state of Uttar Pradesh has witnessed a sharp increase from its initial level of 69 to 117, from 1980's to 2007 for class I to V. An increase of 42 percentage point has been witnessed for class VI to VIII during the same period. As far as gender disparity is concerned in terms of GER, the picture is surprisingly positive. Enrolments in 2007 for Class I-V and VI-VIII, shows that enrolments lie above the national average for both boys and girls. Huge disparity among boys and girls in GER persisted, but after 2000 the situation has drastically improved. Enrolments have always been higher in the state since pre liberalization era. Dropout rates have reduced drastically among class I-V, I-VIII and I-X from 1995 to 2007, as a whole. In 2007, at all these levels of education, for both boys and girls, the dropout rates are lesser than the national average. Dropouts were very high till 2000 among class I-V and I-VIII, however the new decade has bought lesser dropouts for state of Uttar Pradesh. This positive picture of lesser gender disparity in enrolments and dropouts is an inquisitive case.

Similar positive picture can be witnessed for percentage of trained personnel in primary, middle and

higher education. The percentage of trained teachers, lie above the national average since 1980 till 2007. In primary and middle education, teacher pupil ratio is above national average in 2007, however for higher education the teacher pupil ratio was a concern till 1990, the picture has improved after liberalization and in 2007 it lies around 45, which is near to ideal figure of 1:42.

There has been an improvement in GER, dropout rates, teacher pupil ratio and percentage of trained personnel for the state. However gender disparity in literacy rates is still a concern. State expenditure on various programme to promote gender equality, can be one way ahead.

## **VII. Conclusion and Policy Recommendations**

The above trends reveal that allocation to education is not adequate and it is high time for the BIMAROU states to boost up the education expenditure, such that national target of 6 percent is hence achieved. Especially with accelerating GSDP, it would be desirable for these states to increase the amount of allocation, for its education sector. With fiscal consolidation as the agenda in the reform period, a cut or low priority to a sector like education will inevitably have severe repercussions for these states in future.

The broad trends of the variables have virtually moved in tandem for BIMAROU states, with little variations in the percentage changes. All these states have exhibited marginal percentage increase in the expenditure as a proportion of GSDP and have recorded a decline, when seen as a proportion of revenue expenditure. Although the per capita expenditure has risen after 1985, but much of it can be attributed to the increased salaries, especially after the fifth pay Commission.

In case of outcome variables, like primary enrolments, the rates have grown faster for the females in the post liberalization era. One of the likely reasons for it could be the rates for males, had already exceeded the mark of hundred by 1990, thereby showing stabilization trends for the males thereon. Achievements in terms of GER have been quite impressive most of which can be the result of various state specific and many national policies. But the enrolment rates, fails to capture the true picture, as the retention rates at the primary level in all the states under study has been low, which in turn signals deficiency in our education system. The quality of education imparted can be readily doubted from high pupil teacher ratios in these states; especially at primary level wherein the enrolments have outpaced the number of teachers being recruited. This implies that large number of vacancies for teachers is not getting filled.

Moreover several studies and reports have pointed towards high degree of absenteeism by teachers, overload of outside activities and poor infrastructure to be affecting the quality of learning and

hence the dropout rates. Barring Bihar the ratio seems better for rest of the states at the middle and higher levels of education, but the dropout rates continue to be significantly high and even higher among girls. According to the National Family Health Survey-2 (NFHS-2), it is household responsibility of girls that make them dropout of school as compared to boys. Various other important factors causing dropouts, particularly of girls, are; high incidence of illiteracy and gender bias of the parents, socio cultural barriers for girls to go to schools, particularly in remote rural areas, lack of basic infrastructure in schools such as toilets and common room, poverty, and the need to take care of infant siblings and involvement of girls in household economic activities (*Sikshya Samasya* 2002).

The policy recommendations that comes straight from the worrisome trends of outcome variables in BIMAROU states, includes, review of the past programmes and funds allocated, so that the wastage of money and any duplication of services can be minimized. It has been witnessed that even though numerous programmes by the state and the centre government have been enacted, but then also few

similar kind of issues are prevailing in our education system today, which were even there in last few decades. Hence, the policies which fail to yield envisaged results should be scrapped. Efficient state monitoring and information system should be put in place to keep a check on the performance of teachers and number of hours of effective teaching, so that the revisions can accordingly take place in consecutive five year plans. Expenditures on female education programmes with orthodox mindset is similar to pouring water in a leaky bucket. Hence it is important for states to spend some percentage of funds for roping in NGO's such that they can hold sessions with the parents time to time and sensitize them about female literacy and the need for the girl child to complete basic education & training, at least up till class X.

In a nutshell, even though improvements in terms of per capita expenditure on education, literacy rates, gross enrolment ratios, dropout rates and percentage of trained teachers in post liberalization era has been witnessed for BIMAROU states, but still the rusty part of the whole scenario cannot be ignored as well.

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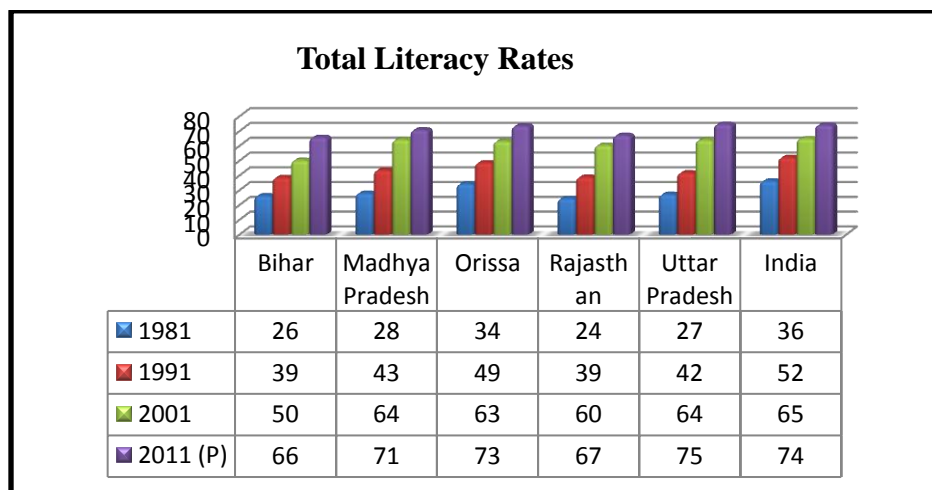
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## Appendix

Figure 1



Data Source: SES, Various Editions

Table A.1

Population growth rate (CAGR)						
	Uttar Pradesh	Bihar	Madhya Pradesh	Rajasthan	Orissa	All India
<b>1985-90</b>	4%	4%		4%	4%	3%
<b>1990-95</b>	2%	1%		2%	2%	1%
<b>1995-00</b>	2%	2%		2%	2%	1%
<b>2000-05</b>	2%	3%		1%	2%	1%
<b>2005-09</b>	3%	0.2%		2%	1%	1%

Data Source: Census 1981, 1991 & 2001

**Table A.3 and Table A.2**

Education expenditure as percent of GSDP						
Year	Bihar	Madhya Pradesh	Orissa	Rajasthan	Uttar Pradesh	Average BIMAROU
1980	3.2	2.2	2.9	3.1	2.2	2.6
1985*	3.3	2.8	3.1	3.5	2.8	3.0
1990	4.9	2.9	4.1	3.8	3.7	3.8
1995	4.5	2.5	4.2	4.0	2.9	3.3
2000	4.0	2.8	4.4	4.1	3.2	3.5
2005	4.5	2.4	3.9	4.2	3.3	3.5
2006	4.3	2.5	2.6	3.2	3.5	3.3
2007	4.2	2.4	2.7	3.0	3.3	3.2
2008	4.4	2.7	3.3	3.8	3.2	3.4
2009	4.4	3.1	3.6	4.2	3.5	3.7

Data Source: Combined Finances & Revenue Accounts & CSO

Per capita expenditure on education					
Year	Bihar	Madhya Pradesh	Orissa	Rajasthan	Uttar Pradesh
1980	34	32	40	42	31
1985*	61	63	67	82	61
1990	150	135	140	181	150
1995	218	223	274	346	218
2000	354	370	479	599	370
2005	516	473	601	768	533
2009	899	997	1408	1449	916

Data Source: Combined Finances & Revenue Accounts, Census (Various editions)

**Table A.4**

Education Expenditure as percent of Total revenue expenditure						
Year	Bihar	Madhya Pradesh	Orissa	Rajasthan	Uttar Pradesh	AVG BIMAROU
1980	26	17	20	21	20	21
1985*	25	19	20	22	20	21
1990	26	19	20	23	22	22
1995	24	18	20	20	19	20
2000	25	18	19	21	20	20
2005	22	15	17	21	19	19
2009	20	17	19	23	18	19

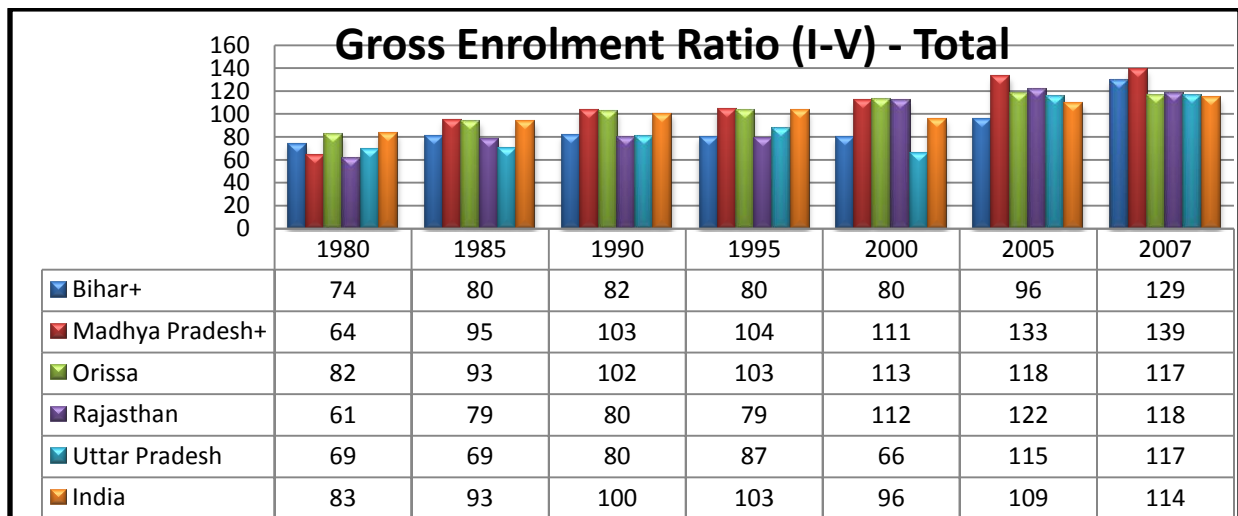
Data Source: Combined Finances & Revenue Accounts & Indiatstats

Table A.5

Literacy Rates Male and Female						
	Male			Female		
	1981	1991	2001	1981	1991	2001
Bihar	38	53	63	14	23	36
Madhya Pradesh	39	57	77	16	28	51
Orissa	47	62	75	21	34	51
Rajasthan	36	55	76	11	21	44
Uttar Pradesh	39	55	76	14	26	51
India	47	64	75	25	39	54

Data Source: SES, Various Editions

Figure A.6



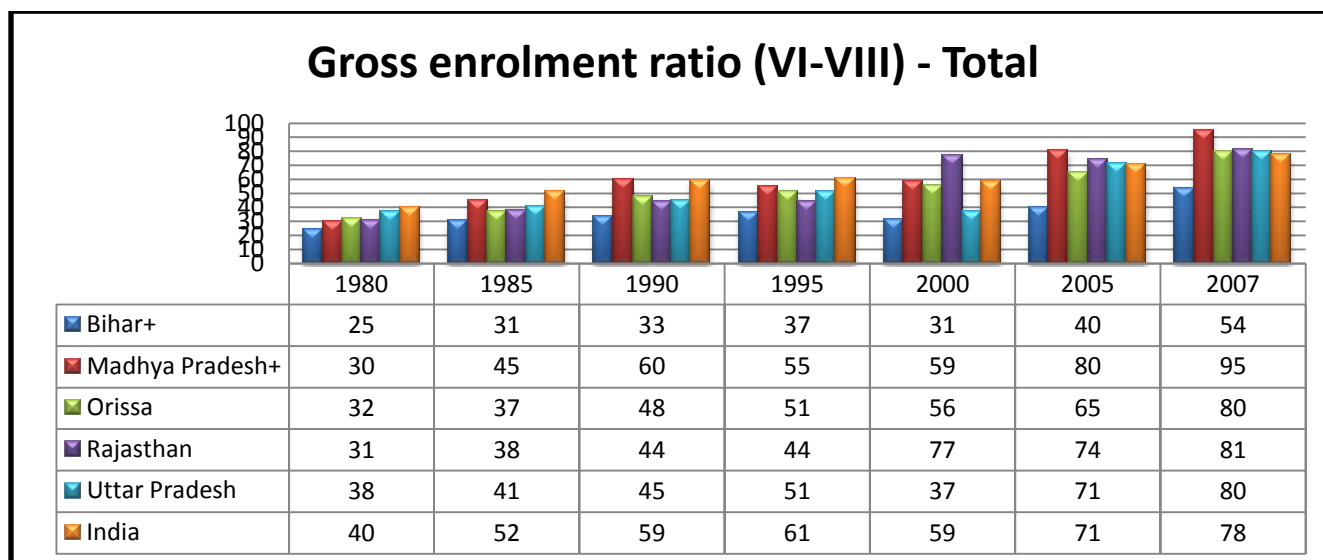
Data Source: SES, Various Editions

Table A.7

Gross Enrolment Ratio Class I-V														
States	BOYS							Girls						
	1980	1985	1990	1995	2000	2005	2007	1980	1985	1990	1995	2000	2005	2007
Bihar+	102	108	108	104	98	106	134	45	53	54	55	60	86	124
Madhya Pradesh+	82	117	124	120	121	142	142	44	73	81	88	102	123	137
Orissa	97	111	120	119	130	120	117	67	75	84	86	95	116	117
Rajasthan	90	110	108	107	138	125	121	31	45	50	50	83	118	115
Uttar Pradesh	91	86	98	105	80	116	113	46	50	60	66	50	114	121
India	99	109	115	117	105	113	115	66	77	84	88	86	106	113

Data Source: SES, Various Editions

Figure A.8



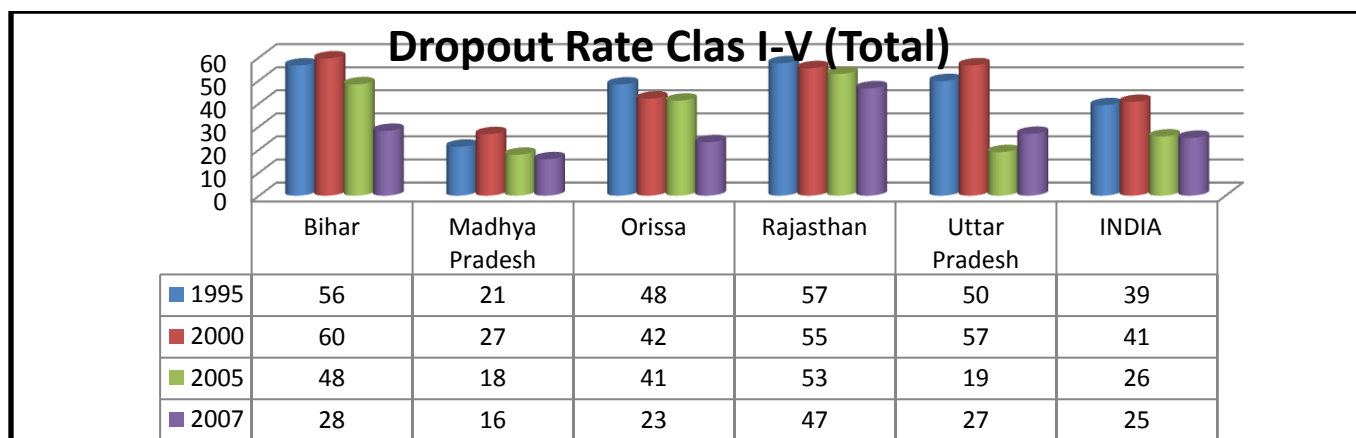
Data Source: SES, Various Editions

Table A.9

Gross Enrolment Rate Class VI-VIII														
States	Boys							Girls						
	1980	1985	1990	1995	2000	2005	2007	1980	1985	1990	1995	2000	2005	2007
Bihar+	38	46	49	53	41	47	63	10	15	17	20	21	33	45
Madhya Pradesh+	44	65	82	74	70	86	100	15	24	37	35	46	75	90
Orissa	42	49	54	65	67	68	83	21	26	42	37	44	61	77
Rajasthan	48	60	67	65	104	87	93	12	15	20	22	48	59	69
Uttar Pradesh	55	57	62	67	48	74	81	19	22	26	33	25	68	79
India	52	65	73	74	67	75	81	27	38	45	47	50	66	74

Data Source: SES, various editions

Figure A.10



Data Source: SES, Various Editions

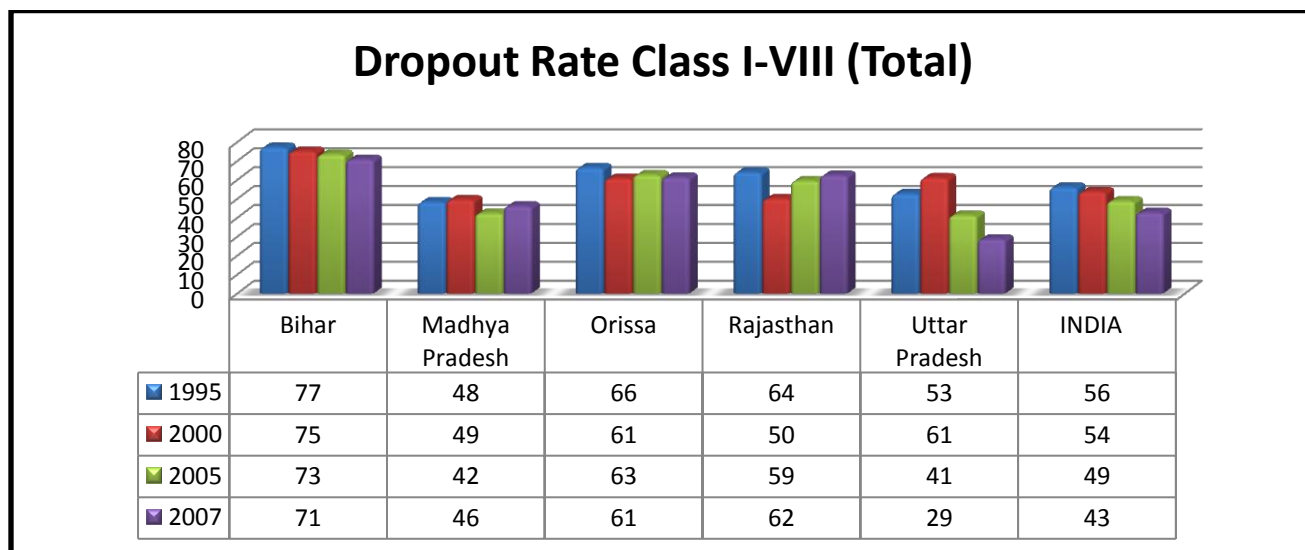


Table A.11

Dropout Rate Class I-V								
	Boys				Girls			
	1995	2000	2005	2007	1995	2000	2005	2007
Bihar	54.6	57.9	47.9	28.6	60	62	49	28
Madhya Pradesh	16.6	26.5	18.5	15.3	27	27	17	16
Orissa	43.9	41.5	46.1	24.4	53	43	35	22
Rajasthan	55.6	48.7	57.2	45.5	61	65	46	48
Uttar Pradesh	47.1	52.9	21.7	29.0	54	62	12	24
INDIA	37.5	39.7	28.7	25.7	42	42	22	24

Data Source: SES, Various Editions

Figure A.12



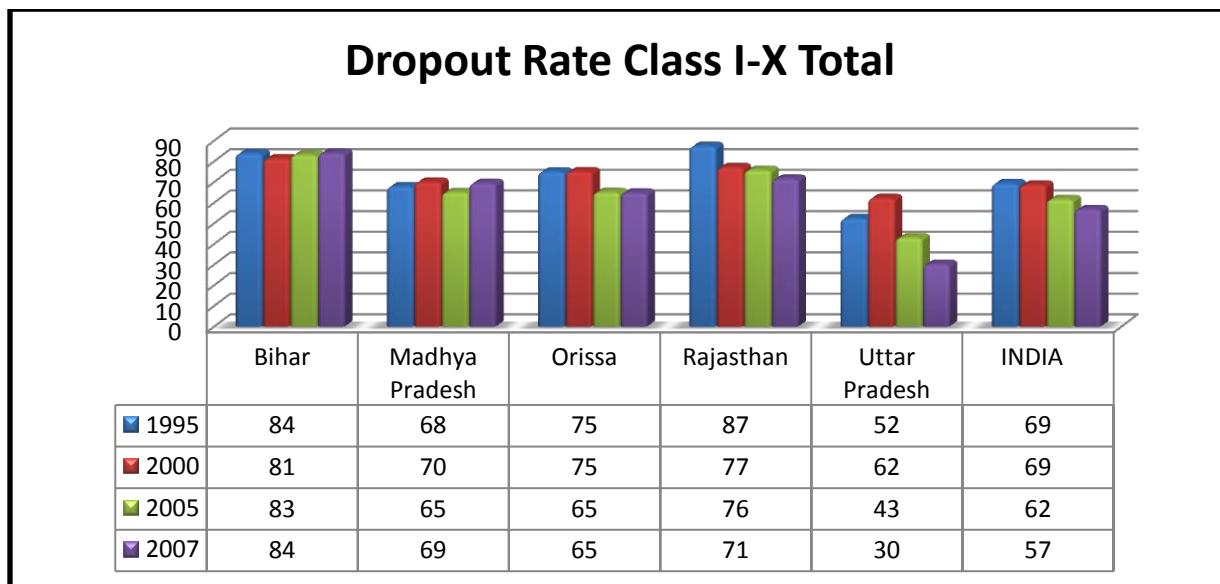
Data Source: SES, Various Editions

Table A.13

Dropout Rate Class I-VIII								
	Boys				Girls			
	1995	2000	2005	2007	1995	2000	2005	2007
Bihar	75	72	72	72	80	80	75	69
Madhya Pradesh	41	43	42	46	58	57	42	46
Orissa	63	57	65	63	71	65	59	60
Rajasthan	62	44	56	62	69	61	65	63
Uttar Pradesh	50	56	43	35	57	69	39	19
INDIA	54	50	49	44	59	58	49	41

Data Source: SES, Various Editions

Figure A.14



Data Source: SES, Various Editions

Table A.15

Dropout Rate Class I-X								
	Boys				Girls			
	1995	2000	2005	2007	1995	2000	2005	2007
<b>Bihar</b>	82	78	81	83	88	87	86	86
<b>Madhya Pradesh</b>	61	65	61	66	77	77	70	74
<b>Orissa</b>	72	75	68	65	80	75	61	64
<b>Rajasthan</b>	86	75	71	70	89	81	82	74
<b>Uttar Pradesh</b>	45	56	40	34	66	73	48	24
<b>INDIA</b>	<b>67</b>	<b>66</b>	<b>60</b>	<b>57</b>	<b>73</b>	<b>72</b>	<b>64</b>	<b>57</b>

Data Source: SES, Various Editions

**Table A.16**

Percentage of Trained Personnel																					
	Primary Education							Middle education							Higher Education						
	1980	1985	1990	1995	2000	2005	2007	1980	1985	1990	1995	2000	2005	2007	1980	1985	1990	1995	2000	2005	2007
<b>Bihar</b>	93.6	92.7	91.87	92	95	93	92.5	93.6	94	93.16	93	95	94	95	87.8	93.5	95.19	95	95	97	97.5
<b>Madhya Pradesh</b>				na	65	52	76.5				na	67	59	80				78	75	72	77
<b>Orissa</b>	89	89	100	100	99	89	88	65	65	97	28	99	92	91	*	68.6	100	100	100	100	100
<b>Rajasthan</b>	91.2	90.7	98	98	86	82	85	94.5	94	99	99	91	78	80			98	98	95	95	92
<b>Uttar Pradesh</b>	97	98	98	98	98	99	99	96	97	95	95	95	97.5	97.5			97	97	97	99	98.5
<b>India</b>	<b>88.2</b>	<b>88.7</b>	<b>90.11</b>	<b>90</b>	<b>86</b>	<b>86</b>	<b>90</b>	<b>90.6</b>	<b>90.6</b>	<b>91.09</b>	<b>91</b>	<b>87</b>	<b>87</b>	<b>91</b>	<b>88</b>	<b>89.6</b>	<b>92.89</b>	<b>93</b>	<b>90</b>	<b>90</b>	<b>93</b>

Data Source: SES, Various Editions

**Table A.17**

Teacher Pupil Ratio																					
	Primary education							Middle education							Higher Education						
	1980	1985	1990	1995	2000	2005	2007	1980	1985	1990	1995	2000	2005	2007	1980	1985	1990	1995	2000	2005	2007
<b>Bihar</b>	43	46	50	55	67	91	70.5	36	39	41	37	56	71	54.5	<b>26</b>	<b>25</b>	<b>37</b>	<b>37</b>	<b>42</b>	<b>27</b>	<b>44</b>
<b>Madhya Pradesh</b>	45	43	44	44	43	45	42	24	30	29	40	32	40	32.5			15	40	29	15	27.5
<b>Orissa</b>	37	37	35	35	38	42	42	27	26	28	17	37	38	35		17	59	17	52	37	17
<b>Rajasthan</b>	48	47	41	51	51	47	43	32	32	31	26	40	31	32			27	26	29	29	28
<b>Uttar Pradesh</b>	45	45	56	59	42	41	50.5	27	28	37	56	29	26	47.5			52	56	41	36	45
<b>India</b>	<b>41</b>	<b>41</b>	<b>43</b>	<b>47</b>	<b>43</b>	<b>46</b>	<b>47</b>	<b>35</b>	<b>36</b>	<b>38</b>	<b>29</b>	<b>38</b>	<b>34</b>	<b>35</b>	<b>28</b>	<b>27</b>	<b>31</b>	<b>29</b>	<b>35</b>	<b>34</b>	<b>37</b>

Data Source: SES, Various Editions

## Economics of Rural Non-Farm Sector: Certain Characteristics and Determinants

Souvik Mondal<sup>1</sup>

### Abstract

This paper is an attempt to understand and comprehend the economic condition of the rural non-farm (RNF) economy in different situation of development and underdevelopment. The paper is based on a primary field survey of 171 households in the villages of Jalpara and Uddharpur of Burdwan district and Ruppur and Karamshal of Birbhum district in West Bengal. The districts and the villages are chosen to capture both the developed and underdeveloped conditions. Our village level data reveal that services dominate the RNF sector and that the proportion of RNF services is comparatively high in underdeveloped areas while the manufacturing activities are mainly done in developed areas. It shows that the average non-farm income of the household increases with the increase in the size of landholding. We have also found that the lower land holding class is mainly involved in rural manufacturing activities. The average hours of labour per day and number of days per year put into non-farm activities is the highest and average wage/income received is the lowest for the marginal farmers. It also reveals that the RNF activities in the households of developed districts are mainly non-seasonal in nature while in underdeveloped district these are mainly seasonal.

### I. Introduction

The 'informal sector' in general and rural non-farm sector in particular is increasingly being considered as a very important segment of the economy not only because of its ability to absorb surplus labour from over-populated agriculture but also for its ability to reduce poverty and inequality. Promotion of rural non-farm economy is also being considered as an effective strategy for decentralization of economic activities. The economic census of India estimates that around 41.89 million rural people are employed in non-farm activity. The important issues of research are: to know the economic structure and viability of this rural non-farm economy; to know which sections of rural people are more engaged in these works and what are the different types and patterns of their engagement.

Hence the target of this study has been to comprehend the economic conditions and strategies followed by the sample households engaged in non-farm activities in variety of situations across two districts of West Bengal. We have studied three broad categories of non-farm activities such as, non-farm services, non-farm manufacturing and non-farm activity associated with agriculture across different land

holding classes. We examined the percentage share of different sources of income and found out the importance of non-farm income across different per capita income groups and across land holding classes. The return or wages in non-farm activities, working hours and employment generating ability of these activities have also been examined. Further, in case of non-farm activities like manufacturing, the level of fixed investment, variable cost, sources of finance, sale value and profit have been examined. Finally, this study takes into account the percentage of seasonal and non-seasonal occupational structure in non-farm sector across different land holding classes.

This study is the outcome of a primary field survey. We have surveyed 171 households in the villages of Jalpara and Uddharpur of Burdwan district and the villages of Ruppur and Karamshal of Birbhum district in West Bengal. The selections of districts, blocks, and villages have been done on the basis of secondary data available from the secondary sources, details of which have been given in the data and methodology section of this paper. This paper is organised in five sections. In the next section we give a brief review of literature. Section III presents data and methodology of work while in section IV we present the analysis of primary data. Finally, in section V we make concluding observations.

### II. Review of Literature

It is now a universally accepted fact that the agricultural sector is incapable of creating additional opportunities of gainful employment in the wake of increasing population. Several studies have revealed that hardly 2 to 3 percent of increased workforce got employed in large scale manufacturing sectors during 1960s and 70s in countries like India, Pakistan and Bangladesh (Amjad, 1988). Consequently the focus shifted towards the informal sector in general and rural non-farm (RNF) sector in particular as the area capable of creating gainful employment. Rural NF economy is no more considered as a residual segment. It is argued that instead of getting withered away through structural transformation (as has been proposed in Hymer and Resnick, 1969) this RNF sector is rather acting as a dispersed development engine. In fact, we witness a paradigm shift (Mellor, 1976; Saith, 1991; Lanjouw and Lanjouw, 2001). The National Commission on Employment in Unorganised Sector (NCEUS, 2007 and 2009) is a pointer to this direction. It proposes social safety nets, easy financing, skill development programmes for the vast section of working population in unorganised sector (mostly informal) in India that is next to agriculture in terms of size of employment. The share of RNF employment increased from 25% to 35% between the periods 1971 to 1991 in India. This sector has registered a growth rate of 4.56% during the year 1999 to 2005 (Mukhopadhyay, Gangopadhyay and Nayak, 2008).

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Interestingly, there is no universally accepted definition of RNF sector. It is more of a statistical category. Whatever manufacturing and service activities exist in the geographically defined rural area is considered as RNF sector. However, a large part of this RNF sector is considered as informal/unorganized in nature. So, we need to have some idea about the informal sector. In fact, government rules and regulations are mostly not applicable to the informal sector. It may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. On the other hand, the unorganised sector refers to those enterprises whose activities or collection of data is not regulated under any legal provision and / or those, which do not maintain any regular accounts.

According to Hart the basis for the definition of the informal sector is the individual and the distinction between the formal and informal sectors is upon whether the person was wage earning (formal sector) or self-employed (informal sector). On the other hand the ILO's Kenya Report (ILO, 1972) concentrated on the activity and characterised the informal sector with the mode of ease of entry, reliance on indigenous resources, family ownership of enterprises, small scale of production, labour intensive and adapted technology, unregulated and competitive markets, skills acquired outside the formal schooling system, etc. According to some researchers (Marjit and Maiti, 2005) informal sector is defined as "the non-criminal production of goods and services that utilize unorganized workers at a market determined wage with no restrictions on profitable retrenchment".

There is a vast literature which tells about the relationship of RNF sector with the agricultural sector. Vaidyanathan (1986) observed an inverse relationship between agriculture and RNF sector and shows that when agriculture is unable to provide sufficient employment RNF fills up the void. However, there are studies that reveal a positive relationship between farm and RNF growth. Hazell and Haggblade (1990), while considering state and district level data for India, have calculated that on an average, a 100-rupee increase in agricultural earnings is associated with a 64-rupee increase in RNF income; thus the RNF sector is viewed as a dynamic sector (Lanjouw and Lanjouw, 2001; Lanjouw and Shariff, 2004). According to Hazell and Roell (1983) small and middle peasants have much higher propensity to consume labour intensive rurally produced goods compared to larger farmers. The study by Bhalla and Chadha (1983) on Punjab (India) found that middle peasantry and not the big or very big farmers is the dominant source of demand for non-farm goods and services. Conversely, a survey (Harriss, 1991) on Arni, Tamil Nadu (India) has revealed that agricultural expansion has not encouraged local production of labour-intensive consumer goods. Harriss

concludes that not only agricultural output and income growth but also its pattern has serious implications for the development of labour-intensive rural NF economy. In particular, he asserts that it is the egalitarian growth process in agriculture that is essential for the progress of decentralized labour-intensive non-farm sector. Similarly, the importance of re-distributive land-reforms in promoting localized RNF activities has been emphasized by several researchers (Saith, 1991, 1992)<sup>1</sup>.

### III. Data & Methodology

As mentioned earlier, we have selected two districts, Birbhum and Burdwan in West Bengal for our primary survey. Birbhum is comparatively backward and Burdwan is a developed district<sup>2</sup>. Now we considered nine criteria and assigned suitable weights (given in parentheses) to each criterion to choose the developed and underdeveloped blocks.<sup>3</sup> The criteria are: i) Agricultural production(9); (ii) Banking facilities (8); (iii) Number of person engaged in agriculture(7); (iv) Transport facilities(6); (v) Irrigation facilities(5); (vi) Co-operative societies(4); (vii) Electrification(3); (viii) Livestock asset(2) and (ix) Road length(1). In the process of determination of developed and underdeveloped blocks initially we ranked all the blocks on the basis of their position in the district for each of these above nine criteria. Then to give more weight on their position we just reversed their position (e.g. the first among 19 blocks of Birbhum got 19 as weight) and then we multiplied that position (say 19) with the weight given on the particular criterion. To understand the process we are taking the following calculation procedure. Suppose following the criteria of agricultural production in Birbhum district the ranks of the 19 blocks are as follows- 1)Sainthia, 2) Mayureswar-II, 3) Nanoor, 4) Bolpur-Sriniketan, 5) Md.Bazar, 6) Nalhati-I, 7) Labhpur, 8) Mayureswar-I, 9) Illambazar, 10) Rampurhat-I, 11) Rampurhat-II, 12) Murarai-II, 13) Dubrajpur, 14) Murarai-I, 15) Khoyrasal, 16) Suri-II, 17) Nalhati-II, 18) Suri-I, 19) Rajnagar.

To determine the position of the Sainthia block in Birbhum district in terms of agricultural production we multiplied 19 and 9 to get the total value in terms of agricultural production of Sainthia block as  $19 \times 9 = 171$ . In the same process we have calculated all the values for each block for each of these nine criteria for the two districts. Finally, on the basis of this calculation we have selected four blocks, two from each district. For the developed blocks we considered those which appear at the top in terms of aggregate values and for underdeveloped blocks we considered those recording lowest aggregate values. In case of Birbhum district we selected the second highest block i.e. Bolpur-Sriniketan and third lowest block i.e. Suri-I because of our accessibility. In the case of Burdwan district we selected the highest block i.e. Mongalkote and sixth lowest block i.e. Ketugram-II. In the next

stage we have selected four villages in four blocks on the basis of similar criteria. The chosen villages are Jalpara, a developed village in developed block and Uddharnpur an underdeveloped village in underdeveloped block in Burdwan district and Ruppur, a developed village in developed block and Karamshal, an underdeveloped village in underdeveloped block in Birbhum district. We have conducted the household surveys in the selected villages first on the basis of stratified random sampling and then snowball sampling. The stratification has been done on the basis of area of land ownership. Altogether we have surveyed 171 households of which 86 households are from the selected villages of Burdwan district and the remaining 85 households are from the selected villages of Birbhum district in West Bengal.

#### **IV. Results and Analysis**

The percentage of per capita household income from different sources across different income classes is presented in Table 1.A (refer annexure). It may be seen that percentage of average per capita income from different sources like agriculture, livestock and non-farm activities vary across different income class. It reveals that more than 50 % of the sample household belongs to the per capita income class Rs. 5001 to Rs.15000 and they earn more than 58% of the total per capita income from non-farm activities. Further, our field survey result clearly shows that for the majority (65%) of the rural household main source of income is RNF sector. While household in the lowest income group (Rs.2553 to Rs. 5000) earn 44%; household in the highest income group (i.e. above Rs. 75000) earn 82% of their total income from the non-farm activities. The members of lower income household are mostly engaged in less remunerative non-farm activities and they are not skilled enough to get more remunerative jobs. They also earn as much as 9 % of their income by rearing live stocks. On the other hand, people from very high income categories earn substantial amount from RNF sector as they are engaged in more remunerative non-farm activities.

The district wise relevant data are presented for two districts in the table 1.B (refer annexure). It is interesting to note that in both Burdwan and Birbhum districts proportion of income from non-farm sources is higher in all income strata except for the lowest one (i.e. Rs. 2553-5000). While the lowest income group in the Burdwan district earns 48 % of their total income from non-farm activities, lowest income group in the Birbhum district earns only 34 % of their total income from non-farm activities. The difference may be explained by the fact that Burdwan being a relatively developed district, people from the lowest rung of income gets job in petty manufacturing and services like petty business. But in Birbhum district this income class is engaged in less remunerative non-farm activities, such as unskilled labour in brick kiln, construction sector, etc., and further, 19 % of their

income comes from livestock rearing. In both the districts non-farm income is the predominant source of income for the higher income households.

Now we present distribution (%) of the average household income from different sources such as from agriculture, livestock and non-farm activities across different land holding classes in Table-2.A (refer annexure). We have categorized the land holding status into five classes following the NSSO land holding class division (land holding size below 0.075 bigha has been removed since our sample does not have any observation for this category). The table clearly reveals that agriculture is not the main source of income for majority of households since size of land holding is not sufficient for them. Only 2.3 % of the sample households having land holding above 30 bigha have 59% of their household income from agriculture. Further, the importance of non-farm income seems to increase with the increasing marginalization of land holding. Thus non-farm income has been the main source of income for the marginal (land holding less than 7.5 bigha or 1 hectare) and small (1 to 2 hectare) farming household who constitute 91 % of the sample household. This also leads us to conclude that non-availability of sufficient amount of operational land holding is pushing the farming households to search for job in the RNF sector.

The district wise picture is presented in the table 2.B (refer annexure). The interesting fact is that the share of non-farm income for the marginal farmers of Birbhum district is more than 70%. In both the district share of non-farm income seems to increase with the increase in the marginalization of land holding. In the Birbhum district the share of non-farm income has a declining trend with the increasing of land holding.

Given the importance of the RNF sector particularly for supporting livelihood to the overwhelming majority of the rural household (mainly the marginal and small farmer households), we would like to investigate the characteristics of the non-farm jobs in our surveyed area. To this end in view, we had asked our respondents about their nature of jobs outside agriculture, wages, duration and quality of their work. The data regarding these characteristics are presented in Table-2. It may be noted that lower land holding classes (0.075 to 3 bigha & 3 to 7.5 bigha) are involved in all three types of non-farm activity, manufacturing (such as pottery, iron smith, grill making, carpentry, etc.), services (variety of services involved but mostly as non-agricultural labourer, in petty business and masonry work), and agricultural allied activity (mainly milk man and date-palm molasses making). Another interesting aspect of the RNF sector may be discerned from Table-3.A (refer annexure). While the lowest land holding class recorded second highest average man-days (369 days), their average work hour is the highest

(10 hrs) and their average wage is the lowest (Rs 103 per person-day) among all other land holding classes.

The natures of jobs outside agriculture, wages, and duration of working hours have been studied separately for two districts. The data regarding these characteristics are presented in table 3.B (refer annexure). The district level data reveals that services are the only (except the second lowest land holding class) source of employment outside agriculture. In Birbhum district the marginal farmers' exhibit highest number of man-days (447 days) in non-farm activity. They engaged half of the day in their different activities but they are able to earn lowest remunerative per day among all the land holding class of two districts.

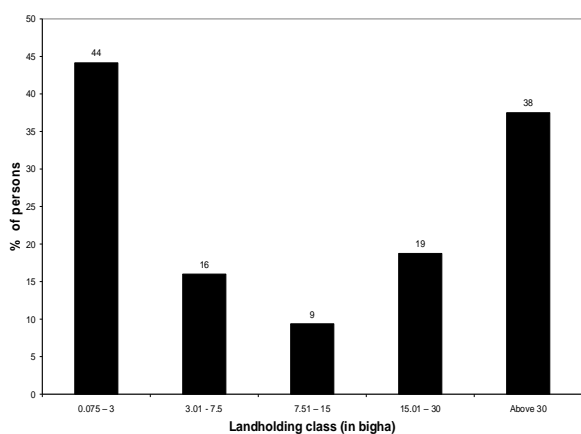
We have also studied about the fixed investment and variable costs required for undertaking a few non-farm activities and also the source of finance across landholding classes. The relevant data are presented in Table-4 (refer annexure). It reveals that substantial number of households in the lowest land holding class is involved in manufacturing activity the average fixed investment was just Rs. 202 in the year 2009-10. Their fixed investment is self-financed and a few of them have taken the money from the Mahajan on the condition that they will sell the product to him. As most of the manufacturing unit and services is household based they are supported with less capital and that they are not capable to use modern technology.

Further, table-4 also shows that except the highest land holding class (>30 bigha) the average variable cost increases with the increase in land holding. Thus it may be argued that due to better support of agricultural income because of larger size of land holdings, the higher land holding households are able to spend more in the non-farm activities and also it has been found that they are involved in more rewarding non-farm activities.

It has been also studied the sale value and profit of some non-farm activities with the current sources of raw material across different land holding classes. The data has been presented in the following table. The table-5 (refer annexure) reveals that (except the sale value of highest land holding class) sale value and profit increases with increase in land holding.

Further, interestingly the sale value is almost same for the middle and highest land holding strata but profit level is quite high of largest land holding class. So, it may be argued that due to higher return activities by them they earn a substantial amount of profit. In all landholding strata it is very common that they all purchase their raw material from open market and whole seller.

**Figure-1: Proportion of people in RNF sector engaged seasonally across land holding sizes**



Source: as in Table-1.A.

It is important to know if the persons engaged in RNF sector are doing so temporarily because of inadequacy of the farm sector or they are engaged permanently reflecting diversification of rural occupations. Figure-1 depicts proportion of people in RNF sector who are engaged in non-farm activities on purely seasonal basis across land holding sizes. From the figure it may be discerned that in the lowest land holding class; as much as 44% of the people of that class are engaged in non-farm activities on seasonal basis. This is because they are mostly engaged as non-agricultural labourer in the lean season. This proportion declines with the increase in land holding size before increasing again with the larger land holding classes. Further, the table also gives us the message that majority of the persons engaged in RNF sector are doing so permanently. It is interesting to note that for the people in the land holding class 3.01 to 7.5 bigha and 7.51 to 15 bigha, the non-seasonal engagement is 84% and 91% respectively. Thus, the non-seasonal engagement is comparatively higher in higher land holding classes, though it is most significant for the lower middle size classes.

Table-6 (refer annexure) depicts seasonality of engagement of rural population in RNF sector separately at the district level. Overall, the proportion of people seasonally engaged in RNF sector is larger in the relatively underdeveloped district, Birbhum (38%), than in Burdwan (20%), which is a developed district. In Burdwan district, the non-seasonal engagement of the lowest land holding class is as high as 89% whereas in Birbhum district the non-seasonal engagement of the corresponding land holding class is just 70%. In case of other land holding classes the share of seasonal and non-seasonal engagement is almost same for both the districts. Further, our village survey has revealed that most of the people in low landholding categories work as non-agricultural labourer in Birbhum whereas in Burdwan, they work in the traditional manufacturing activity and in services. Therefore, the district wise

segregation of data reveals that non-seasonal engagement in RNF sector depends on the level of agricultural development.

## V. Conclusion

Thus, our village survey data reveals that services dominate the RNF sector and that the proportion of rural NF services is comparatively high in underdeveloped areas while the manufacturing activities are mainly done in developed areas. It also reveals that the average non-farm income of the household increases with the increase in the size of landholding and thus with the increase in agricultural income. However, income earned in the RNF sector is strictly higher than farm-income for all land holding classes excepting the largest land holding class of our study. Further, the lower the size of the landholding, higher is the importance of non-farm earning in the household income. It proves that it is the very small size of land which forces the household look for income outside agriculture for sustenance.

We have also found that the lower land holding class is mainly involved in rural manufacturing activities. The average hours of labour required to put in non-farm activities per day is the highest and average wage received is the lowest for the marginal farmers. This reflects the fact that non-farm activities constitute only a refuge to these distressed households who were forced to enter into this sector for their survival.

In underdeveloped areas on an average the people work more number of hours in a day. The average fixed investment, variable cost, sale value and profit of NF activities varies positively with land holding class and agricultural income. Average fixed investment, variable cost, sale value and profit of NF activities are comparatively higher in developed areas. In most of the cases fixed and variable investment is self-financed by the households and they sell their

product mainly in local and regional rural area. The NF activities of the sample households in most of the cases are non-seasonal in nature. The households with land holding status 0.01-0.4 hectare and 0.41-1 hectare have shown that above 85% of their NF activities are non-seasonal. In overwhelming majority of the cases the members of the sample households have shifted in NF activity because of push factor like insufficient income in agriculture and high degree of uncertainty of primary sector.

## Notes

1. A comprehensive review in this context could be found in Chakrabarti and Kundu, 2009.
2. Burdwan ranked third in terms of net per capita district domestic product (per capita income Rs. 14115 at constant 1993-94 prices) in 2004-05 whereas Birbhum was placed in the 16<sup>th</sup> place (third from the lowest) in terms of net per capita district domestic product (per capita income of Rs. 9429). (Statistical Abstract, 2005, p. 476, Bureau of Applied Economics & Statistics, Government of West Bengal.
3. We have considered nine criteria and assigned suitable weights to each criterion to choose the developed and underdeveloped blocks. The particular criterion was chosen considering its importance as a determinant of development of the concerned block. Further, weights were assigned to all the criteria assuming relative importance of them not only in determining agricultural development but also to determine development of the RNF sector.
4. This paper is developed from the M.A. dissertation. An earlier draft of this paper had been submitted in the SAP project. Some fundamental addition have been done on that paper.

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**Annexure**

**Table – 1.A: Percentage of per capita income from different sources across different income class.**

Per capita Yearly income (Rs)	% of sample household	% of income from agr	income from Livestock	income from RNF sector
2553-5000	4.7	47.3	9	43.7
5001-15000	50.3	38.9	2.9	58.2
15001-30000	30.4	47.3	3.8	48.9
30001-50000	8.2	41.7	6.7	51.5
50001-75000	4.7	44.8	1.5	53.7
75001-128453	1.8	16.4	1.3	82.3

Source: Field Survey

**Table – 1.B. Percentage of per capita income from different sources across different income classes in the two surveyed districts of Burdwan and Birbhum in West Bengal.**

Per capita Yearly income (Rs)	% of sample Household		% of income from agriculture		% of income from livestock		% of income from non-farm sector	
	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum
2553-5000	7.0	2.4	47.5	46.4	4.8	19.3	47.7	34.2
5000-15000	44.2	56.5	44.2	34.3	1.6	4.1	54.2	61.6
15000-30000	30.2	30.6	45.5	46.9	4.9	3.0	49.6	50.1
30000-50000	10.5	5.9	41.0	42.9	8.9	3.1	50.1	54.0
50000-75000	5.8	3.5	44.2	42.3	1.5	1.4	54.3	56.3
75000-128453	2.3	1.2	15.5	20.3	1.3	1.4	83.2	78.3

Source: as in Table-1.A

**Table – 2.A: Average income (%) from different sources across land holding classes**

Land holding (Bigha)	% of sample household	% of Agril. Income	Income from livestock	Non-farm income
0.075 – 3	43.3	35.1	2.5	62.4
3.01 – 7.5	33.3	43.2	3.3	53.5
7.51 – 15	14.0	42.8	4.8	52.5
15.01 – 30	7.0	46.2	2.9	50.9
More than 30	2.3	59.0	2.4	38.6

Source: as in Table-1.A

**Table – 2.B: Average income (%) from different sources across different land holding classes in the two surveyed districts of Burdwan and Birbhum in West Bengal.**

Land holding (Bigha)	% of sample Household		% of income from agriculture		% of income from livestock		% of income from non-farm sector	
	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum
0.075 – 3	46.5	40.0	41.0	26.7	2.5	2.2	56.3	70.9
3.01 – 7.5	38.3	28.2	44.2	41.5	2.7	4.1	53.0	54.3
7.51 – 15	8.1	20.0	30.4	53.5	5.6	4.0	63.9	42.4
15.01 – 30	4.6	9.4	66.6	33.3	2.1	3.4	31.2	63.2
Above 30	2.3	2.3	55.7	62.4	1.9	2.8	42.3	34.6

Source: as in Table-1.A

**Table-3.A: Certain Characteristics of Non-farm Employment across different land holding classes**

Land holding class (Bigha)	Type of non-farm activity	Average no of man-days created per household	Average wage per man-day	Average hours of work per man-day
0.075 – 3	NF- 1,2,3	369	103	10
3.01 - 7.5	NF- 1,2,3	297	129	8
7.51 – 15	NF- 2,3	286	196	7
15.01 – 30	NF-2	349	266	8
ABOVE 30	NF- 2	453	196	7

Source: as in Table-1.A.

Note: NF-1= Manufacturing non-farm activity, NF-2= Non-farm services, NF-3= Agriculture allied non-farm activities.

**Table – 3.B: Certain Characteristics of Non-farm Employment across different land holding classes in the two surveyed districts of Burdwan and Birbhum in West Bengal.**

Land holding (Bigha)	% of sample Household		Type of non-farm activity		Average no of man-days created per household		Average wage per man-day		Average hours of work per man-day	
	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum	Burdwan	Birbhum
0.075 – 3	46.5	40.0	1,2,3	2	302	447	117	90	7.6	11.9
3.01 – 7.5	38.3	28.2	1,2,3	1,2,3	320	265	138	115	7.4	8.3
7.51 – 15	8.1	20.0	2,3	2	253	300	283	154	4.9	7.8
15.01 – 30	4.6	9.4	2	2	300	373	189	301	7.6	7.6
Above 30	2.3	2.3	2	2	641	265	157	260	6	8

Source: as in Table-1.A

**Table-4: Amount of average (per household) fixed investment and variable cost in non-farm activity and their sources across landholding classes**

Land holding class (in bigha)	% of relevant household	Amt. of ave. fixed inv. (Rs)	Amt. of ave. variable cost (Rs)	Source of Finance
0.075 – 3	32.4	202	66936	Own, Mahajan
3.01 - 7.5	47.3	1902	68505	Own
7.51 – 15	25.0	1300	136333	Own
15.01 – 30	41.6	4470	336580	Own
ABOVE 30	50.0	2250	144000	Own

Source: as in Table-1.A.

**Table-5: Amount of average (per household) sale value and profit in non-farm activity and their sources of raw material across landholding classes**

Land holding class (in bigha)	% of relevant household	Amt. of ave. sale value (Rs)	Amt. of ave. profit (Rs)	Source of current raw material
0.075 – 3	29.7	92716	21856	1,4,5,6,8
3.01 - 7.5	45.6	103748	29393	1,4,5,6,8
7.51 – 15	20.8	222740	46467	1,4,5,6
15.01 – 30	41.6	400760	64180	1,4,5,8
ABOVE 30	50	222000	76000	1,4,8

Note: 1=Open market, 4=Whole seller, 5=Retail, 6=Specific supplier of various product, 8=Mohajan,

**Table-6: Proportion of people in RNF sector engaged seasonally & non-seasonally across land holding sizes in the districts under study**

Land holding class(bigha)	Proportion of people engaged in RNF sector seasonally		Proportion of people engaged in RNF sector non- seasonally	
	Burdwan	Birbhum	Burdwan	Birbhum
0.075 – 3	11	30	89	70
3.01 - 7.5	6	4	94	96
7.51 – 15	1	2	99	98
15.01 – 30	1	2	99	98
Above 30	2	1	98	99
All	20	38	80	62

Source: as in Table-1.A

## Exploring the Dialectics of Liberalization, Privatization and Globalization through Power Politics and Marxist Ideology

Veerendra Kumar Mishra\*

### Abstract

The paper inchoates the odyssey of disseminating its fundamental thoughts by explicating the implicit elements, which with all complicity, contribute in the formation of consciousness, ideology and identity of the subject. It underlines the entire process of the formation of subject from being to becoming. The process of [be]-ing to becoming indeed includes all social, economic, cultural, and political and linguistics factors. The paper may make an attempt to expound the basic propositions that all philosophical and economic theories candidly try to explain the Real and the reality which is manifested in several forms in the complex rubric of social and economic conditions of the given age. Theories beginning from structuralism to postmodernism, which may include the economic, political and cultural realities of liberalization, privatization and globalization, have meticulously endeavoured to locate the uncanny nature of realities. A close empirical observations of the political, economic, and cultural apodosis of the phenomenal phenomena of liberalization, privatization and globalization divulges the fact that they connote a perennial paradoxes and aporias which indeed functions as a pharmakon because that involves an irresolvable dialectics. Further, the paper may plunge into the chimeras of labour politics, technological antidotes and the exercise of capitalistic manoeuvring and may further expound how they control the entire firmament of social, economic, cultural and political realities.

**Key Words:** Dialectics, Liberalization, Privatization, Globalization, Power Politics and Marxist Ideology.

*“The subject is the lie, because for the sake of its own absolute rule it will deny its own objective definition. Only he who would refrain from such lies—who would have used his own strength, which he owes to identity, to cast off the façade of identity—would truly be a subject.”* Theodor Adorno, *Negative Dialectics*, (1966:30)

*“The goal of my work during the last twenty years has not been to analyse the phenomena of power, nor to elaborate the foundation of such an analysis. My objective, instead, has been to create a history of the different modes by which, in our culture, human beings are made subjects.”* Michel Foucault, “The Subject and Power”, (1982:208)

History of the universe or of the mankind is about the dialectics between the master and the slave which ultimately aims at attaining the absolute freedom which is aptly explicated by Hegel in his *The*

*Phenomenology of Spirit* (1807) and the gradual movement of the society for attaining the egalitarian economic realities as Marx and Engels aver in their introduction to the Manifesto to *Das Kapital* (1867). This is an exemplification of the fact that the economic and political realities are deeply embedded into the intricate process of the formation of consciousness, ideology and identity. It is important to examine the dyadic relationship between the formation of subject and subjectivity and the consciousness and ideology. The formation of the subject from the self through the process of becoming that commences from [be]-ing. The ontological existence of being from the state of [be] to the complex process of progressive action of becoming or [-ing] which leads to the epistemological formation of the self or the subject. It is indicative of the fact that the ontological existence and the epistemological formation of the subject are controlled by the economic and political realities which are generally controlled by the game of power politics. Power is something which is imminent and which originates from all places and moves in from all sides which finally shapes and reshapes the consciousness, ideology and identity and reconstructs the discourse and knowledge, holds Michel Foucault in his *The Archaeology of Knowledge* (1969). Power which is inextricably intertwined into the political and economic realities controls the social and to some extent the cultural realities is related to the process of capital formation and the phenomena of capitalism and historical materialist realities of capital. The capital with its varied forms triggers the phenomena of liberalization, privatization and globalization. Before, the paper embarks upon the phenomenological realities of liberalization, privatization and globalization with their complex relationship with capital; it is inevitable to examine the functioning of social realities and the formation of social system and its controls. The social system in its collective unconscious of Jung and the political unconscious of Fredric Jameson is deeply impinged by the capitalistic exercise. It is capital with its varied forms that designs and controls consciousness and ideology which can be made explicit by the fact that the society functions through its base and superstructure as has been propitiated by Marx. The ‘base’ which can be translated as capital, controls the superstructure, which may include all aspects of human existence like food, clothes, educations, livelihood etcetera. The ‘base’ and the ‘superstructure’ are mediated by the civil society which includes the forms of institutions namely, religious and educational. Both the base and the superstructure are directly controlled by capital and capital is the direct result of labour surplus in capitalistic enterprise. Again, the religious and the educational institutes which conspicuously work under the aegis of the capitalist and the phenomena of capitalism perpetuates the capitalistic exercise through the complex process of instrumentalization, rationalization and bureaucratization which has rigorously been delineated by Max Weber in his *The*

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*Protestant Ethic and the Spirit of Capitalism* (1930). Max Weber argues that the religion and the religious institutes propagate the philosophy of capitalism and capital formation which is evident from the fact that all most all religions of the world disseminates the philosophy of hard work or labour which is the one and the primary root and means of capital formation by the capitalists because they exploit the surplus labour of the labourers and make them alienated from their product which results into the predicament of estrangement between the product and the labour and hence the labourers. The phenomena of estrangement and alienation bring out commodity fetishism in which the product goes under the process of reification. Similarly, Louis Althusser's "Ideology and the Ideological State Apparatuses" (1971) astutely avers for the fact that every economic system seeks to reproduce its conditions of production. The modern capitalist state achieves this through two apparatuses namely the ideological state apparatuses and repressive state apparatuses. Ideology always has a material practice, and is embodied in an apparatus that has as material existence. State power is maintained through repressive state apparatuses like the police, the army, law courts and prisons that operates through actual or threats of coercive force/violence. Further, the ideological state apparatuses maintain its power through the political groups, the media, the education system, the church and art. Thus, the ideological state apparatuses and repressive state apparatuses interpellate the subject and maintain the given social order and keeps the status quo of the dominant ideology in its same exploitative form, explains Althusser in his "Ideology and the Ideological State Apparatuses"(1971:9) and Gramsci explains it through his philosophy of 'hegemony'. All these finally give birth to rationalised capitalistic enterprise. A rationalized capitalistic enterprise implies two things: a disciplined labour force and the regularised investment of capital.

The genesis of the incredulous and unprecedented phenomena of liberalization, privatization and globalization can be traced back the unquestioned and irrefutable womb of capitalism. The voice of liberalization, privatization and globalization initially echoed from the capitalist country which holds economic and political power and exercises the power of the dominant ideology upon the world. An intrusive examination of the birth and proliferation of liberalization, privatization and globalization may exemplify the fact that it is one of the strategic ploys of the capitalist, on the one hand, to thrust its power upon the developing countries and on the other to exploit them so badly that they perpetually remain either developing or underdeveloped countries. Their condition is absolutely tantamount to the predicament of the labour force in an industry in which the labourers are paid wages but the amount is such that is all consumed by them which is again the result of the consumerist culture which is propagated and perpetuated by the capitalist. The hurricanic arrival of liberalization, privatization and globalization in India

and in almost all other developing or underdeveloped parts of the world is the aggressive result of implicit agenda of the capitalist and of their imperialistic policy.

It is a common knowledge that the arrival of liberalization, privatization and globalization has contributed significantly in the aggressive growth and development of the economy of a country. However, a closer examination of the phenomena of neo-economic advancement narrates an entirely different story which reveals the dialectical nature of liberalization, privatization and globalization. The policy of liberalization which reverberates the economic activity of *laissez-faire* which has been popularised by J.S.Mill, who profoundly echoes the philosophy of historical materialism and utilitarianism. The trade and economic policy of *laissez-faire* believes in the fact that let do and let pass, the world goes on by itself. It provides an opportunity to the economically dominant world to sell their products with full energy in developing or underdeveloped countries by translating them into a mere consumerist market. With liberalization the small traders vanish from the map of the commercial activity and it provides spaces only to some great corporate giants. It improves the quantity of products but spoils the quality of them. This is reflective of the fact that the process of liberalization allows the powerful or economically dominant nation to enjoy its capitalistic exercise where the people of the developing nations remain a mere passive consumer. Further, it also strengthens the economy of the developed nations by depleting the economic resource of the developing nations. As Marx has argued, consumption provides 'the finishing touch' to production. The object of production is consumption and consumption is an essential part of the production process. It simply entails that each act of consumption enhances the possibility of production which takes place at capitalist's end and it further allows the capitalist for merciless exploitation of the surplus labour. Further, the liberalization and deregulation of capital and currency markets, combined with the large-scale deployment of information technology, have ushered in a new phase of capitalism. Anthony Giddens understands that these changes in the global economy deeply affect even the most intimate areas of everyday life everywhere in the world.

Privatization inculcates the concept of ownership which may espouse the process of the maximization of profit, explains Friedrich Engels in his *The Origin of the Family* (1884). The sudden surge of the policy of privatization brought several business tycoons to establish their industry which may allow them to maximize their profit on the cost of letting several public enterprises to come to a close. However, it has been debated and discussed that the phenomena of privatisation has ameliorated the economic, social, cultural and political condition of the universe, on the contrary, a close look upon the relentless exploitation of the natural resource by the close nexus of the politicians, bureaucrats and

capitalists narrate the story of scam, unprecedented crime and unsurmounting corruption. It also has given birth to the quenching condition of black money. Arun Kumar in his *The Black economy in India* (1999) establishes that “A nexus has emerged among businessmen, the bureaucracy and politicians. This is the triad. The bureaucracy, a relic of the British rule, was always the part of the elite structure. It has not been difficult for it is to change its role in post- independence India since it has hardly had a commitment to democracy” (1999:12). Privatization inculcates pragmatism and individuality which develop selfishness among individuals and they believe in digging holes and filling them, as Arun Kumar says “... it is also true that in pursuing one’s narrow interests, in short run, one may create social ills and in long term harm one’s own self-interest and that of society. The paradox is that those who gain the most from the growing black economy, the elite, are the biggest loser in the process” (1999:10). All these result into a massive unemployment and the rising gap between the rich and the poor. The widening gap between the ‘Have’ and the ‘Have not’ is the strategic policy of the capitalists. It may allow them to continue with their capitalistic enterprise.

There have been three fundamental moments in capitalism, each of which has corresponding cultural form; market capitalism corresponds with realism, imperialism with modernism and the present stage of multinational capitalism with postmodernism. Multinational capitalism which is the reflective and reflexive outcome of globalisation and globalisation is the consequence of technological advancement and a remarkable amelioration in communication system. Both technology and communication allowed a large domain for parody, pastiche, fragmentation, hyper

reality and simulation and simulacrum. They have also influenced the economic realities of the world by welcoming the seeming reality of democracy. Walter Benjamin in his “The Work of Art in the Age of Mechanical Reproduction” establishes the fact that the technological inventions have made all possible objects democratic so that everyone may consume all possible objects of the world. However, the technologies which liberate objects be it aesthetic or materialistic is always controlled by the capitalist or some who holds the locus of power. Thus, the cost of globalisation is indeed dearer as it engraves and perpetuates the complex steams of capitalism and espouses the capitalistic enterprise.

In nutshell, the process of [be]-ing to becoming indeed includes all social, economic, cultural, and political and linguistics factors. All philosophical and economic theories explain the Real and the reality which is manifested in several forms in the complex rubric of social and economic conditions of the given age. Theories beginning from structuralism to postmodernism, which may include the economic, political and cultural realities of liberalization, privatization and globalization, have meticulously endeavoured to locate the uncanny nature of realities. A close empirical observations of the political, economic, and cultural apodosis of the phenomenal phenomena of liberalization, privatization and globalization divulges the fact that they connote a perennial paradoxes and aporias which indeed functions as a pharmakon because that involves an irresolvable dialectics. Further, it is conspicuously clear that the chimeras of labour politics, technological antidotes and the exercise of capitalistic manoeuvring control the entire firmament of social, economic, cultural and political realities.

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## **Bypassing the Commission Agent: Do Shorter Chains enhance Efficiency in India's Agricultural marketing**

Nilabja Ghosh\* and Ananda Vadivelu

*Reforming a market often means strengthening vertical coordination in the market and encouraging the infusion of investment and modern practices. Agricultural product markets in India are typically marked by long chains of unorganized intermediaries presumably adding to marketing costs and margins and thereby creating inefficiency in performance. Recent changes in policy are paving the way for multiple alternate channels to emerge in the markets. These channels are not only shorter in length to bring the producer and the consumer one step closer than traditionally found, but sometimes they also create space for more resourceful and organized players in the intermediation. We take this historic opportunity to take a critical look at the evolving canvass and study some of the emerging channels found to work in different part of the diverse country and enquire if the shortening of channel helps to enhance market efficiency and to explore what implicit cost is involved in this change.*

### **1. Introduction**

Long chains of unorganized intermediaries occupy the space between the producer and the user in India's agricultural markets. The system originated years ago and further reinforced in independent India through the Agricultural Produce Marketing Acts. Enacted and implemented by the State governments under the Constitutional provisions, these Acts prescribe rigid specifications to producers on the locations, methods and on the choice of functionaries through a licensing system. A key reason for the persistence of this system is presumably to protect the poor and the ill-informed farmers from the exploitative practices of traders detected even by the Royal Commission on Agriculture in the early part of the twentieth century. Auction was a cornerstone of the regulations. Over time, however the purpose began to be defeated as the licensed functionaries often in collusion with the very regulators turned exploitative as noted in various evaluative studies (\*). The intermediaries, because of the assured rights, also had no incentive to invest and improve their

methods that could potentially reduce the marketing costs. The long chain of intermediaries with limited specialization results in cumulated margins that further disperse the producer and final prices.

Liberalization of the economy that began in the 1990s is aimed to make the markets function more efficiently. Reforms in agricultural markets came rather late in India and became especially visible when the central government circulated a model Act among states to guide them to amend their own Acts in keeping with the spirit of market reforms in early 2000s. Recent changes in policy are paving the way for multiple alternate channels to emerge in the markets. These channels are far from homogeneous with varying structures and lengths and they do not necessarily bypass all the traditional intermediaries. However, these channels are not only shorter in length than the traditional ones to bring the producer and the consumer one step closer, but sometimes they also create space for more resourceful and organized players to enter the channels.

Curiously, in the political economy of India market regulations have also played a role in creating employment opportunities for large sections of semi-skilled work force so that the possible loss of employment of traders due to reforms is a serious issue confronting reforms. Yet in a growing economy as India is, how gainful and productive such employments are is also a question that requires careful consideration. This can only be done by assessing the merit of the traditionally evolved channels with alternatives that remained in the realms of theory in a regulated regime. We take opportunity of this critical transition of regime exposed to reforms to recapitulate the evolving canvass and study some of the emerging channels with enhanced vertical integration found to work in different parts of the diverse country. Our objective is to enquire if the shortening of a channel helps to enhance market efficiency. The exercise is done in a critical perspective keeping in mind the limitations of static quantitative comparisons. We therefore supplement the quantitative assessment with insights of more qualitative character drawn from the field. This study brings together, through a meta-analysis of sample data, findings from a number of primary data-based case studies of specific emerging markets that bypass some of the long-standing links in the traditional chains.

### **2. Data**

Primary surveys based on stratified random sampling techniques is conducted by the Agro-economic Research Centres of different states (Table 1) coordinated by the authors with a unified framework and common objectives. The Centres were urged to select two common emerging channels in their assigned areas and cover preferably crops of special significance. The emerging channels have been felt particularly important for horticultural crops that are

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The authors coordinated a study based on a number of country wide sample surveys and wish to thank the Ministry of Agriculture, DES, Government of India and the contributing teams conducting the field surveys headed by Prof Grover of PAU in Ludhiana, Dr S. Shroff of GIPE in Pune, Dr U. Tuteja of ARCC, Delhi, Dr R. Singh of Himachal University, Dr Kakati of Assam University of Jorhat, Dr H.O Sharma of JNKVU Jabalpur, Dr R. Sinha of Bhagalpur University, Dr G. G. Rao of Andhra University of Vishakhapatnam and Dr R. Roy of Allahabad University.

highly perishable for which the regulate market proves inadequate. Also representation of different holding sizes was considered desirable. Corresponding samples of households participating in the traditional market channels common in the areas for the same products are also collected as control groups to enable relative assessment of the emerging channels in a diverse Indian socioeconomic environment.

In reality, due to the nascent stage of the market evolution, the difficult to locate the emerging channels was a severe constraints and not only limited to states that have not legislated marketing reforms. Pre-selection of regions was not possible and only the presence of emerging channels dictated the choice. In one case Madhya Pradesh no horticultural crop could be identified in the emerging channels and the crop soyabean, another crop of emerging significance was chosen for study. Stratification was also difficult in view of the varying average farm sizes among the areas and because of farm-size sensitivity of certain channels. In certain cases such as Maharashtra the sample size is therefore unavoidably small (Table 1 annexure).

A second serious problem arises from the blurred distinction between the two types of channels. The emerging channels do not necessarily circumvent the traditional chain of unorganized traders but in all the emerging channels that we could study the first link, generally the commission agent or the pre-harvest contracting trader is bypassed. In many cases the presence of an organized corporate entity serves to reduce the channel length considerably or even replace all the individual traders. The functioning of these emerging channels is studied carefully to bring out the implications for the channel length.

The channels generally span large spatial dimensions covering rural and urban areas and sometimes several states and even other countries. Thus following a chain is not an easy task. We have not attempted to follow every chain, but rather sample key intermediaries at each point in common chains of the region leading to proximate urban market centres as terminal points, both to obtain estimates of prices, costs and margins and to understand views and perceptions of agents on the market. In some cases where the product reaches a large processor, we have truncated the channel and made no attempt to factor in the costs of processing which is beyond scope of this study or to estimate the consumer price which relates to a different finished product. Instead we assume the price paid by the user in the traditional channel as the terminal price. In other words the costs and the margins incurred by the processor are not taken into consideration explicitly. The margin would however admittedly include a component of the implicit gain exploited by the processor buying at a rate lower than what the consumer pays in the open market. Where the product is disposed through malls, to circumvent the intricacy of comparing the interfaces in the mall and at the retail shops the purchase price by malls is taken as the

terminal price and no further exploration of costs and margins within the mall is attempted. Arguably the terminal price may imply an underestimation in the case of the emerging channel. By these means we try to maintain inter-channel product compatibility when assessing the final prices.

### **3. Conceptual framework**

Unproductive marketing costs and margins account for a large share of the prices being paid by consumers for agricultural commodities, only a small share of which reaches the actual producers (Bardhan, Mookherjee and Masatoshi (2009). The long chain of intermediaries who serve to pass on the products from the producer to the final user in the chain and their inefficient ways of operation are responsible for the large spread between the farmer's price and the user's price in the process of which both the producer and the consumer lose. While it has long been recognized that diversion of social or the 'merchant' capital (Harriss-White, 996) to 'unproductive' but 'necessary' functions of buying and selling commodities (Marx, 1972) is unavoidable, since such functions are usually inextricably combined with productive activities like transport, storage, cleaning and processing in various degrees, it is not easy to disentangle the components that deserve to be qualified as productive and necessary from the other functions.

Reforms would ideally minimize or eliminate the avoidable part of price dispersion between the producer and the user that may arguably be collectivized as unproductive marketing cost. This is far from easy. The informal, nested and sometimes non-pecuniary dimensions of the functioning of trading intermediaries in the market chain make the subject of traders' productivity extremely complex.

In practice, traders in agricultural markets are also known to discharge several additional and associated functions for which markets are generally missing in developing countries where producers are poor and therefore factoring these services into their margins is not easy. The trader's role as financier, insurer (in pre-harvest contracts or forward contracts) informer and input supplier is implicit in the margins though in the past these multi-market interfaces leading to complicated interlocking was widely discussed in the literature in context of farmers' exploitation (Bhaduri, 1983 Bharadwaj, 1985). In a vast rural setting with undeveloped infrastructure, poor communication, pervasive ignorance and extensive poverty, the traders generally form the crucial conduit of market intelligence (World Bank\*). Despite their own constraints and limitations, the more mobile traders, are known to be endowed with greater awareness about the market situation than farmers are and this facilitates the determination of prices at the producer end.

On the contrary, the traditional supply chains where the traders individually specialize in small ambits of activities within the chain such as in striking negotiations (as by broker), supervising in auction



(commission agents), stocking at various points (merchants), distribution to retailer and vending to consumers, encourage the entry of more and more players claiming their shares in the user price and further widening the price spread. It is often felt that even with growth taking place in the larger economy and the changing pattern of food habits this wide dispersion of prices will come in the way of agriculture's response to the demand stimulus and elimination of poverty among farmers providing a compelling rationale for opening up the market to new methods and players.

The relative success of the emerging channels stimulated by the launch of reforms and reducing the traders' space by cutting down on channel length offers a potent way to understand the implicit significance of their presence. This is possible by comparing the performance of markets between a common traditional channel and an emerging channel that is shortened channel functioning simultaneously in the same region. While the price spread or gross cost of marketing a product comprising of both actual incurred costs and traders' margins may be encountered in both markets, the relative extent of this spread can be assessed by comparing the gross marketing cost incurred for every rupee received by the producer from selling the product. To the extent that this relative cost of marketing can be reduced by shortening the channel length or bypassing the commission agent, the productive value of the traders forgone in the channel can be questionable.

#### 4. Methodology

In our quantitative assessment we have taken into account three aspects namely, the prices actually received by the producers or the Net Adjusted Farmer Price (NAFP), the returns made by the producers from farming of land or the (RTNLAND) and the costs and margins incurred in the process of marketing relative to what the producer receives (RGMC). The estimates are averages for sample farms and are explained below.

##### *Net Adjusted Farmer Price*

The net farmer price or the price actually received by the farmer for a unit of product marketed differs from the recorded price in the channel which may remain notional. Adjustment is made for possible rejection and wastage of products to obtain Adjusted Farmer price (AFP) where the rejected product may possibly find an outlet elsewhere outside the channel possibly at a lower price and part of it can remain unsold. The Net Adjusted Farmer Price (NAFP) is the AFP less the marketing cost that is incurred by the producer.

NAFP= Net adjusted farmer Price (Rs/'00Kg)

NAFP=AFP- FMC

FMCOST= Farmer Marketing Cost (Rs/'00Kg)

AFP = (PCH\* QSOLDCH) + (PELS\*QSOLDELS)/QMARKCH (Rs/'00Kg)

Where

PCH=Price fetched in specified channel (Rs/'00Kg)

PELS= Price fetched elsewhere for rejected product (Rs/'00Kg)

QSOLDCH=quantity sold in specified channel ('00Kg)

QSOLDELS=quantity sold elsewhere if rejected in specified channel ('00Kg)

QMARKCH= Quantity marketed in the specified channel ('00Kg)

And

QMARKCH=

QSOLDCH+QSOLDELS+QUSOLD+QWASTE

Where

QUSOLD= Quantity marketed in specified channel but unsold ('00Kg)

QWASTE= Quantity marketed in specified channel but wasted due to rotting or any reason ('00Kg)

##### *Returns from land*

Returns made from farming of land are obtained as the revenue made from sales less the out of pocket (paid) cost of production and the marketing cost incurred by the producer. This is expressed as RTNLAND.

RTNLAND= Returns from land (RS '0000/hectare)

RTNLAND= (NAFP-FPCOST)\*FYLD

Where

FPCOST= Farmer production cost (Rs/'00kg)

FYLD= Farm yield of crop ('00Kg/hectare)

##### *Inefficiency of market and Marketing Cost*

Efficiency is a profound concept in marketing, difficult to capture quantitatively. Nevertheless there are a number of estimates available in literature such as the Shepherd Formula and the modified Measure of Marketing Efficiency suggested by Acharya, 1988. Essentially these estimates seek to measure a return to cost ratio in marketing (Kohl and Uhl, 1980, Clark, 1954) although there are econometric measures using cointegration techniques that unduly simplify the assessments. Based on the Shepherd's measure of inefficiency we define a measure of relative gross marketing cost (RGMC) which is the gross marketing costs (GMC) relative to NAFP where GMC is the sum of marketing costs incurred by various agents including the producer and the margins made by market functionaries involved in trading. The GMC is then standardized by the NAFP to obtain an estimate of the RGMC. Intuitively the RGMC measures the marketing costs and margins in value terms incurred in generating one rupee of price actually received by the producer marketing the product. It may be observed that we do not treat GMC per se as an estimate of inefficiency as part of the marketing costs and margins may be construed to be productive or necessary functions (see section 3).

The inefficiency of the market representing the unproductive elements of the marketing costs is assessed by comparing the gross marketing costs and

margins incurred for every rupee reaching the producer in the emerging shortened channel with a traditional channel prevailing in the region. The inefficiency (RIE) of the longer channel is proxied by the difference between the RGMC in the traditional channel from that of the shortened channel.

We also present qualitative assessments based on perceptions of stake holders and interactions with functionaries and on-site exploration to capture the latent transactions cost involved in the channels and the complications of the systems.

### **5. Emerging Marketing Channels**

The regulated market in India's agriculture is generally interspersed with several market functionaries like wholesale traders, secondary wholesale merchants, retailers, small processors. In many commodities mostly fruits and vegetables, pre-harvest contract is a common first stage of market exchange in which prices are fixed between the producer and the pre-harvest contractors (PHC) in advance. The village commission agent or the PHC in pre-harvest contracts play a crucial role in producer's marketing. These functionaries are authorized to act on behalf of the farmers to sell the produce further on in the chain. The commission agents are assigned to protect the producers' interests and are known to be a critical source of price information from the larger market. They are also known to empower farmers with information on market situation guiding their directions. Sometimes they serve additional purposes like credit and input supply, facilitate negotiations in auctions. The PHC takes up a considerable part of the risk emanating from price uncertainty and also discharge much of essential functions of marketing from producer side as the contract begins from the field level. In reality, there are frequent complaints that the commission agent or the PHC forces under-pricing by working in favour of the next trading link in the chain, deducting unduly large amounts in the name of product wastage and have archaic ways of operation (Shroff, 2004, Malaisami, Chandrasekharran and Parimalarangan, 2008, Murthy, Sreenivasa and Gajanana et al, 2009). In many instances, disillusioned by the unsupportive behaviour of the agent and discouraged by the poor infrastructure of the regulated market (Acharya. and Agrawal, 2004) the farmer turns to other operators in the market outside the rigid precincts of the market.

Among the states covered in this study Maharashtra, Himachal Pradesh, Assam and Andhra Pradesh have taken a lead in legislative market reforms but the other states have also partially reformed through methods like notification ingrained in the existing flexible Acts<sup>1</sup>. Such modifications and amendments have enabled and permitted new forms of channels to emerge. Contract farming is one such channel being encouraged especially in Punjab and Haryana the two

major agricultural states that have moved towards diversification from grains towards horticulture. Uttar Pradesh too has allowed contract farming to operate through the existing mechanisms though formally no amendment has been made on the Act. Contract farming is deemed controversial in many other states and has deterred states like West Bengal from legislating reforms. Along with a more contentious channel namely organized retail, Contract farming gives space to corporate and often powerful organized groups to enter agricultural marketing. In each of the cases covered in this study namely, Uttar Pradesh for crops potato and aonla, Assam for crop potato, Punjab for crop potato a processing company is involved in procuring the product directly from the farmer at pre-arranged prices and with technological and input support for farming. In two of these cases the company is a multinational major PepsiCo but in the other two cases local private processors constitute buyers and in Assam the contract and transaction is intermediated by non-government supporting agency. In the two cases of Haryana and in Jharkhand the retail channel is intermediated by Reliance Fresh, a private large national company while in Himachal Pradesh the intermediation comes from an organized retailer but which is a non-profit financially independent company Mother Dairy that was initially promoted by the government. In all the contract farming and organized retail cases the channel is short consisting of only one intermediary between the producer and the consumer except for the case in Assam where the NGO comes into the chain to mediate but without exploiting margins. In the Corporate intermediation, the private company enters as the first buyer from the producer and disposes the products to other agents like Malls as in Maharashtra and other private traders as in Himachal Pradesh and also in Madhya Pradesh where the corporate intermediary is ITC-echoupal. In the Direct marketing channels usually the intermediaries are wholly avoided as in Andhra Pradesh's Rythu Bazaar but the producer takes up entire monetary and other burdens of marketing to consumers. The case is similar in Assam where orange farmers escape their dependence on local traders by forming groups or collectives which in turn becomes the intermediary. The cost of marketing incurred by the groups is naturally shared by the member producers. In Punjab the evening market is a new form of direct marketing that helps farmers avoid commission agents and local traders but the buyers comprise of wholesale traders who directly buy from producers so that the traditional intermediaries are not avoided although farmers do allocate time and effort as well as expense for marketing. In all cases the presence of the commission agent is omitted and the experiences of the investigating Centres reflect the producers' desire to escape this dependence.

<sup>1</sup> The Agricultural produce Marketing Acts or the APMCA.

## **6. Farmer's gains in the Emerging marketing channel**

In Table 2 (annexure) the different channels studies are arranged by an appraised size of the chain involved. For example the first three cases represent direct marketing by producers to consumers and no trading intermediary is involved, While all margins possible are exploited by the farmer in this model, the advantage of specialization is lost since compromises are forced on production activities and lack of training in marketing can be a serious hindrance. In the corporate intermediation cases generally both organized companies in marketing and individual traders to whom they sell are in the queue for exploiting margins. Contract farming and organized retail necessarily involve the intermediation of organized entities but in the cases studied no individual traders are entailed in the process of marketing. The last case relating to Punjab is a model of direct marketing by farmers but unorganized traders are not avoided as their buyers include merchants and wholesale traders rather than consumers.

In all cases barring apple in Himachal Pradesh the farmer receives higher prices in the shortened chain. Although complaints of selective purchases and rejections are common the unsold product generally gets sold elsewhere and the marketing cost is generally lowered leading to higher net adjusted prices relative to the traditional channel operating in the region. In Himachal Pradesh despite the procurement of apple by a company called Adani the net price is lower due to high quality standards and also the cost of crates for apple storage recovered from the producers. Nevertheless, inclusive of this case the returns of farming from a hectare are higher in all cases, direct sales of brinjal in Andhra Pradesh being the exception. One possible reason for this weakness is the lack of marketing skill as suggested by complaints of 'rude behaviour' made by consumers surveyed in the Rythu Bazar.

## **7. Productive role of traditional intermediaries**

The estimates of RGMC are presented in Table 3 (annexure). It is interesting to note that the emerging channels do reflect higher efficiency suggesting that certain trading intermediaries can be bypassed without reducing the farmer's price. Only two cases one in Haryana and the other in Maharashtra are aberrations. The difference in the RGMC is as high as 100% in Uttar Pradesh because there is no marketing cost or margin involved. The gain from the bypassing of intermediaries seem to increase as the channel length shortens from an average of 42% where both organized and unorganized intermediation exists to 54% where only a single organized intermediary operates and further to 84% when there is no intermediation between the producer and the consumer. In Punjab case of marketing kinnow where a number of private traders operate although the commission agent or the pre-

harvest contractor is not invited, the saving is to the extent of 32%.

## **8. Pricing issues and implicit benefits**

Although the foregoing analysis suggests the superiority of the emerging channel and the presence of unproductive marketing links in traditional chains, any firm conclusion on the issue can only be made when many profound aspects not captured in the estimates are factored. One of the major issues revealed in the course of the Centres' interactions with agents is the determination of prices. The regulated marketing system hinges on systematic supervision of open auctions supposed to be conducted transparently and competitively. Theoretically this is the method known to assure fair prices decided by demand and supply forces. In practice however several ills such as inefficient and biased supervision, lack of democratic character creeping into market committees, superior bargaining strengths of buying traders and their complicity with commission agents and regulators have vitiated the value of auctions.

Nevertheless, replacement of the system with alternatives is not easy. Direct marketing with bargaining in the form of open negotiation albeit not open auctions is the only exception and the bargaining strength of the farmer enhances when marketing is done in groups as in Assam although there are costs of compromising on specialization. In contracts, prices are prefixed in an environment of uncertainty and are liable to be non-transparent. While contracts have a merit of providing insurance to price risk, the lack of price intelligence can be a serious factor. In organized retail price pricing is a difficult proposition even on part of the buyer and is described as 'messy' in the report from Haryana. Farmers have generally expressed satisfaction over the scientifically displayed prices offered in the collection centers of reliance Fresh and Mother Dairy but such prices necessarily have to be related with prevailing prices in the regulated Markets. The government's official AGMARKNET has played no role except in Punjab and Haryana and this too depends on the auction determined prices prevailing in traditional prices. Similarly in the corporate intermediation too the prices need to be fixed in reference to the prevailing regulated market prices. This makes it imperative to facilitate the continuance of the traditional and regulated markets with auctions with necessary improvements and modernization. These markets would provide added option to farmers.

Producers have received various supports from traders in the traditional channel such as input advances as reported for Assam, Himachal Pradesh and Maharashtra and inter-culture monetary loans as in Maharashtra, Punjab and Himachal Pradesh (table 4-annexure). Credit and supply of quality input are functions that are deemed of great significance by farmers especially since the role of institutional finance is limited. Most important traders are the prime source

of price information for the farmers and their information is found to be important also for participants in the emerging channels. On the whole the satisfaction level with the traders is fairly high through there are incidents of conflicts and difficulty of recovering payment in some cases. Assured sales have motivated a large section of the participants to persist with the traditional channel. Rejection is considered a major complaint for channels such as contracts the world over but our study finds that such rejections may be sold to other markets and the average price fetched could still be higher than in the traditional channels. However, more latent in this selectivity is the biased selection of farms in the emerging channel. Price information is an information service still provided by traders and benefits also the participants in the emerging channels although the contract farmers and the sellers to retail chains largely depend on their own buyers.

Moreover the higher efficiency patent in the data on emerging channels may hide other serious issues that involve compromises accepted by the buyers. For example, Adani in Himachal Pradesh has been seen to be inclined towards higher elevation farms producing higher quality apples and would sell to exclusive clients at higher prices leaving lesser grades to be procured by traders. Due to pressures from traders and farmers, they have modulated their behaviours and procure different grades of apples only to dispose the lesser quality products to traders from local origin or from Delhi. Mother Dairy in Himachal Pradesh has also expressed economic difficulties. Reliance fresh has faced resistances in different states and violence has been well known in Jharkhand where a number of outlets were closed citing different reasons.

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## 9. Conclusions

The neo-liberal changes taking place in Indian economy has probably encountered some of the deepest challenges in the field of agriculture. Questions have hovered mostly around the survival of the large body of traders engaged in the function of marketing products and the farmer's gains. A primary survey of a large number of channels just emerging in various regions of the country suggest that producers earn larger farm incomes and fetch higher prices and receive more in relation to the marketing costs and margins incurred in the channel. On the whole the marketing costs and margins generated for every rupee fetched by the producer is higher in the traditional channel in the same region suggesting that even if marketing costs are deemed essential, part of the cost is unproductive and avoidable.

However, the presence of the traditional channels is also profoundly a boon to the producers and also to the emerging channels in respect of price determination. There are several other advantages of these channels that can be reaped fully if their operation is improved through competition and public investment. Also, there are compromises imposed on the emerging channels and NGO intermediation is necessitated but while these can be seen as teething troubles as of now, overtime, their presence can affect the viability of the channels. However, while the livelihood of traders is a serious issue in India's economy, it is important to question how productive such employments are in the present state of technology and marketing practices and to explore on ways to divert their skills and presence in more useful channels.

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### Annexure

Transaction	Channel	State	Final user	Crop	Farmer's marketing Cost	Intermediation	Sample size
Direct sales	Rythu Bazaar	Andhra Pradesh	Consumer	Brinjal	All	None	25
Direct sales	Rythu Bazaar	Andhra Pradesh	Consumer	Banana	All	None	25
Direct sales	Farmer groups	Assam	Processor	Orange	Shared	Farmer group	50
Contracts	PepsiCo	Uttar Pradesh	Processor	Potato	None	None	25
Contracts	KFP	Assam	Processor	Potato	None	NGO mediator	50
Contracts	Satkar fruits	Uttar Pradesh	Processor	Aonla	None	None	25
Contracts	PepsiCo	Punjab	Processor	Potato	None	None	35
Retail chain	Reliance	Haryana	Consumer	Muskmelon	None	Reliance	50
Retail chain	Reliance	Jharkhand	Consumer	Cauliflower	None	Reliance	50
Retail chain	Reliance	Haryana	Consumer		None	Reliance	
Retail chain	Mother Dairy	Himachal Pradesh	Consumer	Tomato	Partly	Mother Dairy	50
Corporate	DFPCL	Maharashtra	Mall	Onion	None	DFPCL	12
Corporate	DFPCL	Maharashtra	Mall	Pomegranate	None	DFPCL	5
Corporate	Adani	Himachal Pradesh	Consumer	Apple	Small part	Adani, traders	50
Direct sales	Evening market	Punjab	Merchant wholesaler	Kinnow	Partly	Traders	10
Corporate	ITC	Madhya Pradesh	Processor	Soyabean	Entirely	e-Choupal	37

		Channel			Channel		
		Net Adjusted Farmer price			Returns from farming land		
		Emerging	Traditional	Difference	Emerging	Traditional	Difference
		Rs./Qtl.		%	Rs.'00000/hectare		%
No intermediary							
Andhra Pradesh	Banana	374.80	217.80	72.08	1.08	0.86	25.58
Andhra Pradesh	Brinjal	1143.70	1058.20	8.08	0.42	0.49	-14.29
Assam	Orange	1102.00	967.00	13.96	0.01	0.01	0.00
Both organised and unorganised intermediaries							

Maharashtra	Onion	694.00	636.00	9.12	1.80	1.40	28.57
Maharashtra	Pomegranate	6100.00	3489.00	74.84	11.50	2.70	325.93
Himachal	Apple	4219.00	5306.00	-20.49	4.43	3.68	20.38
Madhya Pradesh	Soyabean	1888.00	1819.00	3.79	0.17	0.14	21.43
Single organised intermediary							
Uttar Pradesh	Potato	588.00	491.50	19.63	1.01	0.64	57.81
Uttar Pradesh	Aonla	533.00	508.50	4.82	0.81	0.66	22.73
Assam	Potato	358.70	334.50	7.23	0.15	0.11	36.36
Punjab	Potato	458.70	308.73	48.58	0.59	0.16	277.89
Himachal	Tomato	989.00	517.00	91.30	1.78	0.56	217.86
Jharkhand	Cauliflower	358.68	334.49	7.23	0.15	0.11	36.36
Haryana	Muskmelon	567.60	518.10	9.55	1.27	0.94	35.11
Haryana	Tomato	501.40	426.40	17.59	1.09	0.76	43.42
Only unorganised intermediary							
Punjab	Kinnow	1296.00	860.00	50.70	1.87	1.32	41.67

<b>Table 3: Gross marketing cost per Rupee fetched by the producer</b>					
		Channel		Difference	
		Emerging	Traditional	Quantum	Relative
		Rs.	Rs.	Rs.	%
No intermediary					
Andhra Pradesh	Banana	0.13	0.99	0.86	86.87
Andhra Pradesh	Brinjal	0.04	1.45	1.41	97.24
Assam	Orange	0.34	1.14	0.80	70.18
average		0.17	1.19	1.02	84.76
Single organized intermediary					
Uttar Pradesh	Potato	0.00	0.38	0.38	100.00
Uttar Pradesh	Aonla	0.00	1.40	1.40	100.00
Assam	Potato	0.33	1.14	0.81	71.05
Punjab	Potato	0.13	1.34	1.21	90.00
Himachal	Tomato	0.51	2.02	1.51	74.75
Jharkhand	Cauliflower	1.19	1.27	0.08	6.30
Haryana	Muskmelon	1.50	1.60	0.10	6.25
Haryana	Tomato	1.60	1.40	-0.20	-14.29
average		0.66	1.32	0.66	54.26
Both organized and unorganized intermediaries					
Maharashtra	Onion	1.31	1.26	-0.05	-3.97
Maharashtra	Pomegranate	0.39	1.15	0.76	66.09
Himachal	Apple	0.46	1.60	1.14	71.25
Madhya Pradesh	Soyabean	0.18	0.29	0.11	37.93
average		0.59	1.08	0.49	42.82
Only unorganized intermediary					
Punjab	Kinnow	0.82	1.20	0.38	31.67

<b>Table 4: Other benefit derived from traders in Traditional channels</b>						
		Farmers reporting advantages (%)				
States	Crops	Received loans	Received Input advances	Payment recovery problem	Assured sales	Received Price information
Assam	Orange	NR	74	30	NR	40
Punjab	Kinnow	NR	NR	8.6	28.7	31.4
Maharashtra	Onion	5	NR	22.9	19.5	17.1
Maharashtra	Pomegranate	NR	5.7	22.9	18.4	28.6
Himachal	Apple	46	NR	100	NR	100
Uttar Pradesh	Potato	NR	NR	8.6	NR	NR
Uttar Pradesh	Aonla	NR	NR	7	NR	NR
Assam	Potato	NR	NR	NR	NR	72
Punjab	Potato	28.6	NR	37.1	51.4	74.3
Himachal	Tomato	NR	100	14	NR	28
Jharkhand	Cauliflower	NR	NR	88	NR	28
Haryana	Muskmelon	NR	NR	8	6.8	58
Haryana	Tomato	NR	NR	2	8.3	58
Note: NR is not reporting						

## **The Political Dimension of Social Development in India in the Context of Child Labour, 'Nowhere Children' and their Rights**

Rajlakshmi Datta<sup>1</sup>

### **Abstract**

It is believed that social development is a course that invests in people with a view to enhance their well-being and capacities. When we have a discussion of social development, we often refer to communities, gender, groups which make us easier to identify the vulnerable status of certain sections of the society. Since children are the future of a nation, a large number of children as a group in the workforce naturally imply fewer educated and skilled workers for the future. The question of marginalization of children arises because those sections of the society do not have a strong lobby to ensure their own protection of interest. It may be argued that since the root cause of marginalization is that this section is not 'strong enough' to fight for their own rights, it is an issue of 'power' and therefore has a political element in it. Moreover the most important tenets of democracy are based on the principles of equity and social justice and therefore it is necessary to take a look at the institutions that are supposed to protect the future citizens of the country. In this era of strong discourse on sustainable development the 'intergenerational transmission of deprivation' that is taking place through child labour or 'nowhere children' needs to be examined. This paper attempts to point out the deprived childhood of a generation in India which perhaps has a multiplier effect for the future generation and may pose a big question to the future of the country. It has been accepted the world over that there is no other institution in contemporary times that can be comparable to the state especially when it comes to protection of rights of its citizens. Therefore if the state fails to create a system through which its future citizens are protected, the state cannot be discarded, rather revisiting its policies on children with a strong political framework with a tougher legal support is the need of the hour. This requires a strong stand from all the stakeholders of the society including the private enterprises to foster an environment in the state where the rights of children are protected as a state obligation and guaranteed by the state as political expression.

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### **Social Development-The Course**

Social development is perhaps a trajectory which requires productive cooperation between the state and the public keeping in view the objective of welfare for all the sections of the society irrespective of caste, creed, gender, age, education, economic condition, place of dwelling, health condition etc. There has been much discussion in development studies on the

uneasiness with the 'GDP centric' perspective on economic growth. As mentioned by Durgabai Deshmukh, the founder of the Council for Social Development (CSD), development has to be a comprehensive process of change benefitting all sections of society especially the marginalized. Therefore the path of social development may perhaps be considered as the course which is socially just, equitable, politically participative and helps people to fulfill their rights as a citizen and to direct or redirect the course of development. Sen (1985) refers to aspects like democracy and freedom to participate in decisions that impact our lives, and freedom from fear as 'complex functionalities' which impacts the development process.

### **The Context of Children in Social Development**

The way in which a nation looks after its children, nurtures them, protects their rights, and helps them to grow as 'able' citizens decides the future of the nation. Children are considered marginalized because they are not 'strong' [powerful] enough to fight for their own rights. They do not form a powerful lobby through which their rights may be protected. But a considerable proportion of children in the labour force or suffering from malnutrition or out of school, raises the question on the future of the state. It is therefore very important for the state to ensure this section of the society is protected. India no doubt manages the largest network of state run public institutions in the world today, reaching out to the maximum number of children in schools. And it is done through the vast network of public institutions set up by the government. The federal nature of the subject of 'education' has bestowed upon substantial responsibility to the centre besides the states.

India has the largest noon meal programme, covering 131.69 million children, the largest immunization programme and a nutrition program with 10 lakh 'anganwari' centres covering over 56 million children [Social Development Report pp71, 2011]. In spite of all these efforts, India is a home for around five million children economically active in the labour market as per the estimates of NSSO (2007-08). According to the Census of India, there were 5.4 per cent (11.28 million) and five percent (12.6 million) child workers in India in 1991 and 2001 respectively. [Census 1991 and 2001].

While an absolute increase of 181 million in the country's population has been recorded during the decade 2001-2011, there is a reduction of 5.05 millions in the population of children aged 0-6 years during this period. The decline in male children is 2.06 million and in female children is 2.99 millions. The share of children (0-6 years) in the total population has showed a decline of 2.8 points in 2011, compared to Census 2001 and the decline was sharper for female children than male children in the age group 0-6 years. [Children In India 2012 - A Statistical Appraisal, CSO]. As per NFHS 3, 48 percent of children under age five years are stunted (too short for their age) which indicates that, half of the country's children are chronically malnourished.

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Acute malnutrition, as evidenced by wasting, results in a child being too thin for his or her height. 19.8 percent of children under five years in the country are 'wasted' which indicates that, one out of every five children in India is wasted. 43 percent of children under age five years are underweight for their age.

Gross Enrolment Ratio at upper primary level is low, but had shown considerable improvement of 16.8 percentage points in the four years between 2005 and 2009. Net Enrolment Ratio at upper primary is a cause of concern. Thus, although more children are entering the education system, many are not availing the end benefit of the system.

### **Protection of interests of children: a political discourse**

The Constitution of India which came into force in January 1950 contains provisions for children survival, development and protection which are included both in Part III and Part IV of the Constitution pertaining to 'Fundamental Rights' and Directive Principles of State Policy. Article 14,15,17,19 (1),21, 23and 24 of the constitution has provisions for the rights pertaining to the children while Article 39(e),45,46,47,51 and 51A(k) have provisions for the section as Directive Principles of State Policy. In spite of the provisions in the Constitution, the dilemma in relation to children and their rights exist. Some major impasse in this context may be highlighted to pose a question whether these dilemmas are voluntary with a specific objective of the state?

Age of children or 'children' in India has been defined differently by different organization and legislative documents. According to Article 1 of UNCRC1 (United Nation's Convention on the Rights of the Child), "A child means every human being below the age of 18 years unless, under the law applicable to the child, majority is attained earlier." Indian Penal Code in its Criminal law states 'Nothing is an offence which is done by a child under age of 7 years. The age of criminal responsibility is raised to 12 years if the child is found to have not attained the ability to understand the nature and consequences of his/her act. As per the Child Labour Prohibition and Regulation Act (1986)'Child means a person who has not completed his fourteenth year of age.' This may be seen not only as a possibility to scale up the dilemma but to stage a stronger base for greater injustice! This may have helped the political parties in 'power' in different phases to do some jugglery of numbers to retain their positions.

In the 86<sup>th</sup> Amendment of the Constitution of India on the Fundamental Right to Education for 6-14 years an additional clause has been included under Article 51A that imposes a fundamental duty upon parents or guardians to provide opportunities for education of their children /wards who are between 6-14 years. The State on one hand is accepting its responsibility to provide free and compulsory education but on the other it is penalizing the poor parents who are unable to send their children

to school under the given circumstances. This perhaps raises a question on political motivation besides such amendments.

The Law on Child Labour (Prohibition and Regulation) Act enacted in 1986 seems to be contradictory as it identifies certain hazardous and non-hazardous occupation for children. Though it is difficult to eradicate child labour but by making provision of child labour in non-hazardous occupation, the legislative aspect of child labour has been diluted to some extent. There is no law protecting children's right in the 0-6 years age group at present.

Equality itself is a dynamic concept with diverse aspects and dimensions. However children in India born in backward classes or minority communities have several constraints to lead a life which is equitable as per law. In various parts of India different 'social superstitions' still acts as a bottleneck for enjoying equality with justice by children born to backward classes.

As per the current definition, the term 'Juvenile Delinquents' or 'Children In Conflict With The Law' refers to any person below the age of 18 who has come in contact with the justice system as a result of committing a crime or being suspected of committing a crime. It may be kept in mind that, the figures for juvenile delinquency till 2000 were collected as per the definition of Juvenile justice Act, 1986. Male below the age of 16 years and female below the age of 18 years were considered as Juveniles in this Act. The Act was amended in 2000 according to which, the age of juvenile male and females was brought at par as below the age of 18 years.

Therefore an ambiguity is observed in policies related to children and their rights which demands for an explanation regarding efficacy of law and order.

### **'Nowhere Children' and Intergenerational Transmission of Deprivation**

As per the India Human Development Report 2011, in addition to the population of child labourers, there is a population of Nowhere Children (NWC).NWC are children in the age group 5-14 years, who are categorized neither as child labourers nor as students enrolled or attending schools. This comprises children who, though generally working, are not counted as part of the work force because of the sporadic nature of their engagement in the labour market.

The NSSO 2007-08 estimates the proportion of NWC children is little over 13 percent which is very near to the figure of proportion of children out of school. Moreover the proportion of NWC girls are more compared to the boys which is due to the reason that Indian social system expects girls to do household works, take care of siblings etc. For the sake of argument if we say that this generation of NWC may perhaps lead to an 'intergenerational transmission of deprivation', we perhaps are not exaggerating. This deprivation of childhood is a

failure of the state to reach to each and every child of the country. The institutions of the state have failed to cover all the children which means that the 'potential parents' from this generation of NWC will remain unskilled and will be trapped in the vicious cycle of poverty and deprivation. Then what will their children do? Will it give rise to more NWC? Having no access to basic education will mean they are trapped in the labour pool of informal sector for the future with lesser chances to ensure a citizenship with dignity.

### The Solution Perhaps.....

A strong support of the State can ensure an enjoyable childhood. It has been accepted the world over that there is no other institution in contemporary times that can be comparable to the state especially when it comes to protection of rights of its citizens. Therefore if the state fails to create a system through which its future citizens are protected, the state cannot be discarded, rather revisiting its policies on children with a strong political framework with a tougher legal support is the need of the hour. This requires a strong stand from all the stakeholders of the society including the private enterprises to foster an environment in the state where the rights of children

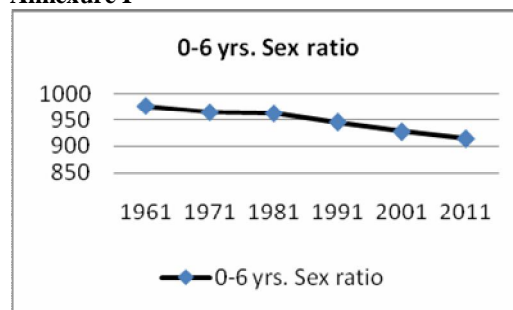
are protected as a state obligation and guaranteed by the state as political expression. The challenge lies in orienting the masses at the 'ground level' to raise a voice. If a large proportion of children are out of school, it is most likely that they become a source of cheap labour in the labour market. Therefore it is time for the state to rethink its priorities. Unfavourable sex ratio [Annexure I], rural urban dichotomy in Infant Mortality Rate [Annexure III], increasing rate of crime by children [Annexure IV], low growth in gross enrolment ratio [Annexure V], the pattern of change of child labour over decades [Annexure VI], lesser child population in higher range of age availing full vaccination [Annexure VII] etc. calls for imperative intervention of the State with Civil Society taking a lead role. Moreover for a country with diverse regional languages but English as the driver for job market, a huge mass of 'first generation learners' are in a dilemma which trajectory to adopt. The state needs to regulate this issue through policies that reduces the gap between the included and the excluded from 'English Education'. Thus it becomes imperative for the State to create inclusive democracy and help in building capacities for its 'future citizens'.

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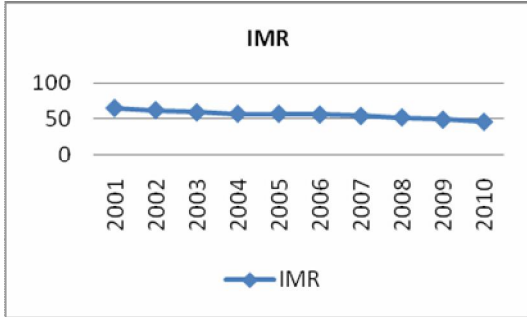
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### Appendix Annexure I



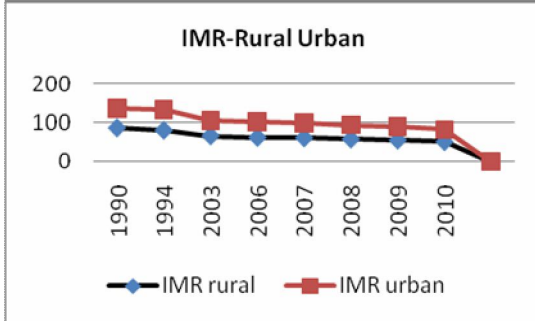
Source of data: Census of India

**Annexure II**



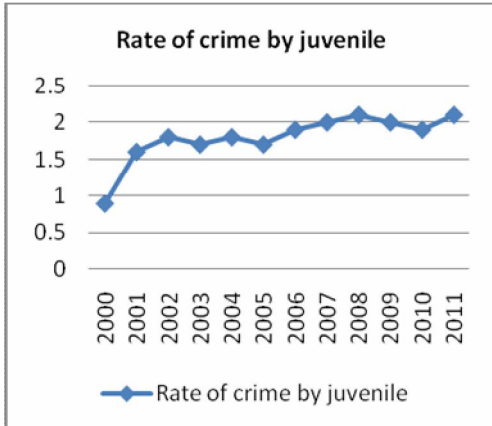
Data Source: Office of the registrar general of India

**Annexure III**



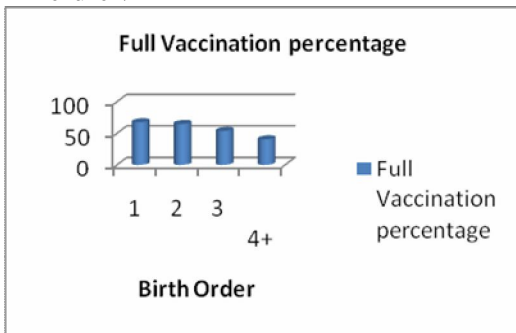
Data Source: Office of the registrar general of India

**Annexure IV**



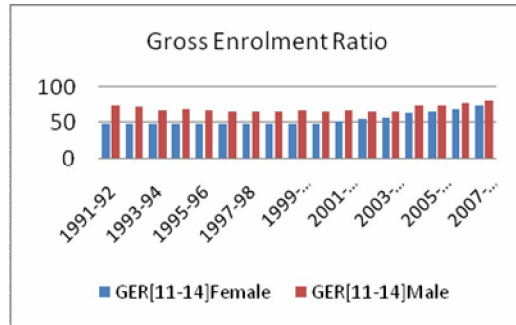
Data source: Crime in India 2011

**Annexure VII**



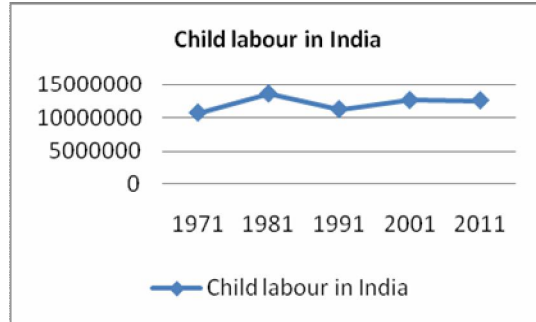
Source: Children in India: A statistical Appraisal 2012

**Annexure V**



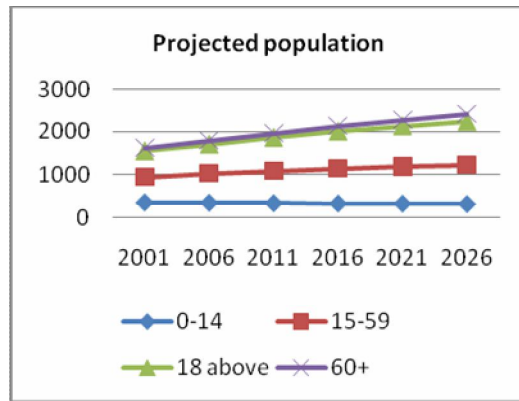
Data Source: DISE, Ministry of HRD

**Annexure VI**



Source: Census of India, 2011 is Provisional data

### Annexure VIII



Source: Census of India 2001, Population projections for India, report of the technical group on population projection 2001-2026, Ministry of Health and Family welfare.

## SALWA JUDUM State, Maoists and Tribals

Himanshu Roy\*

This paper posits three interconnected themes for perusal that have impacted each other in their functioning in the past five years and have influenced the policy formulation, its application, and the public discourse. These themes, to state, are (1) the programmes and praxis of the Maoists, (2) the counter-insurgency measures and discourse of the bourgeois state and (3) the emergence / creation of Salwa Judum, a phenomenon, in the South Bastar region of Chhatisgarh. The last one is the new addition and the most contentious theme of the contemporary discourse around which is woven, partly, the other two themes. The contention has acquired sharp shrill due to the presence of the BJP in power in Chhatisgarh, as it has 'a history of justifying violence by displacing it on to people.'<sup>1</sup> Had the Congress, the other part of the reactionary bourgeois humbug, been in power in Chhatisgarh, the discourse in the English media, and at New Delhi, would have been subdued. Since it is contentious, and new, let's begin with it, the analysis of Salwa Judum.

### Salwa Judum

In Gondi, the dialect spoken among the tribes of South Bastar, it means ghost busting (*bhoot bhagana*), purification of the place, exorcize, etc. The word was used by Mahendra Karma, the erstwhile Congress M.L.A., and his tribal supporters/ lackeys / hangers on for the victims of naxals who were expected, and it was attempted to organize them, to chase away/ bust out the naxals (objectified as evil spirit) from their habitat. The word was foisted upon the tribals, substantive in number (approx. 80,000), who, under the circumstances created by the naxals and the Indian state, were compelled to flee from their villages, in between January – June 2005, in search of their safety, and had descended on the road sides for shelter.

The objective of Karma was to mobilize and integrate these people into one body against the Naxals to counter their influence and to create his own political-electoral base. The tribals, by and large, had resisted / disagreed with the operational programmes of the Naxals and their 'guidance' in the social affairs of the villages<sup>2</sup>; and a segment of it was treated brutally by the Naxals. These people, particularly those, who were provided shelter and security by the state in the camps, specially erected for it, after they had fled away from their villages were denoted as Salwa Judum and were objectified as an aggressive planned counter insurgency

body erected by the state to neutralize the naxals. What actuated, however, at the ground level in search of naxals was the application of every coercive method by the state on the tribals that resulted in their migration to charla block in Bhadrachalam subdivision of Khammam district in Andhra Pradesh or to urban settlements in Bastar. The victims of the Naxals, similarly, had moved to the camps in which a segment of it was employed by the state for the counter – insurgency measures which facilitated the area of operation and dominance of state. A part of these victims had also moved to charla block in Andhra Pradesh and to other parts of Chhatisgarh.

There were two major problems in the emergence of Salwa Judum: Firstly, the presence of the 'outsiders' mainly Telgu vanguards of the CPI (Maoists) providing 'guidance' to the local community in their daily functioning which irritated them; and secondly, the illogical application of land distribution among the tribal peasantry which further enraged a segment. Both the issues related with the programmatic and operational parts of the Maoists created condition for the migration of the tribals. It was further aggravated by the blitzkrieg of the state in search of naxals and their retaliation against 'informers' which facilitated the emergence of a condition that lead to the formation of camps that benefitted the state.

The two issues, of land distribution and of the presence of Telgu cadres may be explained to demonstrate its adverse reaction on the local tribals. It may be stated here that the average landholding of the tribals in the Bastar is approximately 2.5 acres per family<sup>3</sup> which is in a technologically backward region with low productivity is insufficient even for minimal living. In such situation, the redistribution of land among the segments of tribals that too in the absence of any major disparity in ownership sparked the burst of anger, accumulated subterraneously over the years. The vanguardship of the alien Telgu cadres had created duress among the village communities through their unnecessary 'guidance' in the functioning of the traditional social relations. Segments of village communities had been resisting it in different forms. At a particular thresh hold when it became unbearable they ran away from their villages and when the opportunity beckoned them, they retaliated by assisting the police or independent of it.

Off late, however, the number of inmates in the camps has shrunk to around 8,000 as the rest have shifted back to their villages and the remaining are in the process of it. These camps are protected by the state as these have been the targets of the naxals. Or the reverse of it, as these camps are the fortified outposts and symbol of state which has expanded its periphery of market- relations and coercive dominance in Bastar in recent years, these are the targets of the naxals. The state had to retract its coercive presence, earlier, after the Naxals had begun their armed conflict with it. The

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reverse flow of tribals to their villages has occurred due to the condition created for the restoration of 'normalcy' which had been facilitated by the intense pressure of the civil society being brought upon the state and by the rectificatory measures incorporated by the Maoists in their operational and programmatic application. The twin factors have impacted the democratization of bourgeois state in Bastar to an extent and the sensitization of Naxals in their functioning.

The phenomenon of Salwa Judum coerced the tribals to come into the vortex of capital which is different from the normal economic compulsion created by the bourgeoisdom in its routine functioning. It was an unusual phenomenon that dented, forever, the traditional property relations of the tribals premised on the subsistence peasant forest economy.

### **State and Bourgeois Property Relation in Bastar**

Chhatisgarh's creation, as the new province of Indian federation, of which Bastar constitutes the major part, was intended, as is the objective of creating any new province, to expand, primarily, the contemporary globalized bourgeois property relations into the interiors of the tribal regions which still carry the other different forms of preceding property relations. In the conflict between the past and the present, the bourgeois state is required to remove the remnants of the past. The property relations of the tribal peasantry premised on the subsistence economy with an average land holding of 2.5 acres per family and low productivity needs radical transformation to be in sync with the contemporary property relations of labour and capital. Creating condition for it requires their migration or eviction which in turn requires formulation and application of certain measures, financial or coercive. The presence of the naxals provided a perfect alibi to the state to expedite the application of its objective. More, the uprooting provided cheap labour to the business so required for accumulation and reproduction of capital. The establishment of the production process in Bastar lessens the cost of production of heavy industries now mostly under private ownership.

The act against the naxals created condition for the migration of the tribal peasantry out of their habitat. In fact, more precisely, the programmatic operational impact initiated by the naxals leading to protests, violence and migration of peasantry has already created condition to suit the state to throw the baby with the bath water. The strategy devised is two pronged: (a) to initiate public discourse about the 'developmental' role of the state and its counteract by the naxals, and (b) to project naxals as a threat to democracy which needs to be countered. The idea is to isolate the naxals and neutralize them through coercive apparatus in order to eliminate any organized challenge to the state. To it, the state attempts to beak off the linkages between the civil society and naxals who stand

together for collective justice for citizens and operational transparency of administration despite the ideological and methodological differences between the two. Simultaneously, the state also began the armed encirclement of naxals to hunt down its cadres and terrorize their support base. On both the counts, however, the state had only partial success, and many times, it had to retract its steps under the intense pressure of the civil society. Similarly, the business agenda of capitalism has only partial success though under the development paradigm it has pushed through some of its projects erected on the graveyards of the tribals who resisted it. And it is certain that interruptedly, it will trample upon the preceding property relations in Bastar, as it did in Khammam / Warangal districts of Telangana region, to replace it with bourgeois property relations of capital and labour. It is, however, equally certain that had there been no naxals in Bastar, its contemporary social relations by now would have been different in comparison to what it is today. The naxals have delayed the inevitable of capital-labour social formation.

### **Naxals**

The different factions of the CPI (M-L), now primarily dominated by the CPI (Maoists), carry a legacy of collective memories and knowledge of party traditions of India and abroad which has few problematics reflected in their programmes and method of application. The most important, contextually, is the peasant question, the economic policy of globalization, and the boycott of election, particularly by CPI (Maoists). These problematics require an in-depth analysis to understand Indian society for its revolutionary transformation.

Let us begin with the peasant question which was part of the problematics within the Communist Parties during Marx time as well. For clarity, one may recall Marx'- Engels's understanding of peasantry under capitalism by citing Engels who had stated that there was no use in the party for the peasant who expect from us the perpetration of his dwarf property<sup>4</sup>. Marx, similarly, had cautioned his colleagues in the Communist League in 1850 not to distribute the estates among the peasants<sup>5</sup>. Their reasoning against the reestablishment of peasant cultivation was two fold : First, it is " not the social but isolated labour that predominates; and that, therefore, under such conditions wealth and development of reproduction, both of its material and spiritual pre-requisites are out of the question and thereby also the pre-requisite for rational cultivation" (Capital Vol.3, Part VI, Chap XLVII, Sec V); secondly, under capitalism, a peasant is inevitably doomed under the relentless pressure of market. The history of European capitalism is a testimony of it. Where the peasants exist, it remains an unfinished agenda of capitalism. In such theoretical backdrop and with the benefit of knowledge of

European history, if a party still persists with the programme of distribution of lands to the peasants, the party is inevitably to doom. For, the distribution of land to the peasants is at best a bourgeois historical task. It's not an act of Communist party to apply a bourgeois programme for the seizure / to retain state power which unfortunately the communist parties in India and abroad have been implementing after Engels' death<sup>6</sup>.

Not only that, their approach towards the economic policy of globalization has a flaw which is un-Marx like. Marx, it may be recalled, had critically supported the policy of globalization known in his time as Free Trade as it played a catalytic role in social revolution by hastening the end of remnants of feudalism (eliminating the peasants) and bringing in capitalists and wage earners face to face globally without any scape route for capitalism. His support was premised on three counts: first, it facilitates the rapid universal development of technology and its benefits to the people; secondly, it dissolves the prevailing non-class contradictions within nations and among the nations, and thirdly, it precipitates the contradiction between the bourgeoisie and the proletariat by dissolving the middle class like peasants, small traders and manufacturers, etc, to hasten the social revolution. In ideal form, he argued, all economical laws under globalization act upon the whole world and will eventuate in the emancipation of the proletarians.<sup>7</sup> Maoists, on the contrary, are opposed to the open market policy of the bourgeoisie to protect the uprooting of the peasants and other sections of the middle class. Their opposition impacts deleteriously on the intended social revolution for which they claim to be fighting for. Their praxis is a negation of their professed outlook.

A similar predicament exists in their boycott of electoral politics which is contrary to Marx's praxis of participation in the bourgeois electoral politics despite its limitations. It may again be recalled here that during Marx's time, the French / German and other Communist Parties participated in the electoral process and were guided by Marx- Engels in the formulation of their programmes which were addressed to the proletariat during elections to seek vote for the party candidates to form the government.

The fallacy of the bourgeois electoral politics and its debilitating impact on the communist parties was known for decades to both of them; yet they did not abandon it. Rather they struggled for the voting rights of the proletariat. They were, of course, critical of their comrades' praxis, particularly of members of legislative bodies who compromised with the principles and programmes of proletarian movement and thought that being people's representatives make them infallible.

Boycott of elections marginalizes the Maoists from the masses and provides opportunity to the state to malign them as terror organization, to isolate them and

finally, to eliminate / neutralize them. As elections are one of the procedural and deliberative methods to seize state power in a historical context, for which the masses fought for generations, a boycott of it segregates the Maoists from the masses. The bourgeois, of course, has used the evolving mechanisms of liberal democracy to its advantages but a steadfast commitment to principles and programmes without any compromise, as Engels had suggested<sup>8</sup>, is a better option than boycott. More importantly, the recent urban electoral trend indicates a 'boycott' of elections by the labour who deliberately abstains from voting as mark of protest against the fraud perpetrated by the bourgeois parties. It's, therefore, always better to let the boycott come from the labour rather than from the vanguards.

The participation of tribals in the electoral process in Bastar reflects a trend and their mindset.

### Conclusion

The tribals known as Salwa Judum are internally displaced people of Bastar. Displacement / re-location / rehabilitation of people for rapid development of capitalism has been an integral part of government's policy; and the use of coercive apparatus / extra-economic measures, similarly, has equally been its integral part in the application of this policy. The displacement in Bastar for the application of the contemporary globalized bourgeois property relations was already underway before 2005. The acts of Maoists triggered the exodus. The state seized this opportunity for its counter – insurgency acts against Naxals and to create a condition for further exodus of the tribals. A combination of the two created the phenomenon of Salwa Judum.

Fortunately, the pressure of the civil society has restored few semblance of 'normalcy'. Tribals, most of them, have returned to their villages. The state has restrained its blitzkrieg. Its counter- insurgency measures are, however, operational. The Maoists, similarly, have rectified their illogical reforms but their armed anti- state acts continue. Those, the tribals, who are on neither side of the spectrum continue to suffer as suspects. This is the tragedy of Bastar.

### Notes and References

1. See Nandini Sundar, *Sovereign and Subaltern*, OUP, 2007, pp.288.
2. This was accepted by Narayan Sanyal, a Polit Bureau member of the CPI (Maoist), Nirmalakka, and Reddy, leaders of the different armed wings in different zones, Tusharkranti Bhattacharya, member of the Central Committee in their separate interviews with me in Raipur, Jagdapur and Warangal Jails respectively.
3. This data was calculated for me by the Office of the Collectorate, Bastar district from the available official records.

4. K. Marx and F. Engels, *Collected Works*, Vol.27, Lawrence and Wishart, London, 1990, p.495.
5. K. Marx, *The Revolutions of 1848*, Vol I, Penguin Books, 1973, p.328.
6. For detail work, see Himanshu Roy, *Peasant in Marxism*, Manak, 2006, New Delhi.
7. K. Marx and F. Engels, *op.cit*, Vol. 6, p.290; for a focused work, see Himanshu Roy, "Marx on Global Trade", *Frontier*, Autumn No. 2002
8. See, *Ibid*, Vol. 27, pp.549-53.



## Distress Migration – Can MNREGS be a Key?

Vinita Arora<sup>1</sup>, L. R. Kulshreshtha<sup>2</sup> and V. Upadhyay<sup>3</sup>

### Abstract

**Purpose:** Migration denotes any movement of groups of people from one locality to another and takes different forms. This paper looks at the Mahatma Gandhi National Rural Employment Guarantee programme (MNREGP) in India that was launched in the year 2005 as a social security measure aimed at providing employment security to the poor in their own villages. National Rural Employment Guarantee Act, in short NREGA/EGA, is perhaps one of the most progressive and interesting bills passed by the Indian parliament in the recent times. This bill on one hand can reap the rich human resources available in rural India to develop the most essential infrastructural facilities and on the other hand stem the migration of farmers/rural workers to cities. The study aims to analyze the relevance of MNREGS on migration.

**Design/methodology/approach:** The material presented here is basically the outcome of the researcher's field work in Rohtak district of Haryana. The study is based on primary as well as secondary data, such as basic physical and financial data of the selected sample area (Monthly Progress Reports), survey questionnaires, field visits, focused group discussions and interviews with district/ Block/ Village level Officials and beneficiaries. Keeping the objective of study in mind, an elaborate interview schedule was designed to search out information from respondents. It helped in meeting the beneficiaries, investigating motives and feelings, etc. Collection of secondary data has also been done from various government departments.

**Findings:** Significant benefit reported by the study includes change in the migration pattern. However with MGNREGS providing guaranteed work to the member of the households, the entire family does not move out. Mostly the adult male members of the family are still migrating in search of work. It has given benefit to female members of a house most.

**Research limitations/ implications:** The accuracy of the analysis is dependent upon the accuracy of the data reported by selected workers as all beneficiaries were not confident in giving reply.

**Practical implications:** The result of these findings can help to know positive as well as negative aspects of this programme for policy makers as for them such feedback is always necessary to bring changes.

**Originality/value:** This type of study has been done for the first time in this district. In case of reports

coming from various researchers, Haryana is not performing well if compared to other states. So, findings can be helpful to know the reasons behind this.

### Introduction

Migration denotes any movement of groups of people from one locality to another and takes different forms. In this movement of people, women's location and spaces are defined by their positioning within the society and state. The process is not simple as it seems as migration itself is varied – ranging from 'permanent', 'semi-permanent' and 'temporary'. Where people move for a few months in a year, the migrants are also known as 'short duration' migrants, 'seasonal' migrants or 'circulatory' migrants. It can also be termed as voluntary or forced, legal or illegal. The purpose of migration may be employment, business, education, family movement, marriage, calamity, etc. According to 1991 Census about 30-40 per cent of migration is due to economic reasons, especially for seeking employment. In India the rural areas suffering from poverty, unemployment and excessive population-growth produce push effects from where rural youths, in large number, migrate to mega cities and industrial towns which have pulling effects due to more employment opportunities, greater prosperity and better conditions for sustenance. In India the rural areas suffering from poverty, unemployment and excessive population-growth produce push effects from where rural youths, in large number, migrate to mega cities and industrial towns which have pulling effects due to more employment opportunities, greater prosperity and better conditions for sustenance.

### Migration in Haryana

Haryana is one of the richest states of India. The economy of Haryana is predominantly agricultural and the performance in this sector is crucial to the development of the state. The prevalence of small farmers having small sized land holdings, seasonal unemployment, had forced the people to search for alternate sources of livelihood. People of the rural areas migrate to urban areas within district and also to Delhi. Landlessness, indebtedness and lack of livelihood force the people to seek survival options in other far way places. The non availability of work in their own village either governmental or otherwise is a condition which prompts migration. After the harvest there is no more work. Hence there is no other option but seek work in the nearby city. Moreover, people migrate to these areas perceiving them as a greener pastures. Unusually rapid rates of population growth pressing on limited farm acreage and pushing landless labour into cities (Jacob Naomi 2008). The rate of migration from rural to urban areas is 29.3 per cent.

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## MNREGA and Migration

The Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (No. 42 of 2005) (hereinafter referred as NREGA or the Act) was enacted on 25th August, 2005 and it came into force on 2nd February, 2006. It marked a paradigm shift from the previous wage employment programmes with its rights based approach that makes the Government legally accountable for providing employment to those who demand it. The Act guarantees 100 days of employment in a financial year to any rural household whose adult members are willing to do unskilled manual work. MNREGA is not anymore a programme of the government but a political right of the people. This work guarantee also aims to serve other objectives like generating productive assets, protecting the environment, empowering rural women, reducing rural-urban migration and fostering social equity, among others. MNREGA fosters conditions for inclusive growth ranging from basic wage security and recharging rural economy to a transformative empowerment process of democracy. As the scheme provides guarantee for 100 days of employment to the willing household in the vicinity of village, it is expected that the proper planning and execution of the scheme would reduce the migration of workers from rural to urban areas and from one rural region to other. However, it will depend on how much employment a willing household gets in a year and how much is the size of the household. (Singh, Nauriyal 2009) The end of starvation, a reduction in the migration of both adults and children and an increased enrolment and retention of children in schools are the major impacts of NREGA. Surely, even the critics of NREGA would agree that these are worthwhile goals for public policy. (Neera Burra). The Act when implemented properly can help in transforming the rural economy. It gives purchasing power in the hands of people whereby they can buy food, send their children to school, repay old debts, buy inputs for agriculture, buy durable assets, save money for future and much more. (Bhatia Kartika 2009)

### Objectives & Methodology of present study

Public works programmes in rural areas have a strong impact on rural-urban migration, provided that they are fairly predictable. Secondly, MNREGA can be particularly effective in this respect, insofar as it provides work on demand. Distress migration has enormous personal and social costs — the MNREGA is a unique opportunity to protect people from these hardships. (Khera 2006).

#### Main objectives of study are –

1. To find out whether the MNREGA Act (2005) can have an impact on rural urban migration.
2. To find out the problems which are hindrance in providing positive impact of this scheme on migration?

## Research Methodology

The primary data source was household level data being collected through especially designed semi structured interviews/questionnaire, the job cards and the MIS reports/Monthly/quarterly progress reports of the District Program Coordinators. On the whole, the basic method of data collection has been focus group discussions and few semi structured/ structured interviews with key informants besides information available through official statistics of the implementing agencies as indicated above. A random sampling was also done to select workers from worksites. Two sets of questionnaires were used for the data collection. One was addressed to members of the Gram Panchayat and the second was addressed to workers. The target number of sample workers was 250 from 5 blocks of Rohtak district. A total of 110 women workers, 140 men workers and some Gram Panchayat members were actually interviewed.

### Selection of District

The Rohtak District of Haryana for Quick Appraisal of MNREGS was selected in consultation with the government officials based on the criteria that district which has experienced significant good impact under MNREGA in terms of number of woman given employment. There are five blocks- Sampla, Mahem, Rohtak, Kalanaur and Lakhanmajra. Four to five villages from each block were chosen as suggested by Block officials. Based on the nature and dynamics of the villages in Rohtak and also while ensuring that larger representation is maintained, the villages were selected primarily as per the provisions of the project and based on their performances.

### Profile of the Sample MGNREGP Respondents

The social characteristics taken up for analysis are the age of the respondent, caste, sex and educational status size of family, type of the MGNREGP respondent are given below.

Table No. 1 Profile of Sample

	No. of respondents	%
Male	140	56
Female	110	44
General	8	3.2
SC	190	76
BC	52	20.8
Self employed in agriculture	12	.8
Agriculture labour	170	68
Other labour	68	27.2
Literate	132	52.8

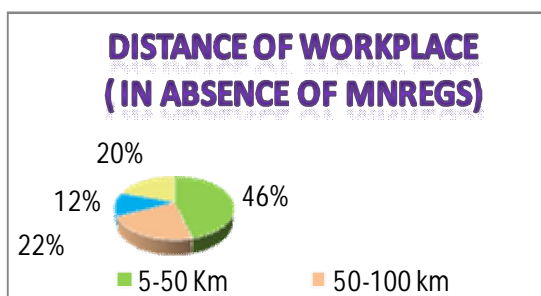
Illiterate	118	47.2
Nuclear family	115	46

In sample selected for survey, 56% beneficiaries are men while 44% are females. Most of the beneficiaries (76%) belong to SC category. It is clear from the above table that 68% workers are agriculture labour and only .8% is self employed in agriculture. Literacy rate was 52.8% and in that female literacy rate was only 12%.

### Impact of MNREGS on Migration

As one of the objectives of the scheme is to reduce the distress migration of rural workforce, therefore, main focus of this study is to check the role of MNREGS in solving the problem of migration. Migration is a highly disruptive process for the semiskilled/ unskilled worker. It causes a lot of stress on families that have to endure it ( Mistry, Jaswal 2009) .We have used the following parameters to know the effectiveness of this programme.

#### a) Distance of workplace (outside MNREGS)

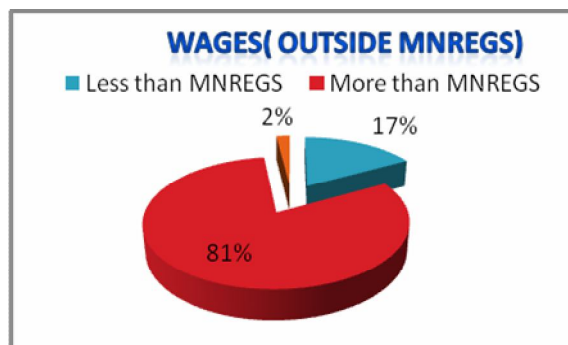


When the respondents are not working in MNREGS, it is important for them to stay close to their homes to be able to avail basic services such as health, education and food support. However, in 46% of the cases, they have to work b/w 5 – 50 Km. of distance disrupting their family lives. 20% respondents who remain within the village are women as they are not allowed to go outside the village. Main reason behind this that only from those gram Panchayats people like to go in search of work to Rohtak city which are nearby highways, otherwise they tried to find out work within their block.

#### b) Wages outside MNREGS

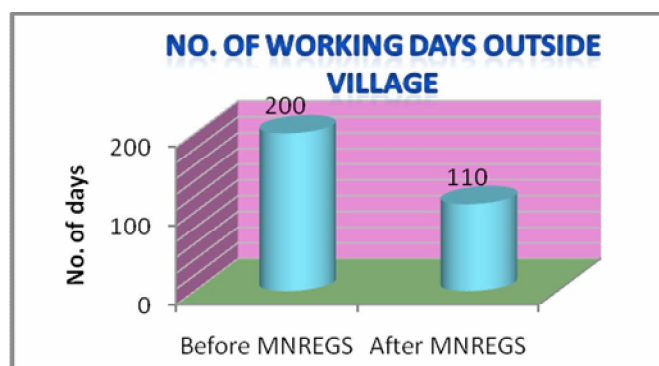
In Haryana wages are high outside the MNREGS as wages of unskilled male in urban area is Rs.250 -350 per day which is much more than MNREGS wages i.e. 179 Rs and for women also it is more than MNREGS wages. This is one of the reasons that in spite of MNREGS male workers prefer to go to nearby city and women works within the village due to restrictions of society. 81% respondents replied that MNREGS wages are less than outside wages.17% respondents were those women who work within village and are getting

fewer wage. Due to this the greatest beneficiaries are women since they get equal wages to men unlike in private sector. (Deccan Chronicle 2007)



#### c) Days of work outside the village before and after MNREGS

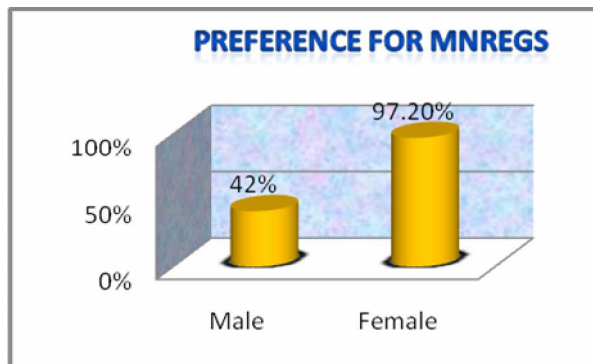
86% of the respondents have either less than four months or seasonal work available. This is a very low level of employment and as most people do not have any land, it is very difficult for them to earn sufficiently to provide an acceptable standard of living for their families. MNREGS can be but one tool through which this can be changed. It was encouraging that when regarding change in days of work before and after launching of this scheme was asked then 82% respondents said that it has reduced a lot. Earlier they were used to work outside the village for about 200 days but now they are going for 100 -120 days.



#### d) Preference of doing work under MNREGS

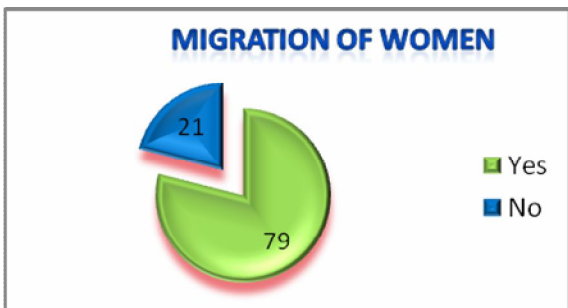
In spite of lesser wages in this scheme if compared to other work outside the village the preference of people was to work under MNREGS. In rural area of Rohtak most of the families are not interested in sending women outside the village for work. In this concern woman preference (97.2%) was primary as they replied that on the cost of family, MNREGS work seems to be more attractive. Only 42% male workers said that when MNREGS work goes on they prefer to work locally. It has been found that earlier in the village in some of the families; both adult male and female members were

getting migrated. However with MGNREGS providing guaranteed work to the member of the households, the entire family does not move out. Mostly the adult male members of the family are migrating in search of work. Decision of migrating towards urban area depends on the distance of Rohtak city from village also. Preference for MNREGS is higher in those villages far from city.



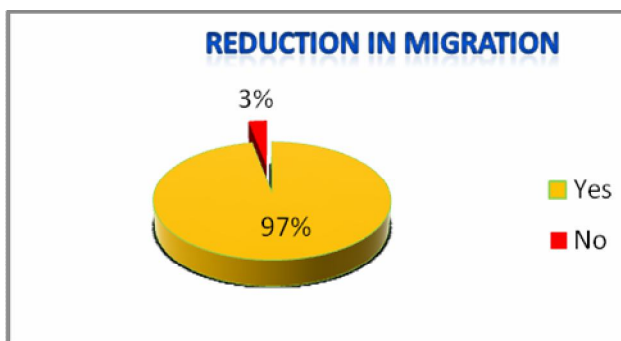
**e) Migration of women**

In case of women in mostly cases, the society rule doesn't allow them to go outside the village. Only 21% of women beneficiary usually goes for work outside the village. To meet the family expenses, the women do go for wage work within the village but it is not available after the cultivation period. The identity of women is within the household's identity and the decision of migration is one that is taken by the male head of the family, usually the husband and the wife has to follow.



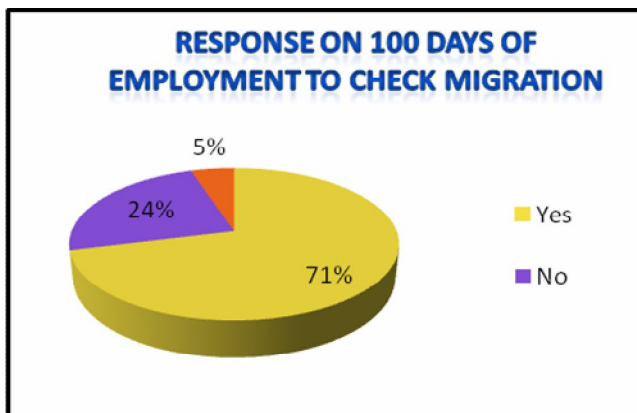
**f) Reduction in Migration**

Figure below shows the proportion of families which had experienced migration reduces among family members after being provided between 70-100 days of employment. As can be seen in almost 97 the cases, migration had gone down. This is a very important finding and highlights the importance of fulfilling the need for employment through MNREGS.



**g) Response on 100 days of employment to check migration**

Looking to the performance of the MGNREGS it has been noted that currently percentage of getting 100 days of employment in a fiscal year is very low in the state. Impact on migration may be much visible if every rural household could get guarantee of 100 days of employment (Yogesh Kumar 2010). In fact 71% of the estimated households also agree that if 100 days of employment is available within the village, it will definitely check distress migration.



**Problems that are reducing the impact of MNREGS on Migration**

**1. Delay in wages:** Over one-third of the workers reported that they are not getting wages in time and as expenditures can't be postponed so they are bound to go to urban area for work. Delays in wage payments could intensify this potential "discouragement effect" and push people back into the web of migration.

**2. Large families:** Still definition of household is not clear as to joint family one job card has been issued which is not sufficient. Further, providing 100 days of employment to a household is not desirable because it would provide relatively lesser benefits to large size of households where more working members are willing to work.

**3. Less wages:** In urban area they are getting more wages as compared to MNREGS wages, so they prefer going outside. The only changing pattern in migration is that now mostly male members are migrating instead for the entire family.

**4. Political reason:** It was also found that only those people are getting benefit whose Sarpanch's are from ruling party as this programme is of central government.

**5. Dependency on Sarpanch:** It becomes necessary to remain in good books of sarpanch otherwise they will not get work.

**6. People are not getting 100 days of employment:** Looking to the performance of the MGNREGS it has been noted that currently percentage of getting 100 days of employment in a fiscal year is very low in the state. Impact on migration may be much visible if every rural household could get guarantee of 100 days of employment.

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## Conclusion

Reducing migration to urban areas has been one of the main aims of the scheme. The figure of reduction of distress migration is significant as a direct contribution of MNREGS implementation. The aspect of MNREGA where it can be used to reduce rural-urban migration is conditional as it is necessary that MNREGA must be implemented well in that region, otherwise, if work is not supplied, if wages aren't paid on time, and if money is just being siphoned off, then workers will have no inducement to stop migrating. The MNREGA is a programme that has immense potential to improve the gap between urban and rural India and lead to rural development. In order to reduce migration substantially, it is essential to ensure that MGNREGS is able to create sustainable livelihood opportunities for the poor so that they can get regular work at their own place. Though it will perhaps never be possible to stop migration completely, the approach should be of managing it in such a way that it leads to development in country



## National Rural Employment Guarantee Scheme of India: Some Overriding Theoretical Constraints - Interrogating Inclusive Growth

Saumya Chakrabarti\* and Aparajita Mukherjee\*\*

### Abstract

Need for containment of 'surplus population' and deployment of resources has induced developing world to take up measures like National Rural Employment Guarantee Scheme (NREGS). Researchers criticise NREGS from the perspective of government budget-management. However, we argue: government budget-constraint and demand-driven trade-off between NREGS and non-NREGS employment is not so important; there is supply-side trade-off. Next, contrary to the target of long-run employment generation beyond capital, NREGS could act as instrument for capital-accumulation by drawing rural resources through infrastructure development: labour would be used in initial rounds, but a vigorous process of capital-accumulation and displacement could be generated. Even if these are mitigated through State-management, threat of dynamic inequality looms due to potential 'elite capture'. It seems political mobilisation of people is the key for effective utilisation of NREGS. Bureaucracy and the so called decentralised-system are practising variety of patron-client relationships vis-à-vis the commoners. There are concerns regarding infrastructure and distribution of economic benefits, but there is serious lacuna in the understanding of 'people's rights'! There is no serious attempt by State-institutions and established political parties – be it left or right – to mobilise people's political voice. There is no effective regulator in place to ensure right to work in short-run and truly inclusive-development in long-run.

*Key Words:* Political Economy of Inclusive Growth; Resource/Supply-constraint; Elite-capture; Development Policy, Institutional-bottlenecks and Political Mobilisation; People's Rights and People's Voice; India.

*JEL Classification:* H53, O18, P16.

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This analytical note has developed through first author's earlier publication endeavour (Chakrabarti, 2011) and through his participation in the Workshop on National Rural Employment Guarantee Scheme (NREGS): Current Situation and Emerging Priorities for Research, 5-6 August, 2010, at the Centre for Studies in Social Sciences, Calcutta, India (organised jointly by ISS, The Hague, NL; NIPFP, New Delhi and CSSSC, Kolkata) and in the course of his active involvement in the subsequent field visits to South 24 Parganas and Birbhum districts of West Bengal (province) and to Puri and Nayagarh districts of Orissa (province), India. Author got earlier exposure to the problems with NREGS while collaborating for field-works with Subhasish Dey developing: Dey, Subhasish (2010): "Evaluating India's National Rural Employment Guarantee Scheme: The Case of Birbhum District, West Bengal", ISS Working Paper 490, International Institute of Social Studies (The Hague, The Netherlands: Erasmus University Rotterdam). The second author supervised research work on NREGS in Birbhum district of West Bengal, India in 2009-10. Authors are grateful to Kalyan Sanyal, Subhasish Dey, Anirban Dasgupta and Arjun Singh Bedi. Authors also thank Amitava Bhattacharya, Snehashish Bhattacharya, Lopamudra Banerjee, Rajesh Bhattacharya and Pranab Kumar Chattopadhyay. Grant from the Planning Unit (Govt. of India) of Visva-Bharati (University), Santiniketan is gratefully acknowledged. The usual disclaimer applies.

### I.

It is almost universally accepted that the developing countries are experiencing a 'jobless growth'. Not only the vast majority of the population is unable to utilize the benefits of capital-accumulation-led growth of 'modern' sectors, the very pattern of this 'progress' is threatening the livelihood of the indigenous people by expropriating them from resources. According to the critics, these 'excluded' and 'expropriated' people form the sea of 'surplus population' (Davis, 2004; Sanyal, 2007).

The need for containment of this large surplus population on the one hand, and deployment of the underutilized resources on the other, have induced the governments of the developing world to take up measures so that poverty and social security are managed outside the sphere of capital-accumulation especially through 'peripheral' employment generation. Thus 'development management' by the State aiming at the excluded population has become the dominant development strategy. NREGS (National Rural Employment Guarantee Scheme, Government of India) happens to be a classic example. This is a self-targeted workfare programme and thought to be the world's largest employment generation project. It is supposed to create rural infrastructure as well. Thus NREGS is

framed to take into account both the demand and supply-side aspects of an agenda of 'inclusive growth'.<sup>1</sup>

In spite of its ambitious goals the programme has failed to generate expected results even in a country like India having very serious problems of unemployment and underemployment. It is really intriguing that, even though there should be very high demand for NREGS jobs, the performance is much below expectation. A fundamental target of this programme is to introduce and operationalise the notion of 'right to work' and to provide a strong social safety-net.<sup>2</sup> But this very notion of right is violated almost everywhere and the performance depends in most of the cases on the *benevolence* of the bureaucracy and political parties. Even if there are very serious needs for job, the voices remain feeble and unheard.<sup>3</sup> Furthermore, though the formulations of NREG schemes are supposed to come up from the bottom through a decentralised mechanism, the overall participation across the country is not at all satisfactory excepting certain states.

There has been extensive discussion on the project from different angles, especially from the point of view of its role in the decentralised and participatory development process targeting utilisation of local level resources including labour which remain unutilised in the direct process of capital-accumulation. Concern has been raised regarding viability of such a project in the context of problem of distribution of resources between NREGS and non-NREGS sectors and government budgetary allocation between modern sector development vis-à-vis NREGS type development programmes. Criticism of more fundamental nature points to the probable short-run employment generating impact of the project due to its focus on earthen work rather than creation of durable assets. Probable input especially labour and even output-market distorting

impacts of the project have been highlighted by the neo-classicists. Against this background and notwithstanding the validity of some of the view points on the limitations of the project, we propose that there is fundamental problem with the formulation of the project as a strategy for handling the contradictions ingrained in the process of capital-accumulation.

The logical construct implicit behind the formulation is that the project would unleash a process of generation of income and employment by primarily boosting the process of growth of the rural economy through capital formation in agriculture, with secondary effect on industry, trade and entire economy; it is presumed that such process of cumulative growth would receive its initial impetus from both supply-side and demand-side impact of the project. While it is implicitly accepted that the cumulative process of capital-accumulation generates as its counterpart a continuous process of displacement of labour and joblessness, it is believed that inevitability of a deep rooted social-political-economic crisis can be averted by proper management of the situation and NREGS may be used as one such important instrument of development management. We propose that this fundamental theoretical perspective itself is problematic, that even if NREGS can at all be implemented according to its original formulation, it could act as an instrument for intensifying the process of capital-accumulation by drawing the rich untapped rural resources, improving its productivity through infrastructure development and preparing it as a new field of exploitation by capital: while rural unemployed labour would be used for the purpose in the initial rounds of the project, it could ultimately generate a more vigorous process of capital-accumulation, displacement and joblessness, not only expanding further the size of the surplus population but also bringing about greater degree of immiserisation. Even if these possibilities are mitigated partially through long-run management by the State, the threat of long-run dynamic inequality looms large.

Given this long-run logical possibility the strength of such a programme lies in the characteristics of being apparently pro poor favouring labour against capital in the short-run; as such, such programmes may act not only as socio-economic measures for generating sympathy for the system but also may give rise to grass-root level social institutions providing critical support to the orthodoxy. While there is every reason for a capital-centric socio-economic system to welcome such a vast programme as an important policy instrument in favour of the regime, the particular policy of the NREGS is fraught with some serious macro economic problems which deserve discussions.

Many researchers criticise NREGS from the perspective of government budget management. The contention is that, government financed direct job creation outside the modern sectors (like NREG)

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<sup>1</sup> Detailed debates on NREGS could be found in: [http://www.righttofoodindia.org/rtowork/rtw\\_articles.htm](http://www.righttofoodindia.org/rtowork/rtw_articles.htm).

<sup>2</sup> One of the four goals of the National Rural Employment Guarantee Act (NREGA) is the provision of a "strong social safety net for the vulnerable groups by providing a fall-back employment source, when other employment alternatives are scarce or inadequate" (The National Rural Employment Guarantee Act 2005 (NREGA)-Operational Guidelines, Ministry of Rural Development, Government of India, New Delhi, 2008, pp.1).

<sup>3</sup> We saw, people want work to avoid hazards, costs and uncertainties of migration. Women are also interested to work to support their families. Potential and actual beneficiaries reported, they want work to smooth out their fluctuating consumption across agricultural seasons. Moreover they reported a kind of sharing of the stipulated work among themselves. People were also proud of their work and they were aware of the necessities of minimum infrastructure. However, there are serious problems of information asymmetry. The rules are almost unknown to the people and most importantly the rights consciousness is almost missing and it seems that the elected representatives and officials violates the very notion of 'right to work' by developing a kind of patron-client relationship with the commoners. By this arrangement the grievances of the people regarding NREGS are internalised/appropriated and mitigated at least to some extent. The irregular and ill-timed flow of fund seems to make the situation worse.

crowds-out government expenditure on modern sector itself. Thus the demand-driven trade-off between employment generations in capitalistic sector and in its outside is argued to create a dilemma for the State. However, in this context, our proposition is that demand-driven trade-off between NREGS and other employment generations and hence government budget constraint is not so important: in fact, there is a supply-side trade-off between the two. Rather, the food-supply-constraint and/or resource constraint in general create this NREGS–non-NREGS conflict (Chakrabarti, forthcoming). However, the government can play a crucial role in distributing this supply between these avenues.

The problem can be analysed in a Kaleckian framework assuming a situation of *unchanging supply* of (the generic) marketable surplus of ‘food’ (ibid.). When money is injected into the rural economy through NREGS, new food-demand arises from the rural population who are newly engaged into NREGS, because a large part of the corresponding income is generally spent on food. This newly evolved artificial food-demand competes with the demand for food from other sectors – mostly non-agricultural, because the aggregate supply of food remains unchanged. Consequently, food-price shoots up, which may raise the non-agricultural prices and wages as well.<sup>4</sup> Demand for non-agricultural output may contract reducing the corresponding levels of output and employment. On the other hand, there could be real income decline for the non-NREGS population reinforcing the secondary negative impact on output and employment. However, under the typical condition of *bumper harvest* when NREGS is introduced, additional rural employment is created undoubtedly. Under this situation the impacts on other non-agricultural production sectors and on rural *real* income depend on the relative size of additional food-supply owing to bumper harvest and the purchasing power injected through NREGS.

But it may be argued that this conflict could be relaxed quantitatively if NREGS is undertaken with such objectives as capital formation in agriculture and building rural infrastructure for marketing network so that particularly agricultural production gets demand and more importantly supply-side boosts. Thus while on the one hand, NREGS creates rural employment, on the other, agricultural supply-constraint for NREGS and non-NREGS populations may be relaxed boosting non-agricultural employment as well. Unfortunately, there are certain notes of concern (ibid.).

The strategy of NREGS towards building infrastructure may be practised in such a way that in effect, rural resources are drained out to feed the urban population especially the urban rich (e.g. urban connectivity may change the cropping pattern towards

‘high-value-crops’ displacing the basic cereals endangering local and even macro food-security). This may also disproportionately benefit the rural propertied class who could get the major share of the infrastructural services (e.g. irrigation facilities mostly appropriated by landed class). This process of squeezing of rural resources and also the exclusion of rural asset-poor from the access to infrastructural facilities created by NREGS may engender long-run dynamic inequality. Given the better access to infrastructure for the rural and urban asset-rich they may benefit from dynamic gains, which may exclude or even expropriate the rural asset-poor (e.g. asset-rich could not only reap short-run benefits but also could enjoy long-run dynamic gains leading to wealth and income concentration). Thus NREGS, if used for building large dams, constructing large rural roads and large canals, could essentially initiate another round of eviction of rural population from their means of subsistence and means of labour fuelling the pool of surplus population. Stated otherwise, an attempt to rehabilitate the rural surplus labour through NREGS, without any concomitant controlled programme of infrastructure building aiming at equitable distribution of the fruits/gains of such programmes, in effect may perpetuate a process of successive rounds of expropriation and rehabilitation. The specific pattern of infrastructure development strictly focussing on the resources and needs of the local poor should be undertaken; if the vicious cycles of inequality, exclusion and hence poverty have to be avoided (we can refer Chakrabarti, forthcoming in this regard). Thus the criticism that NREG is promoting ‘primitive Keynesianism’ primarily focusing on earthen work rather than on durable and quality asset creation and the suggestion that NREG should focus more on material intensive work, against the stipulation of 60:40 ratio between the labour and material cost in the NREG Act, appear to need further examination.

The demand emanating from NREGS income may also generate similar processes of dynamic inequality and exclusion and hence even long-run poverty, if a major part of this income is spent on ‘urban’ goods. In fact a major target of any policy under development management like NREGS is to integrate the surplus population with the ‘global market’. However, this could bring in misery for the local ‘less efficient’ producers. If such global integration starts taking place, it not only drains out resources to ‘global’/‘urban’ space but also displaces the local spaces (not only economic but also cultural-political-social-anthropological!) and thereby the ‘local’ could be marginalised. Inclusion of a part of surplus population generates moments of exclusion elsewhere in the local. Thus we may formulate a critique of the idea of NREGS as capable of providing a share of the social surplus to the surplus population (e.g. right to work, food etc). Attempts of inclusion

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<sup>4</sup> This wage rise is not due to transfer of labour to NREGS, but due to rise in food and non-food prices raising the subsistence requirements.



may generate exclusion elsewhere, if proper regulation is not instituted. The question is: who will regulate? Few of these macro-theoretic constraints are even noted by the Indian policy-makers. But, sufficient attention has not been paid. In fact, from the highest office of the present government it has been mentioned in the recent past that, one of the prime causes of current food-inflation in India is the demand-push due to NREGS. Nevertheless, no serious theoretical and policy prescriptions have been proposed!

## II.

Unfortunately bias of many researchers and critiques towards modern infrastructure development and towards integration of local with global through demand and supply-side linkages emanating from NREGS and comparatively less emphasis on the fundamental issue of right to work and right to live in the pretext of long-run growth is perhaps due to the fact that 'development' is still viewed from the perspective of 'global'. The traditional doctrine of growth and development, in many cases supported by planning, looked at the problems of underdevelopment from the perspective of 'global capitalistic accumulation'. But the modern paradigm of development management tries to address the problem of surplus population with the help of integration of this 'marginal mass' (Nun, 2000) into the global market – the new-found panacea. Though global capital-accumulation is invisible in this discourse of development management, it very much exists, perhaps, at the centre-stage. Hence the local needs, local resources, localised characters of the mass of population and institutions and most importantly, the notion of rights of people are frequently missed out from the policy debates (even if capital talks about individualised 'freedom' and 'bourgeois rights'). And in spite of being the world's largest employment generation programme performance of NREGS is miserable.<sup>5</sup>

The Neo-classicists look at the problems of NREGS mainly from the perspective of 'global efficiency, transparency and accountability' of market institution and hence tries to imbibe the principle of exchange economy (through models like Public-Private-Partnership) into the formulation and implementation processes of NREGS. There are also serious criticisms from this school about NREGS in the pretext of (labour and even product) market distortions, mis-allocation and diversion of resources and labour leading to inefficiency, resource wastage and even production loss in non-NREGS projects. Perhaps the problem with them lies in the inability to focus on the local needs and local institutional specificities – the local economic-social-political-cultural-anthropological

spaces and more fundamentally, lack of focus on the issue of rights. They think that proper utilisation of the market principles along with information flow within a decentralised framework would work even for NREGS; only under such conditions proper allocation of resources between NREGS and non-NREGS activities and efficient asset creation could be achieved.<sup>6</sup> Ensuring right to work as an obligation of the modern developmental state is perhaps ignored by the Neo-classicists believing in the 'magic' of market.

The Institutional Economists take into consideration the institutional factors influencing 'market-mechanism'; but a much broader interdisciplinary perspective is needed to understand the interfaces of local spaces. Fundamentally, perhaps, they miss the issue of people's mobilisation which could influence significantly economic and even other institutions. Hence not only the dynamics of people's participation in NREGS are important, but also the interdependence of people's mobilisation and broader institutional specificities should be taken into account while framing and implementing a policy like NREGS. In this context the role of CSOs, CBOs and political organisations should be very relevant.

Though much emphasis is given on CSO and CBO in the context of NREGS, it may be the case that political institutions and organisations could play a much greater role given their wide reach and most importantly, given their strong relation to the institution of political democracy. Furthermore, organisations like NGOs have no political accountability. In India the institution of political democracy is a much wider space capable of handling various economic, social and even cultural and anthropological dimensions. Hence the multidimensional problem of organising NREGS could perhaps be managed in a better way by vibrant political organisations having strong representations in the local, sub-national and national democratic processes. Such endeavours unfortunately are not being taken up by the local/regional/national political organisations.

<sup>5</sup> The employment generation remains well below the 100-day mark (the act talks about at least 100-days work per year per rural household), the national average being about 50 days (Dey and Bedi, 2010, pp.21).

<sup>6</sup> It is found that, even if there is information flow to the potential beneficiaries regarding availability of the scheme/s and that too in many cases from the government institutions and even if there is proper distribution of job-cards (a kind of identity required to get NREGS job), the actual employment generation is very low (Dey and Bedi, 2010). This is not at all due to lack of intrinsic demand for job, but due to severe lack of people's voice! The commoners have very little understanding about the notion of basic rights (this is also the field-level-observation of the authors across two states of India – Orissa and West Bengal). In this context, we can also quote at length from the primary survey results of Dey and Bedi, 2010, pp.21, as: "While the basic programme awareness is universal, knowledge on the details of the programme such as employment on demand, minimum wages, the right to receive wage payments within a fortnight, the right to an unemployment allowance, and the right to information on all NREGA related documents is not as widespread." This happens in spite of somewhat justifiable claim that in West Bengal the extent of decentralisation is much higher compared to the national average. It perhaps shows lack of people's mobilisation and collective voice.

There are rather serious problems with them. In India, especially in rural India, not only the bureaucracy and its extended institutions even the political organisations have developed a kind of patron-client relationship vis-à-vis the commoners and the issue of people's mobilisation is largely missing. May be because of this problem even the political organisations are missing the fundamental issues of right to work and people's voice in the context of NREGS. Perhaps they are more interested in behaving like benevolent patrons. But in absence of people's voice, possibly, they are unable to negotiate with the bureaucracy and its supporting institutions; rather they become an extended part of the same! The non-Left's behaviour could be understood in this framework. But the failure of Left in the context of NREGS should be studied more closely. The 'official' Left (participating in State power-structure) may be behaving like parliamentary non-Left with less emphasis on people's mobilisation. But the neglect of ultra-Left in implementing NREGS could be due to the fact that they do not want to participate in such 'reformist' activities. The narrow frame of only class-based-politics focusing mainly on property-owner – worker contradiction may have crippled them. The NREGS is a grand project of Indian Capital to persuade the surplus population; not to incorporate them into the core of capitalistic production, but to hold them by transferring a part of social surplus and by providing certain social spaces as 'rights'.

The Left has good frameworks for capital-labour conflict. But it requires in-depth analysis for the class-character of 'surplus population', perhaps a late-20<sup>th</sup> century phenomenon, and for the locus of this marginal mass vis-à-vis capital. Though a large part of this marginal mass owns some means of production and sometimes engages wage labour, its class-position should not be clubbed with the 'propertied-class' as such. This complexity of analysis should be brought to the fore (Bhattacharya, 2010). There are serious problems with organising this surplus humanity and in this very context the issue of NREGS should be viewed by the Left, either as a potential carrier of movements or as a powerful 'reactionary' programme. Alas, Left perhaps perceives this programme only as a 'paper tiger'.

The critique, however, could be at two stages: First of all, the issue of rights should be pushed further and the distinct difference between property right and right to work needs to be explicated. The trick of bypassing the problem of re-writing of property right-structure through such programmes of social surplus sharing should be brought to the forefront. Secondly, even the space of right to work should be pushed as much as possible to provide maximum relief to the surplus population and more importantly, to make clear the impossibility of an all-inclusive growth driven by capital-accumulation sucking up fundamental resources

and necessary spaces of human living. However, it seems Indian Left in general is missing completely these issues, perhaps because of lack of proper understanding about the design-abilities/inabilities of Capital of 21<sup>st</sup> century (in this context we can also refer: Patnaik, 2010).

In absence of serious efforts in mobilising the surplus population the performance of NREGS may be more dependent on historical factors (like the case of Rajasthan where the already existing institutions of anti-drought programmes are fundamental to the performance of NREGS) and it may have been left to the generosity of the bureaucracy<sup>7</sup>, personalised efforts and endogenous dynamics of local institutions.<sup>8</sup> The 'political decentralisation' could only be performing the role of extended bureaucracy! The Indian Left is either becoming part of this 'power' or are unable to bargain for proper economic-political-social decentralisation and for institution building. They have serious problems of discourse in handling a 'reformist' programme like NREGS.

Unfortunately, Capital and its State are also unable to fulfil their dream of 'inclusion' for lack of

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<sup>7</sup> In the Indian state of Jharkhand, as Bhatia and Dreze (2006) report, unfortunately, the government officials restricted job card access to BPL households and attempted to restrict the number of job cards issued in order to keep their workload under control! However, in the district of Birbhum, West Bengal the picture is much better (Dey and Bedi, 2010, pp.21). Our field-observations are also revealing. Its very interesting to note that the Block (second-tier of district administration) Development Officers (BDOs) of the two blocks of the two districts, Satyabadi Block and Daspalla Block, of Orissa expressed pessimism about peoples' interest in NREGS, which was exactly the same for Sonarpur Block in West Bengal! While the BDO of Satyabadi Block talked about proximity to Bhubaneswar and Puri as the cause of people's disinterest (just as Sonarpur BDO talked about proximity to Kolkata), the Daspalla BDO complained against the lackadaisical attitude of the lower caste population. The latter BDO complained vigorously about the 'litigating' and politicised attitude of the people and argued that people have alternative opportunities and hence they in general do not want to work. However, we hasten to add that we, on the contrary, clearly saw abject poverty and very serious urge to work under NREGS in all these places! The only problem is that, the collective voice is absent.

<sup>8</sup> Our visits to fields showed serious problems with banks and post offices as fund distributing agencies as well. Another serious issue is the lack of coordination between Panchayats (the third-tier of district administration) and the higher tiers in terms of flow of fund, timely disbursement of this fund etc. We could notice several irregularities in the processes of formulation and especially implementation of the NREGS by these Panchayats. The anomalies in job-card distribution, in application process demanding job, in providing compensation in absence of job, lags in payments and lack of worksite facilities are some of the serious faults. The nature/type of earthen work under NREGS was reported to be inconsistent with the local requirements given the agro-climatic and geographical specificities. The problem becomes more complex due to lack of coordination between flow of fund and appropriate season of work. Though there are certain attempts to social forestry and forestry in private lands and social and private water body up-gradations and excavations, in general there seems to be either lack of vision even for the elected representatives of the villagers to generate large scale employment or a bias towards building durable assets or both. Peoples monitoring is not visible as such!

proper institutional framework and for obvious lack of 'collective motivation' in the contemporary society.

### III.

*In lieu of conclusion: two success stories:*

Before we give an account of our own experiences during 2010-11 we should have the national and regional/state-level scenarios as our context of study. Let us take a brief recourse to the macro pictures.

NREGS has been introduced in West Bengal in 2006 with much hope and expectation. But performance of the state in terms of the Govt. of India administrative report seems bit gloomy for the 1<sup>st</sup> three consecutive years. In the 1<sup>st</sup> year (2006-07) West Bengal provided on the average 14 person days of jobs (to those who registered for job and demanded) as against 43 person days as the national average. In the 2<sup>nd</sup> year (2007-08) the figure improved little bit to 25 person days as against 42 person days – the national average. The trend continued even in the 3<sup>rd</sup> consecutive year (2008-09). For this 2008-09 West Bengal provided around 26 person days on an average as against 47.53 person days of national average. Table-1 depicts a comparative performance of the big Indian states in terms of number of person days provided on the average as against demand for job under NREGS and West Bengal consistently performing among the bottom 5. On the other hand, if we look at the figure-1, it tells us that West Bengal performing among top 10 in terms of reaching to the household with the programme. But these figures are the mere representation of the administrative performance. The real performance could be evaluated in terms of assessing impact of the programme on the participating household (those who are exposed in the programme) (Dey, 2010, 18-9). Table 1 and fig I are mentioned in the annexure. We also look into some other variables at the national and sub-national levels pertaining to performances of NREGS. Table 2, 3, 4 and figure II are mentioned in the annexure. Given this broad scenario, we enter into our own experiences with the specific contexts of the overall situations in Orissa and West Bengal. Table 5 and 6 are mentioned in the annexure.

With all these backgrounds we visited total four districts of Orissa and West Bengal. Our visit to Narendrapur Gram-Panchayat (GP), Satyabadi Block, Puri District was an interesting experience. The Panchayat-Pradhan (the elected head of Panchayat) seemed to be an honest and energetic person having popularity for quite some time, which may have contributed to the unique performance of NREGS in this GP. But perhaps the most important factor that contributed to a large work under NREGS was the *convergence* of NREGS *plan* and the dire need and *dream/motivation* of the mass of population/community. An 18 kilometre long embankment work was done within the GP to protect

low lying agricultural land from regular flooding. The work's cost was Rs.4.6 million creating 70 man-days of work on an average for *all* the families of the GP but only Rs.1.6 million has been distributed (payment for only 35-40 man-days)! The main problem is serious bottleneck in fund-flow from above. However, the people's resentment for non-payment of dues has been mitigated perhaps due to the acceptance of the Pradhan and more importantly, due to the solution of a long standing serious livelihood problem. Fatalistic attitude and a sense of acceptance of a patron-client relationship among the villagers vis-à-vis administration in general may have also contributed to lack of resentment. According to few of the beneficiaries this monetary injection has helped them in repaying debt, in checking temporary migration and in risk-spreading and income-smoothing, in food intake, in children's education etc. Unfortunately, though contrary to the projection of the BDO people vigorously sought for work in presence of visible poverty and destitution, there is no further major plan! The systematic people's voice is missing even after such a big project!

Visit to the Khamarsahi GP, Daspalla Block, Nayagarh District was a unique experience of mass participation in raising voice and in collective bargaining. People participated on mass in the process of reaching consensus regarding framing and participation in NREGS among different communities/political/social organisations under the influence/intermediation of a CSO – 'Maa-Maati-Mahila-Morcha' (having definite ideological position). We visited purposively Purana Daspalla and Kauda the two remote, underdeveloped and severely malaria affected villages having distinctly different performances. Purana Daspalla got no NREGS work in spite of having a total of 280 households, almost all suffering from poor income conditions and amenities. Interestingly there is serious and definite demand for basic infrastructure as well. The Morcha seemed to have failed in bringing the different communities and political and social organisations together. Repeated appeals to the GP and the Block were futile and there was no fund perhaps due to this lack of unanimity. Kauda portrayed a relatively bright picture. Of the total 80 households 60 got job card and out of this 20 were not active in absence of support of implements from the GP. Though all applied formally, there was no receipt given to them. 60 households got 40-50 man-days of work with maximum of 90 man-days in certain cases. Still they want more work and are very vocal and united in every aspect getting support and systematic guidance from the Morcha. But unfortunately there are serious problems with fund flow and very bad track of payments! In spite of payment lags the villagers have worked in three projects consecutively! The Morcha is mobilising people for their rights in the context of NREGS.

It seems from the whole of our field trip that political mobilisation of people's voice is the key for proper performance of NREGS. Bureaucracy, whatever is its reach, and even the so called decentralised system of governance is perhaps practising different types of patron-client relationships vis-à-vis the common people across our field areas. There are concerns regarding infrastructure building and even in some cases regarding distribution of economic benefit through NREGS but there is serious lacuna in the understanding

of the fundamental issue of people's rights! There seems to be a perpetuation of the benevolent patron-client kind of relationship with its obvious loopholes and structural bottlenecks and there is almost no serious attempt by the institutions of the State and even by the established political parties – be it left or right – to mobilise people's political voice. There is no effective regulator in place to ensure the right to work in short-run and a truly inclusive development in long-run.

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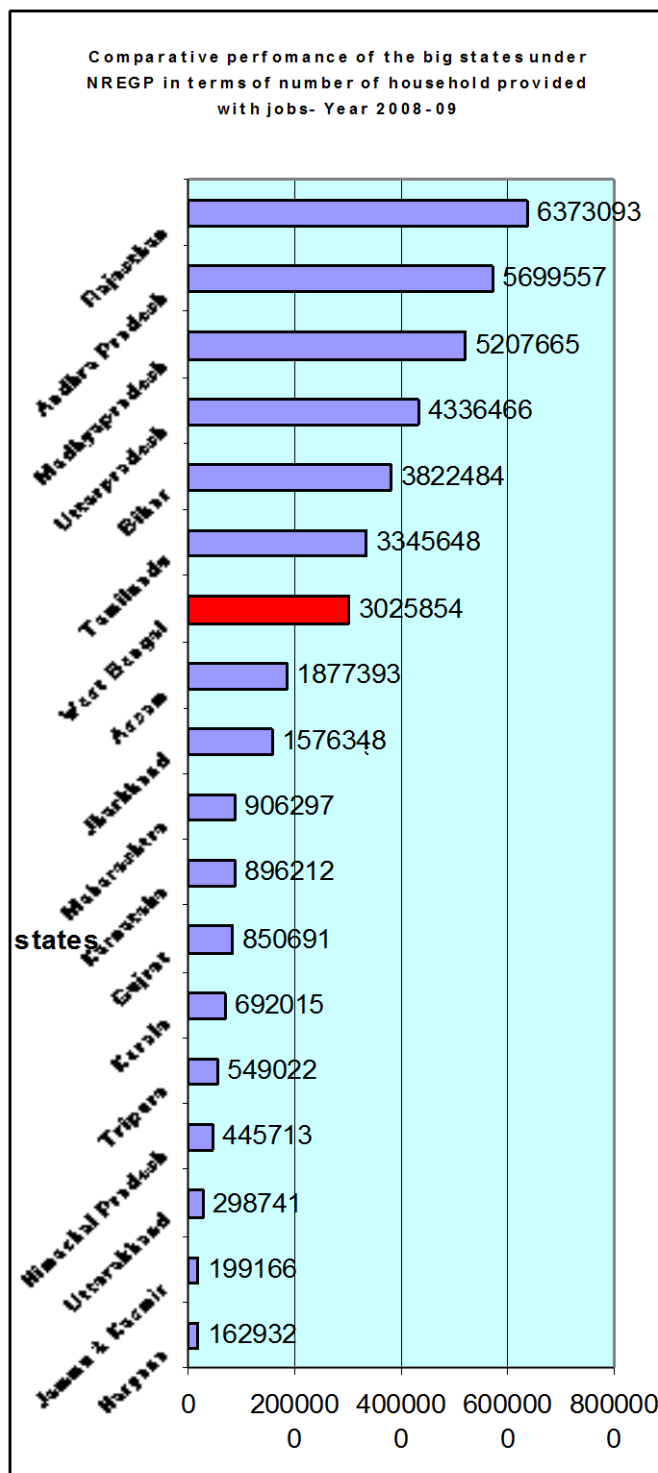
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Annexure

Table: 1

Name of the State	Average Person days generated		
	2006-07	2007-08	2008-09
Rajasthan	85	77.33	75.75
Assam	72.31	34.76	34.85
Madhya Pradesh	68.79	63.33	56.59
Tripura	67.44	42.73	63.94
Himachal Pradesh	48.52	35.98	45.24
Haryana	47.52	50.46	40.23
Gujarat	44.41	30.98	25.05
Maharashtra	41.38	38.94	46.25
Karnataka	40.32	37.33	31.73
Jharkhand	37.33	44.5	47.56
Bihar	35.34	22.16	25.95
Uttar Pradesh	31.98	33.27	52.37
Andhra Pradesh	31.4	41.85	47.99
Uttarakhand	30.23	42.45	34.92
Tamilnadu	26.74	52.25	35.97
Jammu & Kashmir	26.62	24.15	36.76
Kerala	20.67	32.77	22.01
West Bengal	14.27	25.21	26.00
National average	43.01	42.35	47.53

Figure-1





**NREGA fact sheet**

**Table: 2**

Table 1

	2006-07		2007-08	
	"Phase I" districts only	"Phase I" districts only	Phase I + Phase II districts	
<b>Number of districts under NREGA</b>	<b>200</b>	<b>200</b>	<b>330</b>	
<b>Person-days of employment generated</b>				
Total (crore)	90	108	144	
Per rural household <sup>a</sup>	17	20	16	
Per job card	24	25	22	
Per household employed in NREGA	43	48	42	
<b>Share of marginalised groups in NREGA employment (per cent)</b>				
Women	40	44	42	
Scheduled Tribes (S.T.)	36	33	29	
Scheduled Castes (S.C.)	26	27	27	
<b>Expenditure on NREGA</b>				
Total expenditure (Rs. crore)	8,813	12,057	15,857	
Average expenditure per district (Rs. crore)	44	60	48	
Average expenditure per person-day (Rs.)	98	111	110	
Average wage cost per person-day <sup>b</sup> (Rs.)	65	75	75	
Share of wages in total expenditure <sup>b</sup> (per cent)	66	67	68	

**a** In the relevant districts; number of rural households was taken from the 2001 Census.

**b** Unskilled labour only.

Source: Calculated from official data posted on the NREGA website (nrega.nic.in). The NREGA was launched in 200 ("Phase I") districts on February 2, 2006, and extended to another 130 ("Phase II") districts on April 1, 2007.

Source: <http://sanhati.com/wp-content/uploads/2009/02/nrega-factsheet.jpg>

**Selected State-specific indicators**

**Table: 3**

Table 2

	NREGA employment (person-days per rural household) <sup>a</sup>		Share of women in NREGA employment (in per cent)		Share of S.C.s/S.T.s in NREGA employment (in per cent)		Share of unskilled labour in NREGA expenditure (in per cent)		Average wage (Rs./day)	
	2006-7	2007-8	2006-7	2007-8	2006-7	2007-8	2006-7	2007-8	2006-7	2007-8
Rajasthan	77	68	67	69	80	66	73	67	51	59
Madhya Pradesh	56	52	43	42	65	67	63	61	59	64
Chhattisgarh	34	43	40	42	58	56	65	64	62	68
North-East <sup>b</sup>	45	35	49	39	88	77	72	68	73	81
Assam	70	25	32	31	55	47	65	65	67	73
Tamil Nadu	9	21	81	82	58	60	96	97	80	77
Jharkhand	14	20	28	27	64	62	58	58	69	75
Andhra Pradesh	10	19	55	58	43	41	86	80	79	82
Himachal Pradesh	20	17	12	30	53	43	52	59	86	83
Uttarakhand	20	16	30	43	28	32	61	62	72	74
Uttar Pradesh	11	11	17	15	60	56	59	67	56	93
Haryana	9	10	31	34	60	54	65	85	97	124
Orissa	21	8	36	36	73	64	58	54	53	77
West Bengal	6	8	18	17	55	50	78	76	70	79
Bihar	8	7	17	27	50	48	59	65	70	80
Jammu & Kashmir	13	7	4	1	29	32	65	63	69	72
Karnataka	17	7	51	50	53	49	60	60	67	72
Kerala	3	6	66	71	33	34	89	86	121	118
Gujarat	7	5	50	47	71	72	65	71	56	64
Maharashtra	4	3	37	40	57	57	95	88	104	90
Punjab	7	2	38	16	69	76	59	65	94	101
India	17	16	40	42	62	57	66	68	65	75

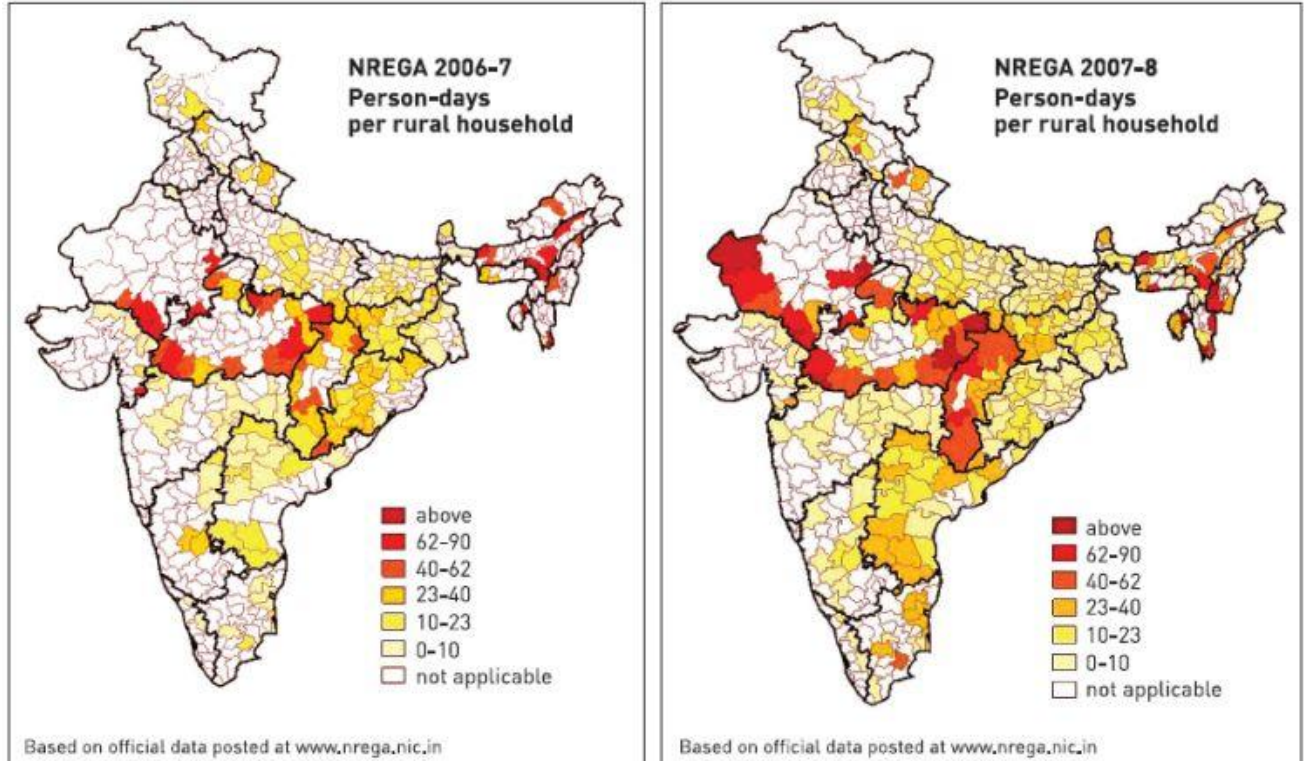
**a** In the relevant districts ("Phase I" districts in 2006-7 and "Phase I + Phase II" districts in 2007-8); number of rural households was taken from the 2001 Census.

**b** Combined figures for Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura (excluding districts with missing data).

Source: See Table 1. States are ranked in decreasing order of NREGA employment generation in 2007-8 (second column).

Source: <http://sanhati.com/wp-content/uploads/2009/02/statewise.jpg>

Figure-2



Source: <http://sanhati.com/wp-content/uploads/2009/02/maps.jpg>

Table: 4

<b>Number of bank accounts opened</b>			
	<b>2008-2009</b>	<b>2009-2010</b>	<b>2010-2011</b>
Tamil Nadu	78,10,574	8446182	7137487
Uttar Pradesh	53,58,447	7286108	6065658
Madhya Pradesh	34,79,747	4316193	5655737
Rajasthan	27,86,564	3502642	3848111
Karnataka	1821290	2590483	3099448
<b>Number of post office A/Cs opened</b>			
Andhra Pradesh	11196554	11982641	12686318
Rajasthan	3795010	6550469	5418854
Bihar	3223791	4390475	4013405
Chattisgarh	2388621	3597306	3680611
West Bengal	2351067	3427558	3443912

Source: Ministry of Rural Development

Source : <http://www.financialexpress.com/news/nregs-is-worlds-largest-financial-inclusion-scheme/745890/0>

Given this broad scenario, we enter into our own experiences with the specific contexts of the overall situations in Orissa and West Bengal.



Table: 5 – Orissa.

		Govt. of India Ministry of Rural Development Department of Rural Development	
The Mahatma Gandhi National Rural Employment Guarantee Act		Thursday, March 08, 2012	
		<a href="#">Back</a>	

State: ORISSA

Employment Generated During The financial Year 2011-2012															
1	2	3				4	5	6	7	8	9				
		a	b	c	d						a	b	c	d	e
S.No	District	Cumulative No. of HH issued jobcards (Till the reporting month)				Cumulative No. of HH demanded employment (Till the reporting month)	Cumulative Labour Budget estimation of employment provided	Cumulative No. of HH provided employment (Till the reporting month)	No. of HH working under NREGA during the reporting month	Cumulative Labour Budget estimation of persondays	Cumulative Persondays generate (Till the reporting month)				
		SCs	STs	Others	Total						SCs	STs	Others	Total	Wom
<b>Phase I</b>															
1	BOLANGIR	46738	59571	154405	260714	53674	61088	53473	26395	3888623	279087	441901	821492	1542480	5831
2	BOUDH	20526	10848	51966	83340	29403	22274	28979	3517	1012642	244746	126444	592797	963987	4251
3	DEOGARH	10465	19177	29546	59188	11220	10790	11182	4783	461506	60188	133325	132024	325537	1301
4	DHENKANAL	38492	26501	109400	174393	35135	62692	34933	16657	3592855	226323	185182	614722	1026227	2271
5	GAJAPATI	10555	68742	45632	124929	48751	62345	47563	10224	2760945	88894	906908	275229	1271031	5711
6	GANJAM	100559	25116	321953	447628	71169	97322	68789	22794	4146239	507853	120869	1532263	2160985	10861
7	JHARSUGUDA	16613	30611	26334	73558	17106	22037	17095	4734	1354675	155960	340999	194448	691407	2121
8	KALAHANDI	57157	87795	143444	288396	66630	72053	66181	23811	2915151	306971	689464	843530	1839965	7881
9	KANDHAMAL	33764	79354	43679	156797	84700	89407	83956	36919	4540488	577270	1758965	646909	2983144	14121
10	KENDUJHAR	45480	133676	130823	309979	81672	110079	81160	15473	5821483	349764	1158165	1073728	2581657	10261
11	KORAPUT	46740	153575	77598	277913	60686	81939	60012	20634	3513818	213045	1016861	395260	1625166	6481
12	MALKANGIRI	31062	78319	19206	128587	35824	49510	35550	10234	3080876	303073	677639	157610	1138322	4771
13	MAYURBHANJ	61470	234249	136466	432185	87162	134356	86764	20126	7077782	373664	1361172	788988	2523824	11021
14	NABARANGAPUR	37321	122765	60750	220836	59693	103764	59091	8741	6123692	240015	1127817	433052	1800884	7401
15	NUAPADA	17446	41553	55616	114615	25483	23554	25374	8012	1104712	145303	437823	384203	967329	4521
16	RAYAGADA	32833	107675	46113	186621	43559	69125	42771	7333	4442148	267890	820929	377407	1466226	6781
17	SAMBALPUR	33516	56454	65171	155141	30978	56997	30514	4137	3891484	218205	477501	440757	1136463	4031
18	SONEPUR	22972	10173	72166	105311	31071	45409	30972	9133	2459561	171039	68358	506086	745483	2521
19	SUNDARGARH	36792	206121	73982	316895	70455	74719	69808	36861	3479257	208342	1444509	363345	2016196	6581
<b>TotalPhase I</b>		<b>700501</b>	<b>1552275</b>	<b>1664250</b>	<b>3917026</b>	<b>944371</b>	<b>1249460</b>	<b>934167</b>	<b>290518</b>	<b>65667937</b>	<b>4937632</b>	<b>13294831</b>	<b>10573850</b>	<b>28806313</b>	<b>118813</b>
<b>Phase II</b>															
20	ANGUL	33646	25938	118290	177874	26179	46264	25956	9903	1850560	118265	138905	422127	679297	2251
21	BALESHWAR	58022	32700	216937	307659	28314	49310	27757	3849	2021740	161838	92757	581811	836406	2761
22	BARGARH	52340	54927	146615	253882	33275	38022	32702	8801	1221142	148041	234279	423363	805683	2591
23	BHADRAK	40778	3706	152019	196503	20986	37265	20890	3211	1853551	117625	13681	455904	587210	1521
24	JAJPUR	71104	23563	174604	269271	20878	96966	20516	2027	4182704	165375	53183	259414	477972	1121
<b>TotalPhase II</b>		<b>255890</b>	<b>140834</b>	<b>808465</b>	<b>1205189</b>	<b>129632</b>	<b>267827</b>	<b>127821</b>	<b>27791</b>	<b>11129697</b>	<b>711144</b>	<b>532805</b>	<b>2142619</b>	<b>3386568</b>	<b>10254</b>
<b>Phase III</b>															
25	CUTTACK	55418	13151	152066	220635	37964	78673	37588	2116	3461612	233324	69682	629231	932237	2941
26	JAGATSINGHAPUR	33022	918	97409	131349	19776	46759	19693	1278	2329592	126990	2698	416911	546599	1731
27	KENDRAPARA	39365	1440	145676	186481	27871	83108	27402	1302	3030448	167648	5460	535823	708931	1671
28	KHORDHA	21369	8852	73610	103831	11604	14288	11555	1486	465705	42422	28311	197628	268361	531
29	NAYAGARH	21724	11344	119229	152297	57138	49110	56769	6042	2269803	302653	166426	1897702	2366781	6601
30	PURI	44059	1643	166115	211817	22150	58551	21617	973	1974338	92603	5024	464055	561682	2031
<b>TotalPhase III</b>		<b>214957</b>	<b>37348</b>	<b>754105</b>	<b>1006410</b>	<b>176503</b>	<b>330489</b>	<b>174624</b>	<b>13197</b>	<b>13531498</b>	<b>965640</b>	<b>277601</b>	<b>4141350</b>	<b>5384591</b>	<b>15521</b>
<b>Total</b>		<b>1171348</b>	<b>1730457</b>	<b>3226820</b>	<b>6128625</b>	<b>1250506</b>	<b>1847776</b>	<b>1236612</b>	<b>331506</b>	<b>90329132</b>	<b>6614416</b>	<b>14105237</b>	<b>16857819</b>	<b>37577472</b>	<b>144588</b>

Source: [http://164.100.12.7/netnrega/writereaddata/state\\_out/Empstatusall24\\_local\\_1112\\_.html](http://164.100.12.7/netnrega/writereaddata/state_out/Empstatusall24_local_1112_.html) ..... 08/03/2012



Table: 6 – West Bengal.

										Govt. of India Ministry of Rural Development Department of Rural Development		
The Mahatma Gandhi National Rural Employment Guarantee Act										Thursday, March 08, 2012		
<a href="#">Back</a>												

State: WEST BENGAL

Employment Generated During The financial Year 2011-2012														10	11	12		
1	2	3			4	5	6	7	8	9				10	11	12		
		a	b	c						d	e	a	b				c	d
S.No	District	Cumulative No. of HH issued jobcards (Till the reporting month)			Cumulative No. of HH demanded employment (Till the reporting month)	Cumulative Labour Budget estimation of employment provided	Cumulative No. of HH provided employment (Till the reporting month)	No. of HH working under NREGA during the reporting month	Cumulative Labour Budget estimation of persondays	Cumulative Persondays generate (Till the reporting month)				Cumulative No. of HH completed 100 days (Till the reporting month)	No. of HH which are beneficiary of land reform/IAI	No. of Disabled beneficiary individuals		
		SCs	STs	Others						SCs	STs	Others	Women					
<b>Phase I</b>																		
1	24 PARAGANS SOUTH	170958	5339	595777	772074	145853	150545	145471	46193	5081400	650998	20234	2937627	3608859	844503	2442	3630	1699
2	BANKURA	226037	70070	275011	571118	277206	277330	276547	79898	138.665	3018408	888968	2042248	5049624	2363490	4541	6932	5387
3	BIRBHUM	220447	51290	382915	654652	423875	415000	423142	87133	17287500	3875686	941225	4821766	9638677	2285362	7014	31189	9010
4	DINAIPUR DAKSHIN	84201	56761	154441	295403	39718	181130	39379	11016	2966700	150302	97380	287470	535152	148503	76	2162	241
5	DINAIPUR UTTAR	124249	21347	292557	438153	64204	0	63969	10555	0	283115	37288	649218	969621	298166	298	11418	1331
6	JALPAIGURI	216099	103983	322409	642491	266127	208059	263984	51754	7041400	1445690	788815	2330379	4564884	1816840	496	1428	395
7	MALDAH	95877	36220	457859	589956	135570	93000	135354	16846	3138500	556906	210932	2127226	2895064	836393	1415	4772	19057
8	MEDINIPUR WEST	178636	147563	533359	859558	380311	365000	378720	106825	195.154	1476819	1197853	3594196	6268868	2055767	1105	77239	2808
9	MURSHIDABAD	132381	15788	871760	1019929	250985	1612071	249715	56650	13341861	642664	68846	3358153	4069663	608466	911	5086	748
10	PURULIA	80567	80748	280464	441779	146879	247910	146134	16160	7606700	567467	685884	1882482	3138333	1347893	2236	8936	3775
<b>Phase I</b>		<b>1529452</b>	<b>589109</b>	<b>4166552</b>	<b>6285113</b>	<b>2130728</b>	<b>3850045</b>	<b>2122415</b>	<b>483130</b>	<b>96464394.819</b>	<b>12668055</b>	<b>4937425</b>	<b>24030765</b>	<b>41636248</b>	<b>12605383</b>	<b>20534</b>	<b>152772</b>	<b>44451</b>
<b>Phase II</b>																		
11	24 PARGANAS (NORTH)	220961	33506	478780	733247	301221	0	301031	148798	112.206	2479543	387296	5407861	8274700	2771868	3234	15373	1835
12	BURDWAN	403584	90146	499657	993387	635662	410959	633985	129918	193.948	4864487	1082866	3964401	9911754	2854375	1468	81066	9691
13	COOCHBEHAR	314640	5889	278537	599066	237508	143182	227584	71744	4838500	1480449	39885	1084874	2605208	611503	179	41299	2879
14	HOOGLY	263928	54761	311069	629758	374814	350250	374656	153031	11079021	3938202	918272	2655735	7512209	2546695	2063	32536	4700
15	NADIA	197317	17779	492172	707268	184137	221912	181697	92499	6079100	830371	108524	1655797	2594692	710956	397	9861	2318
16	PURBA MEDINIPUR	100448	5116	551287	656851	231301	352803	229341	69300	11053900	610541	32151	3330719	3973411	1917306	724	30404	3515
17	SILIGURI MAHAKUMA PARSAD	38205	22853	23389	84447	29507	0	29181	5579	0	212043	103137	104984	420164	233275	16	3309	223
<b>Phase II</b>		<b>1539083</b>	<b>230950</b>	<b>2634891</b>	<b>4404024</b>	<b>1994150</b>	<b>1479106</b>	<b>1977475</b>	<b>670869</b>	<b>33060827.154</b>	<b>14418636</b>	<b>2672131</b>	<b>18204371</b>	<b>35292138</b>	<b>11645978</b>	<b>8081</b>	<b>213848</b>	<b>25161</b>
<b>Phase III</b>																		
18	Darjeeling Gorkha Hill Council (DGHC)	8648	38893	75959	123500	73167	89530	73157	3922	54606	157374	762130	1482757	2402261	1068266	1363	3925	473
19	HOWRAH	57573	1013	167151	225737	60353	91733	60291	22689	1771900	217631	3719	740702	962052	201167	197	1547	360
<b>Phase III</b>		<b>66221</b>	<b>39906</b>	<b>243110</b>	<b>349237</b>	<b>133520</b>	<b>181263</b>	<b>133448</b>	<b>26611</b>	<b>1826506</b>	<b>375005</b>	<b>765849</b>	<b>2223459</b>	<b>3364313</b>	<b>1269433</b>	<b>1560</b>	<b>5472</b>	<b>833</b>
		<b>3134756</b>	<b>859065</b>	<b>7044583</b>	<b>11038374</b>	<b>4286398</b>	<b>5210414</b>	<b>4233338</b>	<b>1180610</b>	<b>91341727.973</b>	<b>27458696</b>	<b>8375405</b>	<b>44458595</b>	<b>80292696</b>	<b>25520794</b>	<b>30175</b>	<b>371092</b>	<b>79445</b>

## **The Socio-Economic Aspects of Migration and Marginalisation: A Study on the Life Experiences of Gulf returned Female-Domestic Labourers**

Niyathi. R. Krishna\* and Smita Jha\*\*

### **Abstract**

Migration of women from South Asian countries to the Middle East as domestic helpers became prevalent from 1980s onwards. All came from poverty and hunger to earn a new life out of their marginalised lives. There are various socio-economic aspects that forced them to migrate as a last resort. But the problems these domestic helpers suffer in the Employer's house are innumerable. Even after working from early morning to late night without rest, they are treated very badly and cruelly, with low pay and a gamut of harassment. The lack of social mobility, autonomy, access to resources, freedom of choice, rights to be a human: to live with dignity as a human being were the common problems that they had gone through and still many are going through. The migration added to the enhanced marginalisation of female domestic labourers at Gulf putting them from frying pan to fire.

**KeyWords:** Socio-economic aspects, Migration, Marginalisation, Augmented Marginalisation, domestic labourers, Gulf returned female-domestic labourers

### **Introduction**

*“Domestic work continues to be undervalued and invisible and is mainly carried out by women and girls, many of whom are migrants or members of disadvantaged communities and who are particularly vulnerable to discrimination in respect of conditions of employment and work, and to other abuses of human rights.”*

(International Labour Organisation)

The feminisation of migration became prevalent from the 1980's onwards. Women started migrating alone in large numbers seeking jobs. These were due to the unemployment and household poverty that they chose labours far away from their native places, which is comparatively more remunerated.

Most middle class Arab countries in the Middle East region receive thousands of women migrants as domestic labourers each year. Even though there is great demand for female domestic labourers, their protection or condition is not improved and secured. The relationship between a domestic labourer and the employer in the employment is not addressed in the national legislation of any Arab country, denying them the status of labourers entitled to labour protection.

Domestic labourers work in a family, which is not recognised as work place and they work for the family members who are not commonly considered as employers. Private homes are usually not inspected by Labour Inspectors. Remuneration irregularities, long working hours without proper rest, illegalities in the recruitment system, work related problems, physical, mental and verbal abuses, lack of labour laws etc are the burning problems that they suffer.

The issues these migrated female-domestic labourers experience are multi-faceted. The word 'migration' becomes insufficient to explain their shifting of place for the labour. Most of them are being sent in illegal terms by the agents that they are actually trafficked as objects. Nobody is bothered about the human rights violations in this issue, which makes the situation more tensed.

### **Objectives of the Study**

- To analyse the socio-economic aspects of migration and marginalisation.
- To understand the marginalisation of Gulf returned female-domestic labourers through their life experiences as subordinated human beings.
- To understand how marginalisation is maintained through the migration of female-domestic labourers.

### **Brief Methodology**

The proposition of this study was to enquire the socio-economic aspects of migration and augmented marginalisation through migration in the life experiences of female-domestic labourers. The data was collected from the Gulf-returned domestic labourers who belonged to Cheruvannur-Nallalam area of Areekkad ward of Kozhikode Corporation and Feroke Grama Panchayath. It constitutes the deep interviews of twelve aggrieved women who had never been exposed to such an academic enquiry priorly. The information was collected from the respondents through the interviews conducted in Malayalam, as the respondents were Malayalam speaking people. The data was analysed qualitatively. The interview concentrated mainly on the experiences of the women who had gone through a wide range of sufferings. The issues of Remuneration irregularities, long working hours without proper rest, illegalities in the recruitment system, work related problems, physical, mental and verbal abuses, lack of labour laws etc were the common hurdles that the women had to undergo which enhanced their marginalisation as women, domestic labourers and migrated domestic labourers.

The respondents were encouraged to speak out their life experiences without interfering in the middle. Queries from the researcher's side were in the form of suggestions based on the Interview Guide.

### **Analysis of Data**

**The Socio-economic aspects that forced the women to migrate as female domestic labourers**

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**I. Marginalisation of Gulf returned female-domestic labourers through their life experiences as subordinate human beings.**

**Profile of the respondents  
Table No. I Personal details**

Name of the Respondents	Age	Religious affiliation	Education
Shyma	48	Hindu	7 <sup>th</sup>
Rahmath Beevi	56	Muslim	1 <sup>st</sup>
Amina	47	Muslim	5 <sup>th</sup>
Safia	47	Muslim	Nil
Fathibi	38	Muslim	4 <sup>th</sup>
K.V. Kunjeebi	60	Muslim	Nil
C.T. Fathimakutty	50	Muslim	5 <sup>th</sup>
Aminabi	56	Muslim	7 <sup>th</sup>
Fathimath suhara	50	Muslim	4 <sup>th</sup>
C.Sainaba	60	Muslim	Nil
Bichupathuma	58	Muslim	4 <sup>th</sup>
Sainaba	55	Muslim	7 <sup>th</sup>

**• Educational background**

Education and employment are two significant sociological variables. Life situations of human beings have complimentary connection with both. Bearing in mind this connection, the respondents were asked about the educational background of their family and the educational status of the respondents specifically.

All the respondents belonged to uneducated families and as per the analysis of Table No.1. They all had to stop studying before reaching high school level, due to various socio-cultural constraints. Nobody stopped because they were bad at studies, but they were forced to stop studying or denied education to look after siblings younger to them and do the household activities. Majority of the respondents, who belonged to Muslim religion, had access to religious education and preaching. But the analysis shows that their brothers were getting more educational opportunities compared to them. They were told that girls can gain nothing out of going to school.

It can be concluded that these sorts of life situations reinforce the mentality that girls and women are for nurturing the younger generation and their roles are that of care takers in the family. Every respondent, at least at a certain point of time in their life has felt the need for education and all opined that

only education could earn a permanent job which will enable the betterment of life. (Refer Table 1)

**• Religious affiliation**

The presupposition was that the religion of the respondents is important in analysing the socio-cultural backgrounds which they belonged to and belonging to. Religious affiliation is directly linked with the beliefs, attitudes, customs, ways of life and practices prevailing in the society and vice versa. The researcher also had the idea to check whether the respondents showed any sort of identification with the religious affiliation while they chose to resort to migration to the Gulf country.

As per the analysis of Table No. 1, out of the 12 respondents, 11 belong to Islam and one belongs to Hindu religion. All the eleven respondents born to Muslim community had received religious education. All of them are believers and have strong sense of belongingness to their religious affiliations. When they reached Gulf, most of them were of the belief that the employers are natural allies to them and they thought they could easily relate to the religious culture of the employer's society. But they were not that much comfortable barring the fact of the sameness in religious affiliations. They were disturbed to wear Purdha when they went outside the household, even though the chances to go out were very rare. They could adjust more with the Ramadan<sup>1</sup> fasting and other religious practices. Shyma, who belonged to Hindu Community, said that she could only pray in silence and was not able to follow religious practices in that household. (Refer Table 1)

It can be concluded from the analysis that religious affiliation is central to their life activities and majority of women from Muslim community are willing to go to Gulf.

**• Pre-marital life situations**

The presupposition was that the socio-economic cultural situation of the respondents before marriage is pivotal in analysing their social formation and post marital situations.

The economic atmosphere of all the families was worse and many had to seek fortune to pay debts and loans. No respondent's parents had a permanent job. The fathers were either dead or bed ridden and the mothers were helpless financially. No respondent was helped by brothers. The number of children in the families was more. All of them gave priority to the marriage of their daughters at an early age, providing as much dowry as possible. No respondent belonged to an educated family nor married to an educated partner. This added on to unemployment and poverty, which made them poorer again.

Based on these analyses, it can be arrived at that the respondents and their mothers never had any access to property and power of decision making.

**Table No. 2 Details of married life**

<sup>1</sup> Holy month of Islam followers

Name of the Respondents	Age of Marriage	Occupation of the partner	No. of children
Shyma	20	Nil	2
Rahmath Beevi	22	Auto Rikshaw Driver	5
Amina	15	Cycle Rikshaw driver	3
Safia	14	Coolie	4
Fathibi	16	Coolie	3
K.V. Kunjeebi	19	Coolie	4
C.T. Fathimakutty	16	Mycaud	Nil
Aminabi	12	Coolie	5
Fathimath suhara	16	Coolie	3
C.Sainaba	15	Mycaud	8 (7 alive)
Bichupathuma	13	Fisher	7 (5 alive)
Sainaba	19	Fisher	1

- **Age at marriage**

Early adolescent marriages are prevalent conventionally, especially among people of less education, stronger religious affiliations. Common sensically, girls are not entitled to choose their life partners or to have a say in any of the matters connected with marriage.

As per the analysis of Table No.2 majority of the respondents got married at early teenage. This indicates how a girl's or woman's life is shaped and designed by external agencies. Many of them have become mothers in their adolescence itself. They were not having any access to the ideas regarding sex, sexuality and related matters. The case study analysis shows that they were trained from their native homes how and why to do domestic works and the daily chores that had to be performed particularly by girls which should surely be replicated in their partners' houses. Most of the respondents got married soon after puberty, based on the religious norms and cultural practices prevailing. They were married at a time when they were even unaware of the multi-dimensional aspects of marriage.

Based on these analyses, it can be arrived at that the respondents and their mothers never had any access to property and power of decision making.

- **Occupation of the Respondent's Partner**

Occupation of the respondent's partner indicates the economic support, the respondent gets from the family. It is more important while the respondents are all unemployed and have to depend solely on their partners for life expenses. It was with this presumption that the respondents were asked about the occupation of their partners.

As per the analysis of Table No.2, all the respondents were unemployed during their early married life and their partners had no permanent job. Their life with the partners was mostly in hardships due to poverty and unemployment. The respondents had not thought about an employment until they had lost the regular family income, when the life partners of the respondents were dead or bed ridden or economically incapable of taking care of the family. This situation made the respondents chose to migrate to Gulf as domestic labourers as the last resort.

It can be concluded that the marginalisation they faced in their lives at home in all fields, economic, social and cultural, had been so agonising that if not for such a choice of migration as domestic labourers, their lives would have ceased to exist. Ironically, to attain bare minimum of social and economic security and the survival of the fellow beings, they had to give up at least the fresh air of their native place to become the illegal aliens.

## II. Maintenance of Marginalisation through migration of female – domestic labourers

- **Circumstances lead to the migration to Gulf**

The researcher assumed that, more than being informed of the occupation of the life partner, the economic situation of the family can be understood based on whether the partner was properly taking care of and maintaining the family or they had debts or loans pending to pay. The less the resources received by the family, the more marginalised, they will become. With this idea in mind, the respondents were asked about the circumstances that lead to the migration of the respondents as domestic labourers to the Gulf countries.

The respondents chose the profession of domestic labourers at Gulf to have the subsistence for their life, as they faced all sorts of hardships. Most of them do not own a house of their own. They preferred migration as the last resort. It can be concluded that they preferred sufferings at Gulf to the hardships at home, that they could at least have a little financial security for their survival and their fellow beings' subsistence.

- **Preparations for the migration to Gulf as domestic labourers**

It was presumed that there is chance for these women for being trapped in highly vulnerable situations as they belonged to totally marginalised social strata. With such an assumption, the respondents were asked about the preparations of the respondents for the migration to Gulf as domestic labourers.

The case analyses indicate that there were agents who came to recruit women to Gulf as

domestic labourers and they contacted women from poor families. Majority of the respondents came to know about the opportunity through their relatives, who were approached by these agents. The respondents had to pay commission to the agents, even though their visa was free of cost. The amount varied with the year of migration to Gulf. The women were migrated illegally through tampering the educational status and age. This kind of illegal visa is commonly known as 'chaviti kayati visa' in Malayalam which conceptually means objectified trafficking.

It can be concluded that the lack of legal literacy was a common phenomena among the respondents. Nobody was aware of employment rights and legal protection of employers. All had gone through harassments and human right violations, most of which they themselves could not identify as a violation of their right to live with dignity.

### III. The problems of Gulf Returned female-domestic labourers as an under privileged group

- **The constraints that lead to quit the job and come back from Gulf**

**Table No. 3. Details regarding Gulf life**

Name of the Respondents	Year of migration	Years at Gulf	Place	Salary per month (Riyal)
Shyma	1992	14	Hayan, Saudi	600
Rahmath Beevi	1983	2.5	Sharja	400
Amina	2009	1	Buraida, Saudi	550
Safia	2007	3	Bayan, Kuwait	750
Fathibi	2003	2	Oman	600
K.V. Kunjeebi	1989	12	Qatar & Saudi	400
C.T. Fathimakutti	1990	16	Riyad & Dubai	400
Aminabi	1984	22	Saudi	600
Fathimath suhara	1987	19	Saudi	500
C.Sainaba	1994	12	Saudi	400
Bichupathuma	1994	15	Saudi	400
Sainaba	1985	11	Dubai, Qatar & Buraida	400

#### • **Life of respondents 'at Gulf'**

The assumption was that the respondents being totally in an alien and alienated situation, having no commonalities in attitudes, customs, ways of life, as in the case of language, food, dress habits etc, there is every chance for the life of these women at the employers, to be 'at Gulf'.

The case analyses indicate that everybody had met with various health problems like back pain, knee pain, stomach upset, anemia and similar other serious diseases. These were due to the long, tiring work time without proper rest and food. They are still victims of this. Physical and mental harassments were common in majority of the cases. Most of the harassments were from the youngsters of family and were taken as a part of their mischief. No respondent was sexually harassed, but everybody has stories to say about the sexual harassments suffered by their friends and other domestic labourers. Some women sarcastically told about the cruel behaviour of the employers and the family. Their eyes wet most of the times, when they talked about their children and the inevitable parting they had as a part of making a livelihood. Some burst out into tears explaining the sufferings they had, while some others explained it as if speaking about a third person.

It can be concluded that lack of social mobility, autonomy, access to resources, freedom of choice, rights to be a human: to live with dignity as a human being were the common problems that the respondents had gone through.

#### • **Nurturing of children at home**

In a traditional socio-cultural situation, nurturing of children is ascribed on and internalised by the mothers who undoubtedly believe that they are the only care takers of the children. The mentality being thus, when these women go to the Gulf countries as domestic labourers, it was assumed in this study that their children will be the most affected.

The paradox is that, though these women are going to the Gulf countries to earn for the subsistence of their families, especially to earn money to nurture children. The consequence of the same is that they are neither able to earn money for the subsistence, nor able to nurture children in accordance with their dreams. The case analyses indicate that, in a state of having irresponsible fathers and absent mothers at home, children of the respondents were taken care of by grandmothers. Usually, they got less support from the children's father and his family in bringing up the children. The children had to suffer the problems of shifting from father's family to mother's family, the ill treatments of uncles and aunts and the emotional dilemma due to parting of mothers and in majority of the cases, absence of fathers also, thus getting denied of a happy nurturing atmosphere.

It can be concluded from the study that, by being unable to attain at least for subsistence, these women's migration to Gulf countries as domestic labour has augmented their marginalisation.

- **Economic benefits from Gulf**

It was perceived that economic independence can bring about life security. Apart from daily expenses and paying debts of the family, most of the savings of the women were set aside for the marriage of their daughters with an ample dowry and securing jobs for sons. But nobody took initiative to seek jobs for their daughters. Their preference was marriage of their daughters as early as possible. Instead they all spent money to make their sons economically independent. These respondents earned money do never mean that they are economically independent and autonomous.

As per the analyses specify, they find it as a way to save the family from hardships. They did not focus on their personal benefits or privileges and are not even aware of their human rights. Their salary was almost of the same range. Everybody had to sent their complete salary to their family every month. The salary was sent to a male member of the family, even though the house was managed and maintained by a female member. Nobody had bank accounts or fixed deposits in their name. While asked, they all find it true that economic independence can bring about life security.

Hence, it can be concluded that the earnings they got from the Gulf countries, by being domestic labourers have not been turned to material resources to maintain their own lives.

- **Present life situations of the respondents**

The present life situations of the respondents were asked, because the economic and other benefits from Gulf have to be evaluated through the difference between pre-Gulf and post-Gulf life situations.

The case analyses show that majority of the respondents lead a life with their children and presently not working. But everybody expressed the wish to work and earn money. Three of the respondents are working in a private hospital as cleaning staffs and all of them are trying to go back to Gulf as the salary is negligible, with which they cannot economically move on. All the respondents belonged to poor families and their marital families were also poor. They had the over burden of debts too.

From this, it can be concluded that the marginalisation these women face was increased, leading to their inaccessibility to and availability of the resources. Based on all the above analyses, this study concludes that the marginalisation of women is augmented through the migration as domestic labourers to the Gulf countries.

### **Findings of the Study**

Every respondent, at least at a certain point of time in their life has felt the need for education and all

opined that only education could earn a permanent job which will enable the betterment of life.

The marginalisation women face in their lives at home in all fields; economic, social and cultural, had been so agonising that if not for such a choice of migration as domestic labourers, their lives would have ceased to exist. Ironically, to attain bare minimum of social and economic security and the survival of the fellow beings, they had to give up at least the fresh air of their native place to become the illegal aliens.

Women preferred sufferings at Gulf to the hardships at home, that they could at least have a little financial security for their survival and their fellow beings' subsistence.

The lack of legal literacy is a common phenomenon among the respondents. Nobody was aware of employment rights and legal protection of employers. All had gone through harassments and human right violations, most of which they themselves could not identify as a violation of their right to live with dignity.

Lack of social mobility, autonomy, access to resources, freedom of choice, rights to be a human: to live with dignity as a human being were the common problems that the respondents had gone through.

The earnings they got from the Gulf countries, by being domestic labourers have not been turned to material resources to maintain their own lives.

The marginalisation these women face is increased, leading to their inaccessibility to and availability of the resources. Based on all the above analyses, this study concludes that the marginalisation of women is augmented through their migration as domestic labourers to the Gulf countries.

### **Conclusion**

It may be concluded that the socio-economic life situations reinforce the mentality that girls and women are for nurturing the younger generation and their roles are that of care takers in the family. The religious affiliation is central to their life activities and majority of women from Muslim community are willing to go to Gulf. The respondents and their mothers never had any access to property and power of decision making.

Further, by being unable to attain at least for subsistence, these women's migration to Gulf countries as domestic labourers has augmented their marginalisation. The marginalisation of Gulf returned female-domestic labourers is strengthened for they being members of subordinated groups. Gulf returned female-domestic labourers as an under privileged group experience a lot of social, economic and cultural issues that augments their marginalisation. Marginalisation is maintained through the migration of female-domestic labourers.

### Suggestions of the Study

- The effective implementation of the legal provisions through domestic and international enforcement mechanisms.
- Legal literacy campaigns should be conducted periodically with the help of Jagratha Samithies and Grama Sabhas of Local Self Government Institutions.
- Domestic labourers going to Gulf and other foreign countries are to be brought under a labour pool, which should be monitored by Local Self Government, State and National Governments.

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## Social Exclusion in India in Context of Globalisation

Balram Rao<sup>1</sup> and Babita Sinha<sup>2</sup>

### Abstract

Historically, Social exclusion has been described as the denial of equal opportunities imposed by certain dominant groups of society or state up on others which leads to inability of an individual or a particular community to participate in the mainstream dimensions such as political, economic, social and cultural functioning of the society. The emphasis here is to what extent globalization exacerbating this inequality process of social exclusion in India after introducing the neo-liberal policies in post 1990's? Although exclusion is not a new phenomena across the globe, including India, but the problems of exclusion still remain even in advanced Western countries in respect of the minorities, emigrants, race, coloured and the underprivileged, but the problem of deep-rooted social, economic and cultural exclusions is acute in post-colonial countries, like India where caste, class, regional, sectoral, gender, language, religion etc matter the most. This paper attempts to analyze the linkages between the process of globalization and the social exclusion in India with the conventional notions of deprivation, poverty and marginalization with respect to lack of income earning capital assets and social needs. The paper is intending to analyze these (socio-economic-political) dimensions of social exclusion by examining both the phenomena in historical perspective in general and the exclusion through growing process of migration and precariousness of new employment opportunities 'working poor' after globalization in particular.

**Keywords:** Globalization, Social Exclusion, Working Poor, Inequalities, Migration etc.

### Introduction: The Concept of Social Exclusion

The foremost condition of exclusion under which people live and work, are often understood in terms of poverty and inequality. These dimensions refers to lack of assets, such as denial the means of production, like land or other forms of capital through which they can acquire income, large segments of the economically active population have to sell their labour to make a living. Poverty becomes particularly more acute when the price of labour is close to or even below the level of reproduction and the unemployment or

underemployment is rampant because the supply of labour is structurally much higher than the demand. It often happens that these two factors are interdependent. Exclusion from means of production can lead to exclusion from means of consumption. In those cases, marginality and vulnerability take the form of a destitute kind of existence. One of the relevant feature of exclusion is that, it is embedded in the societal relations and the societal institutions where the process through which individuals, groups or a community are wholly or partially excluded from full participation in the society in which they live (Haan,1997; Thorat, 2006).

More recently, a decade ago, Amartya Sen. draws attention to various meanings and dimensions of the concept of social exclusion Distinctions are drawn between the situation where some people are being kept out or even at least 'left out', and where some people are being included or may even be 'forced to be included' in deeply unfavorable terms, and described the two situations as "unfavorable exclusion" and "unfavorable inclusion." The "unfavorable inclusion", with unequal treatment may carry the same adverse effects as 'unfavorable exclusion'. Consequences of exclusion thus, depend crucially on the functioning of social institutions, and the degree to which they are exclusionary and discriminatory in their consequences (Sen, 2000).

The mainstream economics, further elaborated the concepts of exclusion or discrimination in the context of race, gender, class and caste. They also highlighted on discrimination that works through markets that may operate through restrictions on the entry in market and through "selective inclusion".

The socio-economic-political dimensions of individual or a community are very much relevant in analyzing the exclusion or the inclusion. In a social sense, exclusion is equal to defame, the loss of respectability and dignity in one's own eyes, as well as those of others. In an economic term, exclusion refers to the inability to be engaged in gainful employment, stable income, equal opportunities and upward mobility in standard of living, health and savings which yields enough income to satisfy his or her basic requirements. In political sense, exclusion implies a lack of access to sources of power and the inability to participate meaningfully in decision-making processes from the household level upwards. The paper will examine in details these dimension and related indicators in further analysis.

### Exclusion and Discrimination in India

In India, exclusion revolves around the societal interrelations and institutions that exclude, discriminate, isolate, uninformed, and deprives some groups on the basis of group's identities like caste,

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class, culture, language, region and ethnicity (Ambedkar, 1936; in Henn,1997). The nature of exclusion in India revolving around the caste system historically, where by birth identity, your rights and occupation were defined. Exclusion and discrimination in social, cultural, and particularly in economic spheres such as occupation and labour employment, is therefore, internal to the system. In the market economy framework, the occupational immobility would operate through restrictions in various markets such as land, labour, credit, other inputs, and services necessary for any economic activity. Labour being an integral part of the production process of any economic activity and the one the vulnerable input in globalised competitive production, would obviously become a part of market discrimination & exploitations.

The discrimination can occur through differential treatment in terms and condition of contract, in the prices charged and received by discriminated groups such as price of factor inputs, and consumers goods, price of factors of productions such as wages for labour, price of land or rent on land, interest on capital, rent on residential houses etc

#### **Recent Studies on Exclusion in India**

Das and Dutta (2007) analyses the caste discrimination in urban labour market by examining inequalities in employment, occupation and earnings between SC/ST, OBC and upper caste using the NSS-EUS rounds. They conclude that earnings differential do exist and a large share of that come from differences in human capital endowment, while about 15% is also due to discrimination in market place. Further, occupational discrimination is more pronounced than wage discrimination. They also conclude that caste is still a determining factor in how individuals are remunerated in the wages labour market.

The scholars identify that amongst regular workers the extent of the wage gap is substantial at about 0.37 log points, of which between a third is attributable to unequal treatment of SC workers relative to general caste workers. The wage gap among casual workers is very low and almost entirely accounted for by difference in characteristic.

Majumdar (2007) using NSS( 2004-5) also find widening earnings differential in relative earnings of SC/ST , because of lack of Mobility due to preponderance of excluded workers in low wage occupations.

Deininger, Jin and Nagarjan (2011) use a nationally representative household survey conducted by NCAER to quantify the magnitude of discrimination, both caste based and gender based in casual labour markets. By comparing high income and low income villages, they found that discrimination in the informal labour market is more severe than formal

market. However they find that gender based discrimination matter more than caste in informal sector and discrimination do express in occupational choices and wages for the same occupation. The economic function which the system performs for favored castes, suggests that taste for discrimination is based, consciously, or unconsciously, on economic interest, so making prejudice more difficult to eradicate (Banerjee and Knight, 1991; in Thorat 2007).

Further, exclusion and discrimination in India can occur in terms of access to social needs supplied by the government or public institutions, or by private institutions in education, housing, and health, including common property resources like water bodies, grazing land, and other land of common use. People may face exclusion and discrimination from participation in certain categories of jobs because of the notion of purity and pollution of occupations. Since there is societal mechanism to regulate and enforce the customary norms and rules of the caste system, the deprived group can face opposition in the form of social and economic boycott, violence, and act as a general deterrent to their right to development. The caste and class based exclusion and discrimination, essentially is “structural in nature”, and comprehensive and multiple in coverage, and involve denial of equal opportunities. Many studies on SC/ ST and other marginalized section in India show that people from these communities suffers from lower access to capital assets like agricultural land and migrated to the outskirts of urban centre and engaged in lower or precarious type of employment.

The marginalized groups forced to change their occupations and alienated from agriculture to non farm activities to get engage in casual wage labour, underemployment wages or lower daily wages in non-farm activities. They also have low level of education & skill compared with other groups.

#### **Evidences & Analysis:**

##### **1. An Evidence of Economic Exclusion and Discrimination**

The studies on caste-based market and non market discrimination in economic spheres are very limited. However I will refer some evidence based on the primary studies conducted by the Action Aid in 2000 at all India level comprehensive study based on an intensive survey of 555 villages in eleven states across India and they found that the discrimination in labour markets operates through exclusion in hiring, and lower wages. In about 36 percent of the villages, the SCs were denied casual employment in agriculture. In about 25 percent villages, the SCs faced discrimination in terms of wage payments. In case of agricultural land, the selective evidence from some states brings out the restrictions puts by the high castes towards the SCs in

the purchase of private agriculture land, and use of public land for agriculture use and housing. In the case of access to the Common Property Resources like grazing land, fishing pond, and other resources, the SCs faced exclusion in about one-fifth of the sample villages (21 %). The survey data also reveals some isolated evidence on the practice of exclusion and discrimination in the sale and purchase of consumer goods such as bakery products, milk and vegetables etc.(Action Aid, 2000). In urban area also there is indeed discrimination by caste, region, sector and even religion in job market through traditional mechanism, with marginalized groups disproportionately represented in poorly-paid dead-end jobs. This may help to explain, why discrimination is greatest in operative jobs in informal and unorganized sector, where almost more than 92% forced to work, in which contacts are more important for recruitments.

The work participation as shown table 1, SC wages as 71% that of others in 1983 and in 2009-10 gap widened to 61%, but ST gap declined from 72% to 81% in rural areas. Similarly in urban areas, the ST gap declined from 70 to 86%, while the gap of SC widened from 65 to 54% in 2009-10. even OBCs also there is significant difference among male & female participation across sectors.

## **2. Caste & Gender Discrimination and Right to Food**

Many empirical studies also shows the evidence on denial of access and/access with differential treatment in food security programs like Mid-Day Meal Schemes and Fair Price Shops. The study on Mid- Day meal scheme for Rajasthan reported the exclusion of scheduled caste person as cook and helper in all most sixty percent of sample villages. The most of the women don't own agricultural land and work as a wage laborer, and more specifically woman belong to marginalized groups suffered from triple deprivations arising out of lack of access to economic resources, caste and gender discrimination. The SC and ST women are perhaps the most economically deprived section of Indian society ( Jean Drazé 2003).

## **3. Poverty and Exclusion**

Poverty is one of the primitive idea of social exclusion in India which is largely considered due to denial of rights in gainful activities but the usefulness of an poverty based index for exclusion is questionable because it may not make sense to aggregate economic, social and political indicators, especially when they are not moving in the same direction. Moreover, the weights attached to different indicators will vary with other different dimensions. On poverty issues, Sen has developed a comprehensive approach to poverty which goes beyond economics. His theory is the notion of

individual's capabilities, which are the opportunities to achieve valuable 'functionings'. Thus, better 'living' may be seen as consisting of a set of interrelated 'functionings', consisting of beings and doings'. His valuable functioning represents the different factors of well-being and Functioning may include both physical elements such as being adequately fed and sheltered and 'more complex social achievements such as taking part in the life of the community and gracefully participation in socio-economic activities. Taking women as a disadvantaged group, disadvantages may apply to the capability of being nourished (e.g. because of the demands of pregnancy and neonatal care), achieving security (e.g. in single parent families), having fulfilling work (e.g. because of stereotyping of women's jobs), establishing one's professional reputation early on in one's career etc.(Sen, 1992).

Dasgupta (1993) also examines the influences of equal and unequal asset distributions on the functioning of the labour market and on those seeking employment. He emphasize that the poor who have no actual labour power or those without any ownership of assets, suffer from a failure of entitlements owing to lack of incomes, assets or employment.

The **Table 2** shows a considerable variation in wages rates across socio-religious groups. Most interesting is within SC Hindu (Rs.148.) and other Hindu (346.9), there was a significant gap, while Sikhs have highest one.

## **4. Relational and Distributional Aspects of Exclusion**

The broader concept of poverty covering both the aspects of distributional (economic) and relational (social) dimensions of deprivation are very relevant to the notion of social exclusion. The argument of Room (1994, 1995) that poverty is primarily lack of resources (distributional issues) while social exclusion focuses primarily on relational issues (the lack of social capital, state protective incentives, kinship etc) can be partially true but not complete. Because the social problems associated with exclusion like infant mortality, education, literacy, etc are partly income-determined. In a market economy, the abundance of basic needs goods are not meant for those who do not have the means to buy them. Thus, the distributional dimension also reflects the opportunities to achieve valuable 'functionings' and should not be considered as uni-dimensional. Adequate levels of income are a necessary though not a sufficient means of ensuring access of people to basic human needs.

Furthermore, the notions of ownership, control, participation and access, which underlie the concept of exclusion, involve social relations embodying property rights. The situation is somewhat similar in advanced economy such as the United States

where blacks with high incomes and education are more easily accepted and integrated into white neighborhoods than poorer blacks. Thus economic might enables the rich to extract from the State, civil and political rights and liberties. One may, therefore, argue that economic resources enable access not only to economic goods and services but also to political goods like freedom and the ability to influence economic policies. On the political aspects, Dasgupta (1990, 1993) examined the composite index (UNDP's, 1992) of political freedom by taking the dimensions of personal security, rule of law, and freedom of expression, political participation and equality of opportunity. In most cases, democracy has been interpreted as free elections without changes in power relations which matters & concerns the most vulnerable those wait & watch for the equal relocation of resources.

### **5. Globalisation, Migration And Misery of Exclusion in India**

Migration has been many dimensions such as forced migration (due to state policy or as happened during colonial time), distress migration (due to survival strategy and in search of livelihood), circular and seasonal migration (in search of work) and others such as better living standard or due to marriage etc. The migration has been an old & historical survival strategy for the people of less secure, excluded from the main stream benefits & assets, to avoid social conflicts & exploitation, better living, & employment conditions towards either the advance rural belts or globalised town of production, services and other trading activities centre known as metro or nowadays Urban – Agglomeration like Delhi-NCR, Greater Kolkatta Mumbai & Greater Mumbai etc. Globalisation led development has accelerated the migration process by forcing people to facilitate the FDIs based projects such as SEZ and other export park . They actually require huge lands to make an island or ‘self controlled territory’ of labour exploitation beyond government intervention which compel the people to migrate in search of their livelihood in unorganised sector such as construction & unorganised cum unapproved industrial units (both are largest employer of migrants), street dweller & vendor, rug picker and other precarious work to survive in costly metros without any social security and basic facilities such as water, accidental facility, and shelter. They are exploited in unhygienic working conditions with low wages and extra long working hours, and can be labelled as ‘working poor’ and excluded even from the basic amenities & social needs.

By one account<sup>3</sup>, the total number of street vendors in India is about 10 million, accounting for 2 percent of the total urban population, with Mumbai and New Delhi having around 250,000 street vendors each, Kolkata around 150,000, Ahmadabad and Patna 80,000 each and the rest spread across the country. They are not only excluded from the social benefits but their illegal status makes them most vulnerable to rent seeking by the authorities (police and municipality) and extortion by local mafias. Far from improving their status, globalization has only made them ‘working poor’ to their misery. Despite such challenge opposition, they survive with precarious living on the margins of the urban economy such as near railway track, under bridge, in river bed (Delhi), sewer pipelines or lower areas in outskirts of the city and most vulnerable to infected the diseases like malaria, dengue and other water related diseases etc.

### **6. Multi-Dimensional Exclusion and Its Indicators**

In the context of globalization and changing economic conditions, social exclusion is related to the deep economic restructuring necessitated by growing competition in the emerging global economy. So the social exclusion can be understood as a complex and multi faceted notion in global context. In order to demonstrate the multi-dimensionality of social exclusion, it is useful to discuss the economic and social aspects of poverty along with the political aspects such as civil and political rights and citizenship which outline a relationship between individuals and the State as well as between society and the individual.

#### **The Economic Dimension**

The economic approach to exclusion is concerned with questions of income and production and access to goods and services (or commodity bundles) from which some people are excluded and others are not. They may be excluded from income and livelihood, from employment and the labour market and from the satisfaction of such basic needs as housing, health and education.

**The Social Dimension such as** access to social services such as health and education; access to the labour market through ‘precariousness of employment’ as distinct from low pay); and the opportunity for social participation and its effects on the social fabric (captures relational aspects: relations among individuals as well as between citizens and the State).

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<sup>3</sup> In the absence of reliable data it may be difficult to treat them as part of any one traditionally excluded social group, though studies may reveal that they belong to more than one group.

### **The Political dimension**

UNDP in 1992 notify five rights of political dimensions such as personal security, rule of law, freedom of expression, political participation and equality of opportunity to address the concern of the denial of particular human and political rights to certain groups of the populations. To promote the democratic value, it provides conditions suitable for the fulfillment of political rights, freedoms, and socioeconomic, basic health and work or employment right.

### **The methodological problems with the indicators on the economic, social and political aspects of exclusion:**

On the economic aspects, the GNP per capita is not an adequate indicator for evaluating the exclusion of individuals or social groups. Thus, to estimate the economic aspects of exclusion it may be more appropriate to give greater weight to the depth of poverty and income inequality by with different degree of poverty<sup>4</sup>. Improvement in the well-being of the most disadvantaged groups is generally weakly correlated with growth performance in the absence of proactive State policies to overcome unequal income distribution. Large income inequalities, Working poverty and extreme poverty are major sources of exclusion which cannot be captured by an aggregate measure like GDP per capita.

To look the social aspects, Indicators of access to public goods and services such as drinking water, balanced food, quality education and health can be evaluated through life expectancy at birth, infant mortality rate, adult literacy rate or secondary school enrolment, indicators of access to the labour market and specially to the 'good' segment of the labour market (rate of unemployment and long-term unemployment, vulnerability or precariousness of employment measured by some yardstick of insecurity and risk, e.g. rates of job turnover, proportion of second jobs, assessment of people working in the informal sector, household income trends). Indicators of social participation in terms of rates of membership of trade unions, local associations engaged in activities may be carefully designed to integrate marginalized groups into the mainstream of civil society to create a collective and bargaining voice is desirable.

### **The Disease of Globalization and Social Exclusion**

Since early 1990's, the implementation of structural adjustment programmes under neo-liberal policy by the institutions of global governance or BWIs, in developing countries, the State has been forced to roll

out from the social policies and transformed to facilitate the market forces to take care the basic infrastructure, employment and development through 'trickle down' approach. Developing countries are becoming more competitive to get more FDI through opening its market and restructuring policy regulation to attract maximum investment. State is increasingly deprived of resources for the implementation of social policies and programmes such as social security, welfare, basic infrastructure, employment, and other social needs. So in developing country like India, where poor have no assets (human & capital) and suppose to be migrated to get some form of precarious employment in the newly rising 'global in-formal sector', the distributional aspect becomes the more important. The landless, poor and women, who are historically discriminated and excluded because their asset-less, caste, gender status are again pushed to more severe position to earn their livelihood. They are most vulnerable to be exploited and excluded from the local labour market and ultimately they have to migrate from there. On the other hand, some people in agrarian societies have some assets in the form of land and unearned income. These people enjoy a comparative advantage in the labour market because they can convert their potential labour into actual labour power due to their endowments & entitlement assets. Thus, the only asset less poor people and the women landless wage laborers are particularly more vulnerable.

In globalised economy, the issue of wage discrimination has come to occupy a more important dimension. On one hand, with the emergence of private sector as the dominant player in the economy and the relative reduction of the role of the public sector, the possibilities of reservations based employment would also diminished & shrink. On the other hand, it is possible that reservation in education would have a greater role to play, by eliminating skill differences and potential occupational differences.

But experimental studies (Thorat, et al., 2007: Despande and Newman, 2007) show that entry to the private sector is rife with discriminatory practices. Similarly new employment opportunities are opening in new sectors (services like financial, telecommunication, ITES based etc) that have emerged due to the globalization of the economy.

However, entry to such sectors of certain occupations is also restricted by not only educational discrimination but also employer preferences. Moreover, recruitment in private sector is encouraged through social networks, hence more prone to such practices. Major areas of reform were the reduction of tariffs, the elimination of the licensing regime, the abolition of other non-tariff barriers on all imports of intermediate and final goods, the removal of trade monopolies of the state, and the simplification of the

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<sup>4</sup> the Foster, Greer and Thorbecke (1984) index or the Sen (1976) index

trading regime. In brief, the economic liberalization of the 1990s allowed Indian industries to have greater access to the international market, capital goods, and technology. This action provided incentives for raising production, upgrading technologies, and modernizing industries. In turn the demand for skilled labour increased relatively to the demand for less-skilled workers, which led to an increase in economic activities, and skill-wage. Although the skilled workers share in total employment has gone up from 11 percent to 26 percent in post liberalised period of two decades continuously since the 1990s. The trend clearly shows a rise which favours skilled workers. Also, the increase in the skilled workers share in total employment in the 1990s is accompanied by an increase in relative wages of skilled labour. This suggests an aggregate demand shift in favour of skilled workers. On the other hand, less-skilled workers were adversely affected when low demand weakened their bargaining power and contributed in growing wage inequality.

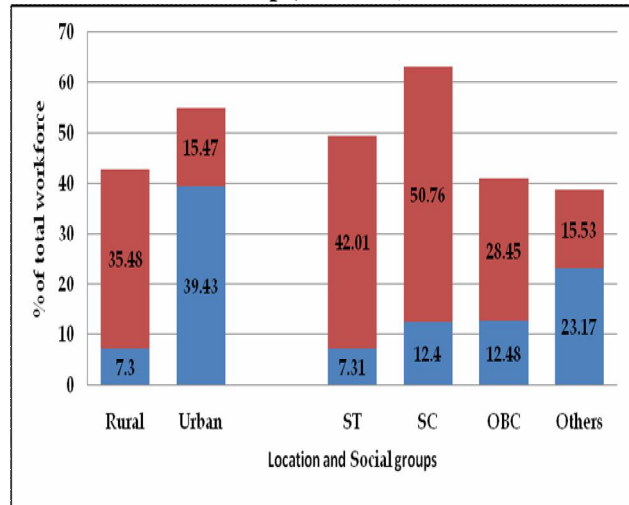
Since last two decades, Income inequality has been doubled in India. Pre neo-liberal policies implementation, in 1990s, the top 10 percent of wage earners used to earn 6 times more than the bottom 10 percent, which has now completely doubled and become 12 times. There are many reasons for this persistent rise of gap. As most of the jobs in post globalised India are created in informal sector only where its largest contingent of 94% of more than 430 million workforces engaged for their livelihood. Since opening & integrating with the global economy, even public sector companies are being continuously privatized through newly adapted dis- investment policies under the instructional guidelines of BWI<sup>5</sup>s and the dominants of global governance institutions. The other prime reasons In India are lack of employable & quality education system, rising unemployment rate, corruption through licensing, rising population etc (OECD, 2012). As now every state's economy is integrated with global economy, so the interdependency is also be problematic, the ongoing western crisis also showing the net effect on Indian industries as Table-3 show the decline trend of production & employment across export intensive sectors since the crisis grappled European market, as EU is one of India's largest trading partner.

#### National Labour Institute Survey among 1250 export oriented firms (Formal and Informal)

In above industries (Tab-3), the largest effected workforce is either largely socially marginalized & historically excluded people who are less educated;

having specific skill only or the women faced the triple exclusion.

**Table-4 Understanding Inequality in Labour Market (Percentage of Workers in Regular and Casual Work by Rural-Urban Location and Social Groups, 2007-08)**



The above table (4) based on NSSO data shows that SC's participation of male & female across social groups is significantly high in casual work as comparison to others and closely followed by ST and subsequently OBC group.

According to the International Monetary Fund estimates based on NSSO data, India's Gini<sup>6</sup> coefficient was at one time declining steadily, but it rose during the reform period following the mid-1990s. This rise was quite significant (Kundu, 2010). In the first twenty-five years after independence income inequality in India as measured by the Gini coefficient had declined from 35 percent in 1951 to 29 percent in 1973. The decline continued in the 1980s to a record low of 24 percent until it started to rise in 1991. The last two decades of the 1990s and the 2000s have been decades of rising Gini coefficient index from 24 in 1990 to 37 percent in 2000 and onwards.

The Gini index provides the aggregate income inequality, it is also an indication of wage inequality on the individual level in the country, which shows a growing trend since 1991. On account of Human Development also India's rank is 132 which again shows the deepening of crisis in achieving better human capital and the desired MDGs.

#### Globalisation, Precarious Jobs and Social Exclusion

<sup>6</sup> The Gini coefficient, a widely used measure of a country's income inequality, ranges from 0 to 100, where 0 implies a perfect equality and 100 means aggregate income inequality.

<sup>5</sup> UN, World Bank, IMF, WTO and allied Institutions

Globalisation has accelerated the production processes (or, in Marx's words, of productive consumption) which allows to produce more of the same in a given time span or to produce the same in reduced production time. In other words, the acceleration of production processes is the same as an increase of labour productivity. The growth of productivity is the positive message of free market capitalism since the times of Adam Smith and David Ricardo. The methods of increasing the "wealth of nations" by means of productivity-growth are widening and deepening of the division of labour, on the workplace in the factory and on a national as well as on the global scale. The growing relocation and outsourcing the production and services in the third world and are creating new precarious types of job opportunities where maximum workers are vulnerable to exploitation.

The growing precariousness of employment can reflect social exclusion because it emphasizes both distributional and relational aspects. The concept of precariousness involves a combination of different factors such as instability, lack of protection, insecurity and social and economic vulnerability (Rodgers, 1989). Particularly, the concept of precarious employment may be of greater value in explaining social exclusion than the more usual concept of unemployment. This is because it emphasizes shifts in the labour market structure resulting from the process of informalisation in developing countries and the development of atypical and precarious forms of work in developed countries. The very competitive environment of the emerging global economy has compelled firms to implement technological and organizational innovations which promote flexibility within the production process.

Flexible production often calls for greater labour market flexibility, which may conflict with the notion of 'secure' or 'good' jobs. For purposes of a comparison, therefore, it would be more relevant to consider rates of long-term unemployment and other indicators such as the proportion of the population working in the informal sector, trapped in the precarious segment of the labour market (short time horizon, bad working conditions, low earnings, partial or full exclusion from access to social security) and occupying a second job.

Nevertheless, the notion of precarious jobs raises several methodological problems. It is poorly defined in statistical, legal or economic terms even in most of the labour regulations. The conceptual framework can be linked with 'non-standard' or 'atypical' employment such as temporary and short-term work and self-employment but may differ on personal preferences, as in the case of women's choices and the professional looking for part time multi-engagements or consultancy.

### **Effect of Globalization across Continents**

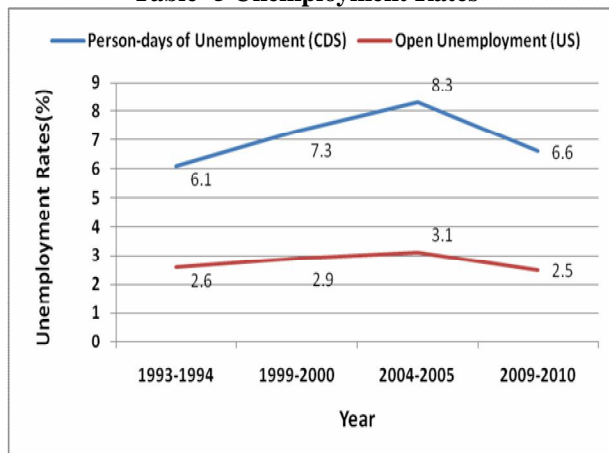
Globalisation has exacerbated the global competition for producers and developing new market to create more profits and surplus. The contractulisation & outsourcing occur when firms take advantage of low-wage costs in labour abundant countries by moving the low-skill intensive parts of the production process abroad, but continue to carry out the high-skill activities themselves in the domestic economy. Trade with low-wage countries via this route shifts employment away from less-skilled workers in industrial countries and puts downward pressure on the relative wages and employment of less-skilled workers within industries. Anderton and Brenton (1999) empirically assess the impact of outsourcing on the relative wages and employment of the low-skilled in the UK. Their results suggest that UK imports from low-wage countries made a significant contribution to the decline in the relative wages and employment of the less-skilled in the UK.

### **Exclusion through effects of Globalisation across domain**

1. Dismantling agrarian economy due to global shift of development agenda from agrarian economy to industrial, services and now Knowledge economy, as now Agriculture or primary sector's only contribute 15% of GDP as compare to more than 30% in pre globalised period. Stagnation of agriculture productivity, huge wages differential and reducing land holdings forced the rural workers to migrate (distress migration) in large-scale to find subsistence mean of their livelihood in industrialized growth centre' large metros'. Now the problem of food security and water security which is also widened due to Climate change, degradation of quality land and subsidy turmoil in some part of the world and the lack of cooperation by globalised dominant forces as what we seen in Doha and Copenhagen.
2. Keynesian's Globalised LPG model of development exuberated the informalisation (as per Anexe 1) of the formal sector and created new competitive mode of surplus production or profits through contractulisation and outsourcing which created the new demand of the poor proletariat to be part of casual workers. Their economic insecurity & vulnerability increases because of their precarious employment status.
3. Adam smith's invisible hand led market mechanism failed to address the rising inflation which is directly affecting the poor, most vulnerable, and the new class of precariat in terms of deprivation and subsistence living in both the world, North to South and even insecurity risen from skilled to unskilled in employment, job, income, skill enhancement etc.

4. The growing decent job insecurity also leading to exclude the lower segment of labour market most and less for others, which again create more inequalities and discrimination to already large contingent of BPL force of more than 30 % of India's population and 90% of the informal workforce. More people forced to work in more competitive and unhygienic environment including ITES enabled services, they are more vulnerable to be excluded due to lack of social protection policy.
5. The neo liberalism's Structural Adjustment Policy forced the state to withdraw in government spending on social infrastructure including health. As a result Primary Health Care reached in a very bad shape. Still another advisory of the World Bank to introduce the user-fees 'cost recovery' to improve the quality of services may lead to exclusion further the new causal class of 'precariat' or 'working poor' along with historically marginalized people who are just vulnerable to poverty & subsistence level.
6. Globalization has created the free flow of capital but not the labour, due to hegemony and dominancy of North specially US & EU, restriction of workers, even on high skilled force, they have also put restrictions and high visa fees, which show the discriminative policy framework under dual face of globalization.
7. The rising unemployment rate of more than 9.1 % (6.6 +2.5) as per above Table -5 also showing the job- less growth which is not only hearting to high skilled but also resulting to severely effect the already excluded lower segment of labour market and marginalized social groups in particular.

**Table -5 Unemployment Rates**



Source: Various NSSO-EUS rounds.

### Conclusion

This paper has attempted a qualitative, analytical and operational approach to social exclusion in terms of its

linkages with the historical notions of social exclusion and the globalization. The social exclusion in terms of denial of public goods & services to marginalized, migrant and other backward classes are rooted in societal institution and affirmative action alone cannot solve these problem. The appropriate dimensions & indicators discussed to capture the various dimensions of social exclusion are not an established one as yet. Although social exclusion is largely depend on the society structure, their culture and policy of governance, but now the policies are framed under the pressure of the dominant forces of global governance namely BWIs. The advance countries through these remote controlled institutions want to push the developing country to open their resources for their exploitation and accumulation. This Structural Adjustment Program under the BWIs (from Latin America to Africa & Asia) is resulting in more economic inequalities, disparity & insecurity across the continents which create a large part of population to be excluded from better living conditions and equal opportunities to participate and grow. Many times, some deliberate government policies could also result in active or passive exclusion, and if that happens through unintended attempts and circumstances than it may be due to person's inability to relate. For instant, the agricultural laborers and especially the rural women, marginalized farmers & landless laborers are stuck at the bottom of the rural economy and society in India, which shows that even a largest democratic setup is not a sufficient condition for inclusion.

Given this scenario and adverse consequences of economic and social discrimination, the strategy to reduce discrimination is thus likely to increase economic efficiency and growth, and reduce poverty and inequality and also minimize the potential for conflict between the groups. The discrimination can be contained like in highly competitive markets; discrimination will prove to be a transitory phenomenon as there are costs associated with discrimination to the organisation or the employer, which may result in loss or lowering the benefits.

Thus the employers, who indulge in discrimination, may face the ultimate sanction imposed by the markets. So the theory related to diminishing of profits may act as 'a self-correcting solution' to eliminate discrimination. In this context, the competitive markets may reduce economic and social discrimination, but if market is oligopoly or monopolist than situation may be different one, so the interventionist role of the state is required to create affirmative policy framework and to improve the ownership of income earning assets like agriculture land and non land capital assets. So finally I will suggest that globalisation is not the cause, but the disease which can be controlled and cured by an



effective interventionist state, active workforce and active civil society organisation working for equal opportunities for all to ensure fair access to

employment, capital assets, and social needs like education and housing, civil, political and cultural rights etc..

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### Annex 1.

Sector/Worker	1999-2000		
	Informal/Unorganised Workers	Formal/Organised Workers	Total
<b>Informal/Unorganised Sector</b>	99.6	0.4	100.00
<b>Formal/Organised Sector</b>	37.8	62.2	1000.00
<b>Total</b>	91.2 (361.7 million)	8.8 (35 million)	1000.00 (396.8 million)
	2004-05		
<b>Informal/Unorganised Sector</b>	99.6	0.4	100.00
<b>Formal/Organised Sector</b>	46.6	53.4	100.00
<b>Total</b>	92.4 (422.6 million)	7.6 (34.9 million)	100.00 (457.5 million)
	2007-08		
<b>Informal/Unorganised Sector</b>	99.5	0.5	100.00
<b>Formal/Organised Sector</b>	49.1	50.9	100.00
<b>Total</b>	92.8 (430.6 million)	7.2 (33.4 million)	100.00 (464 million)

Sources: various NSSO rounds.

**Table-1 (Social Groups and Women Participation across Sectors)**

		1983			2009-10		
		Male	Female	Total	Male	Female	Total
Rural	ST	0.72	0.88	0.72	0.85	0.75	0.81
	SC	0.69	0.86	0.71	0.64	0.54	0.61
	OBC	NA	NA	NA	0.75	0.60	0.70
	Others	1	1	1	1.00	1.00	1.00
Urban	ST	0.73	0.65	0.7	0.88	0.78	0.86
	SC	0.68	0.65	0.65	0.58	0.39	0.54
	OBC	NA	NA	NA	0.67	0.52	0.65
	Others	1	1	1	1.00	1.00	1.00
Total	ST	0.57	0.66	0.54	0.75	0.60	0.71
	SC	0.57	0.68	0.56	0.55	0.39	0.51
	OBC	NA	NA	NA	0.67	0.48	0.62
	Others	1	1	1	1.00	1.00	1.00

Sources: IIDS&amp;CDS (2011)on NSSO Various Report

**Table-2 (Average Daily Wages by Socio-religious groups and CAGR in current prices ( Rs)**

	Total	Hinduism	Islam	Christianity	Sikhism	Buddhism	Others	Total
1983	ST	46.7	105.5	69.7	64.6	99.4	74.5	48.9
	SC	50.0	53.2	53.4	71.2	58.3	46.9	50.8
	OBC	NA	NA	NA	NA	NA	NA	NA
	Others	91.8	72.8	99.9	147.3	106.4	77.4	90.5
	Total	76.3	72.8	92.6	112.3	62.7	71.6	77.2
2009-10	ST	148.4	351.7	302.4	754.8	326.9	398.7	222.9
	SC	162.9	132.8	185.1	163.0	181.6	277.5	163.8
	OBC	199.0	179.3	253.0	193.0	224.4	290.1	198.6
	Others	346.9	202.5	332.4	382.6	233.5	251.7	315.8
	Total	223.4	197.6	294.7	248.0	240.3	375.4	228.1
CAGR	ST	3.9	4.1	5.0	8.5	4.0	5.7	5.1
	SC	4.0	3.1	4.2	2.8	3.8	6.0	3.9
	OBC	NA	NA	NA	NA	NA	NA	NA
	Others	4.5	3.4	4.1	3.2	2.6	4.0	4.2

**Table 3 Global Crisis and Its Impact on Employment in India: Field Level Evidences**  
 % Change in 2008-09 over 2007-08

	<b>Production</b>	<b>Employment</b>	<b>Wages</b>
<b>Informal</b>			
Textiles	-18.8	-2.14	1.08
Diamond	-25.9	-1.29	-8.11
Handicrafts	-17.3	-8.75	14.36
Total	-14.8	-6.87	10.05
<b>Formal</b>			
Textiles	-20.9	-0.99	-0.67
Diamond	-48.4	-1.76	-9.79
Handicrafts	-6.1	-1.17	-2.86
Total	-30.5	-0.28	-1.89

## Women Participation in the Labor Market Post Maternity: Recent Trends

Shashi Bala\*

### Abstract

Women's participation in labour market following childbirth is often pivotal in determining their later occupational attainment (Jennifer & Riley, 1998). Women who stay out of the labour market for some years experience a loss in their human capital; when they want to re-enter the labour market they often access less qualified positions only. Moreover, in the areas where the unemployment rate is high, women may find it difficult to re-enter in the labour market altogether. This may induce women to prolong as much as possible the maternity leave, instead of quitting their job to look for another one in the future. When mothers do not leave their job, they may experience a downward occupational mobility. Women with children are penalised with respect to non-mothers in their career advancements and wages. This is related to working mothers' actual or supposed lower effort in work activities due to reduced availability for overtime work or travelling and increased absence due to children's illness. Moreover, many women with children choose to work part-time, that implies fewer career opportunities and subsequent difficulty in moving back to full-time employment. All this may have negative impact on mothers' wage (Pacelli, Pasqua and Villosio, 2006). Within this context present research attempts to look at the determinants of job security and labour force interruptions among employed women post childbirth, with specific focus on the working conditions and benefits provided by the organisations.

### Introduction

Discrimination by age, sex and family responsibilities often prevents women from obtaining permanent jobs after a break and compels them to accept low-paid part-time (often temporary) jobs. The social structure and the loss of human capital during this period force many women, especially graduates, to sit at home, despite the desire to return to the labour market. There are still not enough job-training programmes to refine their old skills.

However, human capital explains only in part mothers' employment decision after childbirth. In fact, where childcare services are available, affordable and of good quality (mainly in Northern European countries), it is easier for women to reconcile work and family responsibilities and therefore it is more likely that they stay attached to the labour market (Gutiérrez-Domènech, 2005). Wetzels (2001) compares mothers' labour market behaviour in Germany, the UK, the Netherlands and Sweden and finds an important relationship between

the country-specific policy and the timing of re-entry.

Generosity of the parental leave policies (in particular length of optional leave and replacement rate) seems to be crucial in increasing the probability of re-entering of new-mothers (Ronsen & Sunström, 1996; Pronzato, 2006; Saurel-Cubizolles et al, 1999). Analysing the employment decisions after childbirth in France, Italy and Spain, they found that in Italy and France, where optional parental leave is longer compared to Spain, around 80 percent of women return to work, while in Spain only 53 percent of new-mothers return to work.

Women who remain in the labour market after childbirth may be penalised in terms of career opportunities and wages. Worldwide many women postpone their career aspirations while taking up childcare duties. Unfavourable maternity leave policies force many women to take a break in their career. Re-employment and re-training facilities are not available in many places. More than pay benefits, a lot of women are keen on retaining their seniority when returning from a career break. Women who find a supportive employer are indebted to the organisation and committed to the career. Juggling work with domestic responsibilities, their sense of loyalty to the organisation spurs them to make extra effort at work and stick to the company for a longer time. The issue is how many women can lay claim to a supportive female-friendly organisation or a supportive family?

The consequences of giving birth to children have been identified as a 'motherhood penalty' (Budig & England 2001; Harkness & Waldfogel 1999). The birth of children leads mothers very often not only to leave the labour market for the (necessary) period of delivery but they also tend to expand this period and thereby reduce their lifetime work period. This results in a loss of human capital and of monetary resources. These two consequences are interdependent since the income level of women is mainly dependent on their labour market experience (Hill 1979).

In India the two prime laws which directly have positive implications for breast feeding are the Maternity Benefit Act 1961 and the Employees State Insurance Act 1948. Under these provisions, a woman can avail of paid maternity leave of three months on delivery. Besides protecting her wages and job, both these provisions enable a mother to breast feed her child during the first three months without any risk of losing either her earnings or her employment. Various governments have extended the period of maternity leave for varying periods, up to six months. However, these are applicable only to 7 percent of the working women who are employed in the organised sector. Secondly, the benefits under these provisions are restricted to only two children and that too only for three months. This more or less compels them to extend their leave or resort to initiating supplementary milk feeding which goes against the recommendations of pediatricians and

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also the interests of the young infant (Nair, 2008).

Recently the government has taken initiative to raise maternity leave to 180 days and child care leave for two years for women employee, stipulating a minimum of 15 days leave at a stretch. These leaves can be taken three times in a year (DOPT). But this facility is restricted to employee of Government sector only. The above literature highlights that globally post maternity, women often take a break to raise infant, their re-entry to labour market is influenced by appropriate policy for child care, their human capital, good quality and availability of affordable childcare services. This results in low paid, part time, temporary jobs for child bearing women. Even if, somehow they manage to return to labour market there arise issues related to loss of human capital beside other related social issues. In this context, the present article attempts to explore the situation of working mother post maternity in selected IT, ITES, Hospitals and Garment sector in NCR region (Faridabad, Gurgaon, NOIDA and Delhi), which has been boom to women employment in recent years.

### **ILO Standards on Maternity Protection & Its Impact in Formulation of the Indian Labour Legislation**

The origin of the scheme of maternity benefit can be traced towards the end of nineteenth century in Germany when maternity allowance itself became a part of the insurance scheme. Other developed countries, including the United Kingdom and Australia, also adopted similar schemes. In Great Britain, maternity allowance was included in the health insurance scheme in 1912 and in Australia; Maternity Allowance Act came into force in 1912. However, international recognition for maternity benefit was only achieved by the efforts of the International Labour Organization ("ILO").

The core concerns of ILO have been to ensure that women's work does not pose risk to the health of the women and her children and to ensure that women's reproductive roles do not come in the way of their economic and employment security.

The conclusions of the 98th International Labour Conference in June 2009 have also acknowledged that strengthened Maternity protection is key to gender equality at work and therefore called on the ILO to promote the ratification and application of Convention No.183 and to "[...] compile and disseminate good practices on parental leave and paternity and Maternity leave and benefits, and provide technical support to governments to develop effective laws and policies" (ILO, 2010).

### **Conventions on Maternity**

It was during the first International Labour Conference (ILC) in 1919 that the first Convention on Maternity protection (Convention No. 3) was adopted. This Convention was followed by two other conventions: Convention No. 103 in 1952 and Convention No.183 in 2000, which progressively

expanded the scope and entitlements of Maternity protection at work.

As regards, ratification of conventions pertaining to maternity protection, Convention No. 3 has been ratified by 30 member States and Convention No. 103 also by 30 member States. Convention No. 183 came into force on 7 February 2002 and, as of February 2012, has been ratified by 23 member states namely : Albania, Austria, Azerbaijan, Benin, Bosnia and Herzegovina, Belarus, Belize, Bulgaria, Cuba, Cyprus, Hungary, Italy, Latvia, Lithuania, Luxembourg, Mali, Republic of Moldova, Morocco, Netherlands, Romania, Serbia, Slovakia and Slovenia. In all, 63 countries are now party to at least one Maternity protection Convention. The influence of the Maternity protection Conventions extends well beyond ratifications; virtually every country around the world has adopted some type of Maternity protection legislation.

### **Origin and Development of Maternity Benefit Schemes in India**

At the time when the Maternity Protection Convention was adopted by the ILO in 1919, it was suggested that the countries represented should carry out inquiries into the question of maternity benefits for women workers. The conference, therefore, adopted a special resolution requesting the Indian Government to make a study of the question of maternity benefits and to submit a report to the text conference.

Upon this the Government of India consulted the provincial Governments and employers etc. and submitted a report to the International Labour conference held in 1921. The report prescribed that "legislation upon the subject would be premature, but an attempt would be made to induce the principal organized industries to start voluntary benefit scheme by assisting them financially". (International Labour Code, Vol.II, 1952, P.743). Therefore, the Government of India expressed its inability to adopt the Convention.

The reasons given were (a) the impossibility of enforcing the compulsory periods of absence from work in case of the pregnant women workers (b) the shortage of medical women who would be necessary for issuing medical certificates, (c) the impossibility of compulsory contribution schemes to provide benefits and (d) the absence of need for provision regarding nursing periods and for the protection of women from loss of employment during pregnancy (ILO. Labour Legislation in India, 1952, p.98.).

However, the provincial Governments continued to persuade the employers to take unilateral decision for the adoption of the ILO Conventions. In the meanwhile, a private member Mr. N.M. Joshi (Mr. N. M. Joshi was a Trade Union Leader and general secretary to the All India Trade Union Congress. He Was instrumental in getting the Trade Unions Act, 1926 passed.), who had attended as worker's delegate the International Labour Conference at which the Maternity Protection

Convention was adopted, introduced a Maternity Bill in the Central Legislature. The Bill seeks to make statutory provisions for maternity benefit for women employed in factories and mines, and paying them cash benefits during confinement. The Bill could not be passed because of lack of public support, impossibility of supervising the scheme, low availability of women doctors and because of migratory character of women workers (Srivastava, S.C. social Security and Labour Laws. Lucknow, Eastern Book Co., 1985, p.262.). There was also a feeling that the passing of the legislation would harm the employment prospects of women.

Despite the negative attitude of the Central Government, the state Governments considered the feasibility of maternity benefit legislations in India. And as such, the maternity benefit legislations took their roots with the passing of the Bombay Maternity Benefit Act, 1929. Under the Act, every woman worker who has worked for nine months in a factory is entitled to maternity benefit on the production of a medical certificate. She is entitled to leave of absence for four weeks. Maternity benefit was to be paid to her at the rate of 8 annas per day (8 annas are equal to 50 paise according to today's currency). This was the first maternity benefit legislation in India. This was followed by enactment of a similar law by the Central Provinces and Berar in 1930.

Another milestone in the field of maternity benefit was reached with the appointment of the Royal Commission on Labour in 1929. The Commission, inter alia, recommended that maternity benefit legislation on the lines of Bombay Maternity Benefit Act, 1929 should be enacted in other provinces. The commission also recommended that the maternity benefit should be non-contributory and in line with the recommendations a number of provinces passed their own maternity benefit legislations. Madras and Ajmer passed this legislation in 1934, Delhi in 1937, U.P. in 1938, Bengal and Sind in 1939, Hyderabad in 1942, Punjab in 1943, Assam in 1944 and Bihar in 1945. In Bihar the Maternity Benefit Act, was re-enacted in 1947 with certain changes. Many other states passed these legislations a bit later, during the Post-Constitution Period. This application of these Acts has been reviewed from time to time and necessary modifications have been introduced.

However, the Central Government did not lag behind. It took the clue from the provincial governments and passed the maternity benefit legislations. The first central enactment in the sphere was the Mines Maternity Benefit Act, 1941. This Act was of a very limited application as it was applicable only in mines.

However, despite such steps the commitment to providing maternity protection remained low. The Report by the Bhore Committee (Report of the Health Survey and Development Committee (1946): Vol. I - Survey, New Delhi: Government of India Press) pointed out to the inadequate availability of crèche facilities in several

industries and poor implementation of Maternity Benefit provisions by various Union Provinces of pre-independent India.

After India attained Independence, the constitution was formulated and adopted in 1950. The constitution, which is the foundation and the guiding principle of all future legislations, contains specific provision, providing rights and privilege to the women. These right and privileges are contained in the Fundamental rights and Directive principles of the state policy.

### **Maternity Benefit and the Indian Constitution**

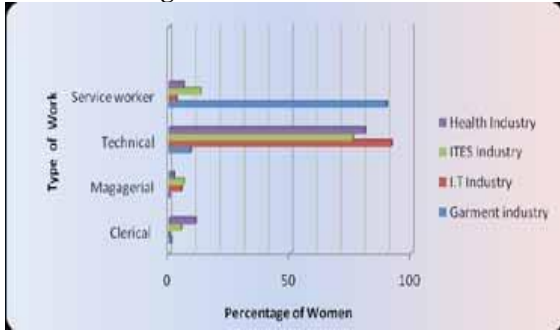
These rights and privileges are: right to equality in law (Article 14 of the Constitution of India), right to social equality (Id., Article 15.), right to social equality in employment (Id., Article 16.), right to protective discriminations (Id., Article 15 (3).) ,right against exploitations of women (Id., Article 23.), right to adequate means of livelihood (Id., Article 39 (a).), right to equal pay for equal work (Id., Article 39 (d).), right that the health and strength of workers both men and women are not abused(Id., Article 39 (e).), right to just and humane conditions of work and maternity relief (Id., Article 42.), and right to improvement in employment opportunities and conditions of the working women (Id., Article 46.).

Article 42, a directive principle of State Policy, states that "The State shall make provision for securing just and humane conditions of work and for maternity relief." Art. 21, Right to Life and Personal Liberty is not merely a right to protect one's body but the guarantee under this provision contemplates a larger scope. Right to Life means the right to lead meaningful, complete and dignified life. It does not have restricted meaning. It is something more than surviving or animal existence. The meaning of the word life cannot be narrowed down and it will be available not only to every citizen of the country. Therefore, the State must guarantee to a pregnant working woman all the facilities and assistance that she requires while protecting her employment as well as her own and her child's health. The measures and provisions which are made in the Post-Constitution Period for women workers are mostly based on these constitutional provisions.

### **Career Interruptions Among Employed Women Post Maternity**

Women's growing participation in the labour force and the transformation experienced by families, demographic trends and labour market have decisively changed the relationship between work and family life. Today, workers, particularly women workers, face enormous tension when trying to reconcile both worlds. Within this framework we now endeavor to explore the experiences of women workforce employed in female concentrated sectors of IT, ITES, Health and Garments.

**Figure 1: Nature of Work**

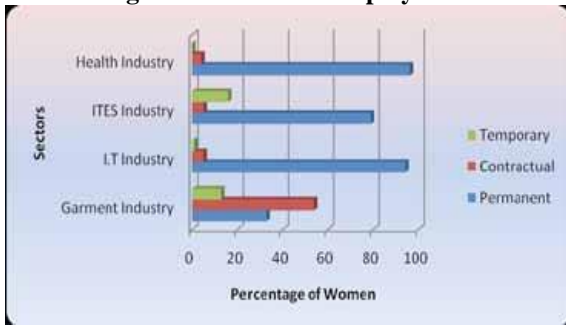


**Nature of Work**

Figure 1 provides information on the nature of employment. In the garment industry, it was found maximum (90 percent) workers were engaged as service worker (thread cutting, bundling).

- In IT 92% of the women were found to be engrossed in technical jobs.
- In ITES, technical sector was found to be immersed by 76 percent of women.
- In Health Industry, 81 percent of the women were found to be engaged in technical related activities.

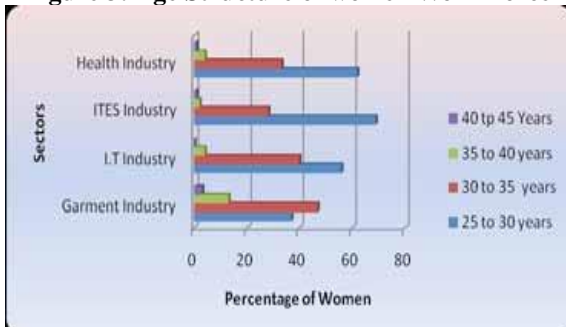
**Figure 2: Status of Employment**



**Status of Employment**

As seen in Figure 2 except Garment Industry, majority of the women engaged in IT, ITES and Health Industry were found to be absorbed in project - based permanent position (In Garment industry contractor played an important role in providing employment).

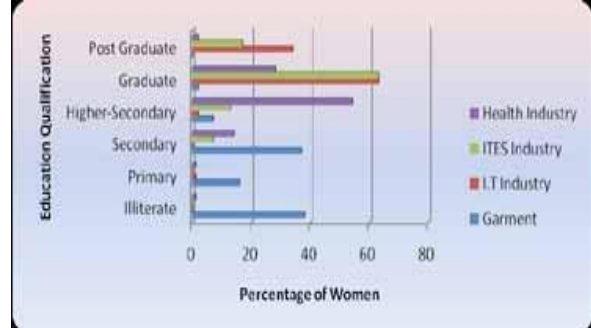
**Figure 3: Age Structure of women Work Force**



**Age Structure of the Work Force**

In Garment sector maximum (47%) of women were found to be in the age group of 30-35 years. In IT, ITES and Health industry maximum percentage (56%, 69% & 62% respectively) of women were found to be within in the age bracket of 25-30 years.

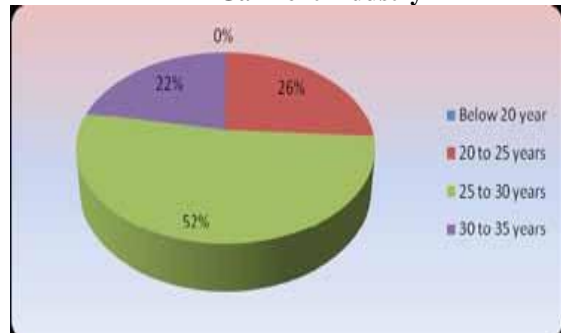
**Figure 4: Education Qualifications**



**Education Qualification of the Workers**

In Garment industry, 38 percent of the women never attend the formal schooling, while in IT and ITES, maximum percentage (63 percent) of women 63% were found to be graduate. In Hospital industry majority of the workers interviewed (54 percent) were found to be diploma holders in nursing/lab technician i.e. post higher secondary qualification.

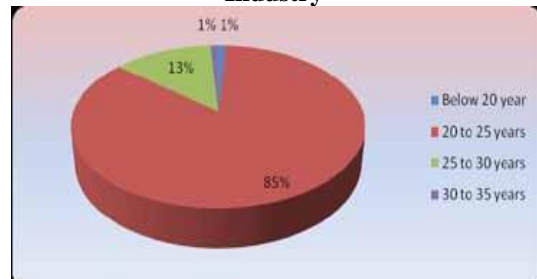
**Figure 5: (A) Age of Entry in Labour Market in Garment industry**



**Age of Entry to the Labour Market**

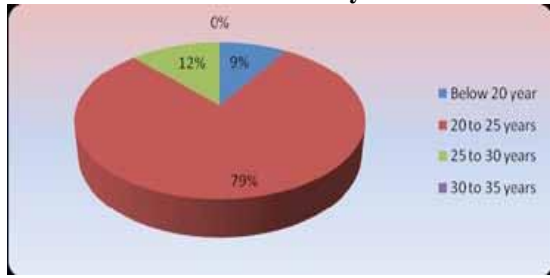
In the garment sector, maximum women enter in the age group of 25-30 years.

**Figure 5 (B): Age of Entry in Labour Market in IT Industry**



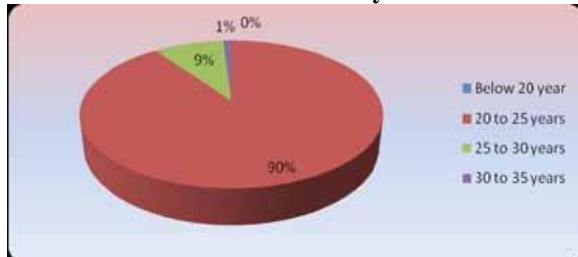
In the IT sector, maximum women enter in the age group of 20-25 years.

**Figure 5 (C): Age of Entry in Labour Market in ITES Industry**



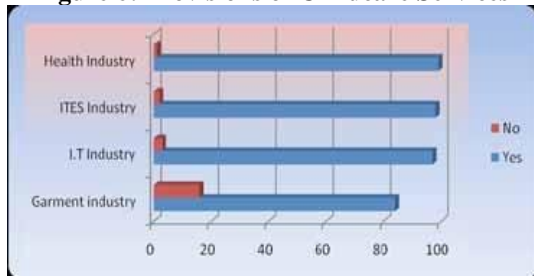
In the ITES sector, maximum women enter in the age group of 20-25 years.

**Figure 5 (D): Age of Entry in Labour Market in Health Industry**



In the Health sector, maximum women enter in the age group of 20-25 years. Age of the entry to the garment sector is higher compared to other sectors surveyed, reason being in the garment sector majority of the women enter the labour market post maternity.

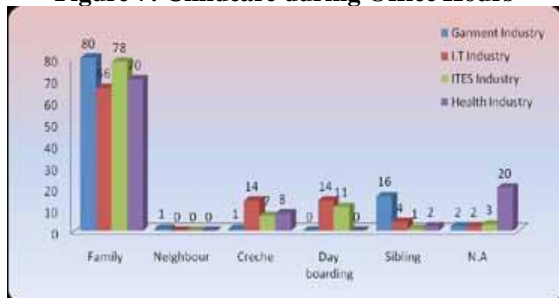
**Figure 6: Provisions of Childcare Services**



**Provision of Childcare Services**

Only 16 percent of women in garment industry; 3 percent in IT; 2 percent in ITES and 1 percent in the health industry reported that they have the provision of child care facility provided by the employer.

**Figure 7: Childcare during Office Hours**



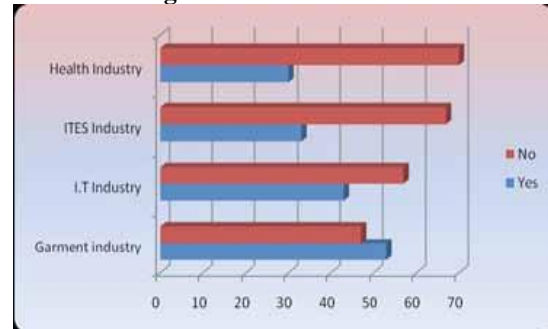
**Childcare during Office Hours**

Family continues to be the primary care taker of

kids even if they are in crèches or day boarding because the office timing and day boarding timing were clashing. Crèche was found to be helpful only to those organisations, which provided crèche facility in the office premises.

Few garment sectors units had crèche facility. In Garment sector sibling played the role of baby sitter. In others, family member particularly grandparents/husband assisted by maids (by adjusting the working hours) played the role of baby sitter when women were in office.

**Figure 8: Shift in the Job**

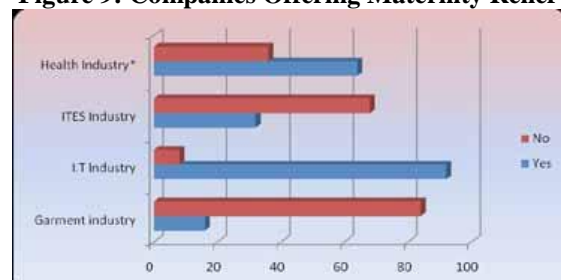


**Shift in the Job**

Figure 8 shows that 53 percent of the women workers employed in the garments sector were found to be in same company despite being in job through contractors post maternity. The reason for this was found to be that the maximum percentage of women 53% working post maternity were living in close proximity to company, which had crèche facility in the premise; were working for livelihood to meet both end meet and their elder daughter looked after the younger one. These women had strong network with contractors. They did not have any requisite skills to bargain so well and were dependant on network only.

In IT, ITES and Health industry, the view was different. Those who shifted the job (43 percent in IT, 33 percent in ITES and 30 percent in Health Industry) prefer to upgrade the required skills while on child care break. With plenty of options around and immense job opportunities in hand, women do not believe in staying with a single company for long, especially because they are aware of the fact that if they have requisite skills, job opportunities arise almost on a daily basis. But it was also found that majority of women are delaying their marriage and subsequent motherhood for availing this break

**Figure 9: Companies Offering Maternity Relief**





*\*in Health Industry the percentage of women employment was found to be quite high. Among the married women, 64 percent reported that though they don't have maternity leave provision but their job was secure and they usually return within 3 months to join. The job was secure because demand for trained nurses is greater than their availability.*

**Companies Offering Maternity Leave**

Companies providing maternity relief are shown in Figure 9. It is clear that many companies don't have provision of maternity leave in practice despite having a law on maternity leave. Proportion of women in Health industry is showing the higher percentage. It was found that there is no provision of maternity leave in health industry, the women were not paid any salary during the leave availed. In order to obtain job security and concession in the delivery treatment it was a mutual agreement between the employer and the employee.

It was found that IT /ITES provide 84 days paid maternity leave but they do not provide any childcare facility. Companies providing maternity leave also provide paternity leave. However the percentage of men availing paternity leave was quite negligible.

It is also important to point out here that the rate of the normal delivery is declining (due to late motherhood). Therefore, need is felt for longer maternity leave. Garment sector abides ESI Scheme and few companies also have crèche facility. Work force engaged in the Hospitals was reluctant to provide information on this. However the women interviewed said their job was secure as they return to same work post maternity break. To be specific they were not provided any cash benefits during post maternity phase, however the hospitals bear the cost of medicines and delivery for most of the women.

**Figure 10: Duration of Career Break among Married Women**

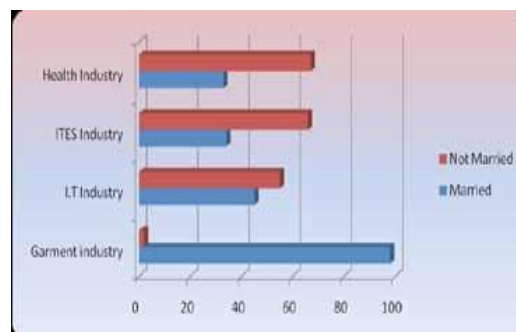


**Duration of Career Break among Married Women**

Most of the women in IT/ITES and Hospitals were unmarried. Figure 3.10 points the career breaks among the respondents. It was found very few women have carrier break in Garment sector as most of them join the labour market post maternity. Most of the respondent took the break within the range between 1-6 months. In IT, 21 percent of women availed the break between 1 to 6 months, 9 percent took the break between 6 month – 1 year and 11

percent each took break of 1 to 2 years. In ITES, 10 percent women took the break between 1 to 6 months, 18 percent of them women took the break between 6 month to 1 year and 6 percent took the break in-between 1 to 2 years. In hospitals, 12 percent women availed the break between 1 to 6 months and 13 percent took the break between 6 months to 1 year.

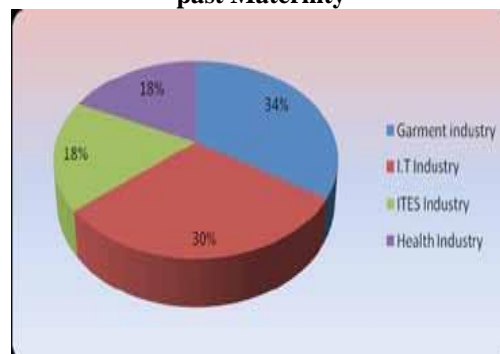
**Figure 11: Marital Status of Women Entering Labour Market**



**Marital Status**

Majority of women in IT, ITES and Hospitals were found to be not married. It was reported that most of the women in IT/ITES/Hospital industry are postponing their marriage age and delaying the motherhood, just because they feel that arranging proper childcare facility is still their responsibility and not the employers.

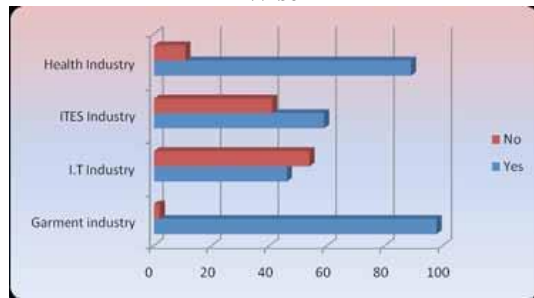
**Figure 12: Women Re-entering Labour Market past Maternity**



**Women Re-entry to the Labour Market**

The above figure 12 depicts the percentage of married women re-entering the labour market post maternity. The highest percentage was reported among ITES, followed by IT, Hospitals and Garment sector. The women in IT and ITES are in strong financial position, have option of flexible timings and also better skills comparison to women in hospitals and garments. Therefore, they were in the position to afford private crèches. But at the same time need is felt to have longer duration of maternity leave and crèche facilities in the office premise itself.

**Figure 13: Return to the Same Position: Industry Wise**



**Return to the same position or one with higher responsibilities after taking leave**

It is clear from the Figure 13 that only 59 percent of women return to the same position post maternity in ITES industry while in the Health industry 89% return to the same position post maternity. In IT Industry, only 46 percent of women return to the same position after availing maternity benefits and maternity period. In garment sector, 98 percent of women return to the same position after availing maternity benefits and maternity period.

It is implicit from figure 12 that the re-entry to the labour market to the same position among the women who have re-entered the labour market is found to be highest in the Garment industry.

**Major Findings in Sectors Studied**

**Garments Sectors**

- Maximum women married
- Kids grown up
- Sibling looking after younger sibling
- Few kids stay at place of origin
- Couple working in shifts for child care

**IT/ITES**

- Majority of women depend on private child care institutions
- Beside private child care, grandparent’s availability is an added advantage
- Child care better with availability of grandparents because grandparents are sentimentally attached to children

**Hospital Industry**

- Most of women unmarried
- Those unmarried are dependent on family/friend at the place of origin
- Work in shifts to the look after the kids

It was found that mainly the family members facilitate the women to participate in the labour market post maternity. Ample child care facilities should be the area of concern for the employer. Push factor (especially in Garment sector) plays a vital role in entry to the Labour market post maternity. Skill and availability of affordable quality crèches play an important role in entry to Labour market post maternity. Beside this, minimum six months leave is required in private sector so that breastfeeding period

is not compromised. This will encourage women workers physically, mentally and emotionally strong to take up the job.

**Summing Up**

The progressive entry of female labour force has in turn necessitated to advance toward reconciling work life balance through social co-responsibility: redistributing care responsibilities between men and women, as well as among the family, the State, the market and society as a whole (ILO & UNDP, 2009).

As a region, India faces a paradigm change as the result of the growing diversity of family organisations, the transformation of gender roles and the increasing proportion of women joining the labour market. For most of the 20th century, productive and reproductive works were organised according to rigid gender roles that have become inappropriate in today’s world. As a result, the interplay between work and family – both central to people’s lives – has also changed radically. This has brought enormous tension, pulled even tauter by how work is presently organised (ILO & UNDP, 2009).

Many people still see these conflicts between work and family as a women’s problem, reflecting traditional views on each sex’s role within society. In the past, people did housework along with other activities directly related to production. With industrialisation, domestic work and production became separated and a more rigid, gender-based division of labour prevailed. Thus, women mainly took charge of reproductive duties in the home, while men moved on to fulfill productive work outside the home, for which they began to receive payment.

Cultural constructs transformed this rigid sexual division of labour into a “natural” specialisation. Moreover, women’s role as wife and mother was mystified and their ability to work full time in the home became a status symbol, generating a cult to domesticity in which the family and the home became the preserves for affection and child raising, under women’s supervision. These rationalised two beliefs: first, that unpaid work in the home was women’s work and second, that it wasn’t really work at all (Barker and Feiner, 2004).

Nonetheless, women’s importance to the economy never ceased, thanks not only to their daily contribution in terms of works in the home (cooking, washing, health care and nutrition of family members), but also their productive work (whether paid or unpaid) and its importance to family survival strategies and welfare.

This construct of female domesticity has been more cultural than real, but it is so well established that it has inspired public policies, labour legislation among them, social practices, and family negotiations. Two myths persist in the region, as powerful perceptions that are at the base of the tensions between work and family: the first requires that women take care of family and children as their first priority, while the second considers them a secondary labour force, whose income complements

that of men.

The analysis shows that kin based care is still the most preferred and widely used childcare arrangement of working mothers in India. This role of grandparents as the preferred choice for childcare continues to be strong.

### Suggestions & Recommendations

A woman in her role as worker requires certain support services from family, society, employer and the State. This will help her fulfill her reproductive role without loss to her children and motherhood and can contribute to the society as productive worker. This requires adequate childcare and maternity support at Enforcement level. Since majority of laws are applicable to organised sectors that are to some extent followed by IT, ITES and this study reveals majority of women workers are engaged in Garment and Health sectors. Therefore, the study recommends taking adequate measures regarding the compliance and enforcement of these laws.

Women themselves are not aware of childcare and maternity related provisions in our legal structure. Therefore, the need is felt that in this direction by the NGO, trade unions and training Institutes to play an important role in raising awareness.

Most of the women workers in private sector don't know about existence of legal provisions for them and their children, because they are illiterate and uneducated. Pre-condition for availing any benefit necessarily requires its knowledge. Therefore, the first and dire necessity is that women

workers ought to be disseminated information about legal provisions and their enforcement.

For this purpose printed literature should be distributed among them and at work place at conspicuous site they should be depicted in form of slogans. Electronic and print media should highlight such provisions. Workshops and conferences etc. should be organised in which workers, trade union leaders, NGOs, employers and officers enforcing labour laws should be invited to participate. Reports of such workshop and conference should be given wide publicity.

WHO recommends initiating breast feedings as early as possible and maintaining it exclusively for four to six month of life and its continuance with supplementary food for at least up to two years for infants. The study reveals very few percentages of women in IT, ITES and Health sector took break for more than six month. This means the breast feeding time for infants has declined drastically. Adequate measures need to be taken in this direction, especially while framing the policy to provide crèche facility for the infant in the office premises of the office. This would promote breast feeding for infants. For the benefits of the mothers of school going children, school timing and office timing should be in symmetry or school should work as day boarding.

It has been found women have been postponing their marriage and motherhood due to inadequate childcare facilities. In order to reduce to career related break, if any, among women workers, amendment in Maternity Benefit Act and Provisions for child care is required in the sectors studied.

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## Small States vs. Large States: A Theoretical and Empirical Report on Indian States

Ankit Bhatia<sup>1</sup>, Narayan Chandra Nayak<sup>2</sup> and Pragya Jha<sup>3</sup>

### Abstract

*The protagonist in this assessment is played by the state, and especially the size of the state, which is dealt with major concern in today's scenario once again with the oncoming demand for division of Andhra Pradesh, and Uttar Pradesh. All over these pages one will see how from the time of Mahajanpads till day, the politics of division by local leaders for better gains have resulted in splitting the throats of nationalism. Empirical and comparative analysis of Indian states will reveal that the progress of the state does not depend on how big or small, it is, but on how effective the administration and governance is. There are always one or more hidden factors contributing towards growth and development and if the smaller the state, the better its future, had been the only case, states would have vanished to become the larger cities of a country.*

*Keywords: Governance, Growth, Institutions, Development, Natural Resources  
JEL Classification H11, P28*

### Introduction

#### Part 1: History behind the creation of states in India

**The Ancient era states in India:** At the time of the Ancient era possibly described as the period of history, the concept of state did exist but only in the name of monarch or commonly called "mahajanpads". These were the area of the state in which due to the transition from 'tribe' to 'monarchy', they lost the essential democratic pattern but had the idea of government through an assembly. (Upinder Singh 2008). Although various reference about many 'janapads', small independently ruled country had been made in the Valmiki Ramayana (Ramayana 4.43), Mahabharata (MBH 3.187.28-30), Manuscript (the Hindu law book), Kautiliya's Arthashastra (11.1.1-4) etc. but the ancient Anguttara Nikaya (Buddhist text) precisely mentioned that there were total sixteen great kingdoms or republics (Solasa Mahajanapadas) which were in existence before the time of Buddhain all over India, the most important were Ananti, Kosala and Magadha.

Economically these states were independent and adopted the functionality of a country, where they did not interfere in other Mahajanpad's affairs. The relations fluctuated between them from time to time but the marriages were an important part of

inter-state alliances. (Upinder Singh 2008) The most important reason of economic prosperity was the trade, not only internal but also but also foreign. People were primarily dependent on agriculture and land related activities for livelihood.

**Annexation and transformation of states into empires:** The sixth century BC is often regarded as a major turning point in early Indian history. In the mid ancient era, these independent kingdoms fought with each other to showcase their supremacy but eventually Magadha came at the top. However over the period of two centuries with the rise and fall of Shishunaga and Nanda dynasty, a big empire was formed due to the administrative and political might of the rulers like Ashoka, Kanishka etc. who annexed all these independent kingdoms, Mahajanpads became the states to these empire for effective administration (R.S. Chaurasia 2008).

This is perhaps the earliest time in the Indian history when the idea of states for administrative purpose came into existence as mighty rulers divided their empire to form smaller provinces for better governance and administration. However some of the earlier Mahajanpadas retained their position as independent states and some new states were also formed.

As the mighty rulers were conquering and the country was expanding, more states of Pakistan, Afghanistan, Iran and China (all present names) joined these empires resulting in widening of the administrative area. The political advisers of the kings advised rulers to collect the taxes from people for war and treasury. Thus the idea of collecting taxes began which was followed throughout the history and is followed even today for economic prosperity and development. The spiritual transformation of Ashoka after the 'Kalinga war' led him to adopt the motto of "Dharamvijay" from "Digvijay" (D.N. Jha 1984) which resulted in adoption of the non-violence policy, consequently military expenditures were reduced and the treasury was used for the development of the empires.

**The Mughal era states in India:** While the present India gives contribution of the idea of the formation of states i.e. forming one single country with provinces to the ancient era, the basic idea of running the country holds back to the Mughals which was also continued by the British. The states during the Mughal period could be classified as Successor States, Independent States and also some new states emerged during this period. Successor states were directly controlled by the Mughal administration e.g. Awadh (oudh), Bengal, etc. while Independent states were those which emerged out of the successor states due to weak governance and political disturbances e.g. Mysore, Kerala, etc. Some new states emerged by the rebels of Indian origin who opposed Mughal policies e.g. Maratha, Sikh states, Jat states etc. (Barbara Metcalf and Thomas Metcalf 2006)

**How poor economic condition lead to the arrival of British monopoly in India:** Popularly known as the dark age of Indian economy, the later Mughals failed and as a result of this Indian industry

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and commerce buffered. The widening of economic disparity, stubbornness of rulers, inability of unity and lack of the knowledge of the use of resources lead to a poorer economy and British people saw it as an opportunity to form a base in India.

**How history condemns large States:** At the time of Arungzeb (Mughals), India had a very large area to govern due to the continuous expansion of empire because of many annexations by his predecessors. While they did not have to face words like weak governance, at his time the empire had become vast and unwieldy to be ruled by one single ruler.

The administration became weak and this lead to internal conflicts of States, for regional expansion, forming more and more State, all weakly governed in the absence of one clear policy or method of rule. This lead to political disaffection like taxes were not imposed properly, in one place too much tax was imposed while in another no tax was imposed. There was no one to check the implementation of economic policies, thus hampering the economic stability of the empire.

People suffered universally, threw their local leaders, much attention was on political stability than on economic prosperity. These leaders were busy in expansion of state in search of more votes and the states were widening while the economic conditions were weakening. The resources were being eaten by Zamindars, Jagirdars, resulting in the first mass starting of corrupted mind in the history leading to widening of rich poor gap.

Present resources were not distributed in proper chunks, seeking this particular event, the British monopoly increased. They overthrew the Mughals by the support of Jagirdars in the promise of separate State for them to rule and widening the present states of Oudh and Bengal. After the complete monopoly, British forgot the promises and defeated the local rulers which lead to their complete expansion in India. All this was the result of poor governance and administration.

**The British era of states in India:** The above assessment plays with this stage of the Britishness, that how the coming of the Britons can be attributed to the non-properly governed large states, inability of administration and political upsurge, poor performance of economy due to size based political votes that happened at that time, that happens till date.

So was it the size of the states in India or the weak governance in these states that changed the entire historical composition and prevailed poor economical conditions which lead to the arrival of British monopoly in the name of greater power and jobs to the local rulers? So large states are not favorable in Indian context?

Actually the British redefined borders, for their own gains and formed new states. They got hold over India in the promise of expansion of states as mentioned by getting support of locals but in actual they further divided Indian states into larger numbers

and formed smaller states, this may seem ironical, but it's the truth. (J.L. Mehta 2005)

During British rule there were 8 major provinces which were governed by a Governor and there were minor provinces administered by chief governor. Along with this there were 565 princely states under an indigenous rule and in direct control by British. During the partition of Bengal, east Bengal was reunited with Bengal and three new provinces were created in the east along with Assam namely Bengal, Bihar and Orissa.

So British expanded in the name of promise of large state, actually divided them further after full expansion and then took away the economic affairs, military power, foreign affairs under their control and disrupted everything. Then they divided the only left cultural sentiments by re-increasing Bengal and then partitioning it into three smaller states. All this just to establish in India, the British raj is the significant example of how states are divided and re-united for the selfish gains of power by political players.

**Economic policy that led to onslaughts of British era (Freedom of India):** All British policies were aimed at financial benefits of the company. The ultimate burden of taxation was on the peasants. British divided Bengal in the name of administration but it was actually the experiment in Bengal that ruined the agriculture and one third of the population was pushed by it. The bullish division of states was done as per high yielding areas which were sucked by the British economy like Bombay and Bengal while other state areas were left unblended. As a result, on one hand the export of Indian manufactured goods to Britain stopped, India started importing large quantities of manufactured goods. Indian had to pay back for imports therefore raw material which could feed British industries won and it became the most important items of export to Britain. (Barbara D. Metcalf, Thomas R. Metcalf 2001)

The areas like Jharkhand (Bihar province), Karnataka (part of Mysore, Hyderabad and Madras province) did not prosper despite of scornfulness of resources as no major economic development took place here (not even after colonial period), as they were exploited hardly even after continuous state organizations.

**Formation of state in the independent India:** Even before independence the Government of India Act, 1935 had proposed a federation of India including the native states. The Nehru committee and the statutory committee of the government had suggested it and the native rulers also welcomed the proposals. But this could not come into effect due to the beginning of Second World War. Several plans like the Wavell Plan of 1945, Cripps Mission of 1942, Cabinet Mission Plan 1956, (J.L. Mehta 2005) all suggested that the British paramountcy would lapse after the independence of India and the native state would be free to join hands with either India or Pakistan (now Pakistan became one other country).

On August 15, 1947, an interim government was formed in India in which Sardar Vallabh Bhai Patel became the Home Minister. He attempted the

integration of the native state. The very small states were merged with the bigger states and a few joined hands with Pakistan. The State of Hyderabad and Kashmir attempted to remain independent, first due to the Nawaab's weak intensions and the later due to the fear of overthrow of a Hindu ruler in a Muslim dominated state. Peace seemed a problem post independence period due to the interference of Pakistan in Kashmir.

**Making Of new states and political interaction after 1950:** The Constitution of India in 1950 distinguished between 4 main types of states, namely Part A, Part B, part C and Part D based on the administrative setup but under the Seventh Amendment Act, the distinction was abolished as the task was taken afresh as many things were being thought of, so these Part A, Part B states were now classified only as states? But why?

Indians complex diversity is legendary. It consists of a large number of linguistic, cultural, geographical and economical zones. As a result of this diversity, leaders of the national movement realized that the states in India have to be built on a very strong foundation. The language problem was the most divisive issue in the first 20 years of independence. The Indian constitution recognized 22 major languages, including English and Sanskrit in addition to these there is a myriad of languages spoken by the tribal. The model that independent India adopted was neither that of assimilation into nor of suppression of any of the diversities. Thus the only feasible option was to accept and live with this multiplicity in a manner that conflicting situations do not emerge. This problem posed to national consolidation by linguistic diversity and led to linguistic reorganization of the states.

Political movements for the creation of new, linguistic-based states developed around India in the years after independence. The movement to create a Telugu-speaking state out of the northern portion of Madras State gathered strength in the years after independence, and in 1953, the 11 northern, Telugu-speaking districts of Madras State became the new State of Andhra. (Ramchandra Guha 2008)

**The re-organization of state on linguistic lines:** In December 1953, Prime Minister Jawahar Lal Nehru appointed the States Re-organization Commission to prepare for the creation of states on linguistic lines<sup>1</sup>. This commission (also known as Fazal Ali Commission) created a report in 1955 recommending the re-organization of India's states. (The States Reorganization Act 1956)

With the State Re-organization Act 1956, linguistic basis became the benchmark for state creation. Although it also took into consideration the size and resources available in the region but still it could not part from severe criticism.

Ambedkar's note, "Thoughts on Linguistic States" begins by pointing out "*The Commission evidently thinks that the size of a state is a matter of no consequence and that the equality in the size of the status constituting a federation is a matter of no moment. This is the first and the most terrible*

*error cost which the commission has committed. If not rectified in time, it will indeed be a great deal.*"

The re-organization of the state on the basic of language, a major aspect of national consolidation and integration, came to the force almost immediately after independence. Therefore the boundaries of the provinces in pre 1947 had to be drawn in haphazard manner unlike United State of America and several other European nations where decade long economic planning lead to creation of states. Indian leaders thought that democracy can become real and administration can be effective and efficient to the common people only when it is conducted through the language that people can understand and this was possible only when a state is formed on the basic of such predominant language. (Nehru and linguistic States, 1955)

**Combined opposition and formation of the new states from these existing states after re-organization:** Government did not oppose any popular demand for creation of new states to appease the notaries of the vote banks of Congress, and people continued to oppose. The creation of a separate Andhra state for the Telugu speaking people out of the Madras Presidency, Tamil Nadu for Tamil Speaking people, success of the struggle encouraged people to agitate henceforth and as a result of that we can witness many examples of reorganizations post 1956.

Had these demands and the demand for the creation of Nagaland and Mizoram not been accepted by the then government, today's agitation for more states would have not taken place. This agitation of separation of states by the people is mainly due to the reason that even after re-organizations time to time new demands were encouraged and accepted by the government. People after 50 years of organization would have become used to it and learned to unite as they would have known that any such demand of further separation will not be tolerated by the government (Table 1 in Annexure shows Proposed New States under the States Reorganization Act 1956).

**Internal Assessment 2:** History sheers that how the concept of the state started, all the notings mentioned above show that how the country of India at the time of Ashoka, Harsha and Kanishka, the best rulers of ancient India divided it in a maximum of four to five zones for better administration, which had a local head yet they were responsible to the rulers and how India prospered and came to be known as the golden bird due to ample resources and economic development but we also find how the poor performance and weakening of the later Mughals led to the coming of Britons.

Many local leaders were not loyal to the central leader, delved people to separate identity and therefore different languages emerged, this was followed by the Indian Acts that failed to understand that if the country of India would be divided on lines of linguism, prosperity would not follow as this would create another set of local leaders. History has

been an example that whenever the centre has weakened, be it the time of the Pushyamitra Singh or Aurangzeb, new languages of sentiments and identity bloomed in the presence of local so called masters and that this had nothing to do with the size of the state or country.

When the diversity of India was recognized the constitution should not have been copied as India was a sole bird with so many colors (identity) in its feathers. Therefore India should not have been a union of states of linguistic demand and shattered voices as nobody was satisfied and states are playing with its borders even now, and are a continuous striker in any important issue. When a local leader promise to break the state in different sizes, even now sees only a cadre of linguism and withholds the division on cultural lines rather for developmental procedures to be carried out and an able front runner example is Uttar Pradesh where the proposals are being mistaken to be done as a mistake that has been happening from the time of British. While the later did it for selfish monopolistic gains, the former are doing it for a selfish seat in politics of power.

Therefore the size of the state has a little to do with its growth and development, as these are determined primarily by the administrative abilities of the government. The formation of a state if at all is done on cultural setbacks should be done for putting forth the consideration of development and growth. (State boundaries changed over the years are shown in table 2, given in annexure).

## **Part 2: Theoretical Analysis of the 19 Major Indian States on three major critical Macroeconomic Variables**

In the case of India we observe that the states have high rank correlation coefficient<sup>1</sup> between the area (in sq. km) and the population base. On an average the states with large area have large population base and vice versa but the density variation is huge across the states mainly because of geographical and socio-economic factors. We consider 19 major Indian states and divide them into three groups on the basis of area namely large, medium and small size states. We shall analysis them on three basic macroeconomic variables for now namely Gross State Domestic Product (GSDP), Per Capita State Income (PCSI) and Human Development Index (HDI) on the basis of cross state comparative rank analysis<sup>2</sup>.

So as to begin my analysis of understanding the impact of state size on its growth and development, I take the hypothesis that the state with large area shall have large GSDP. In general large area refers to larger resource base and large resource base shall provide with opportunity to have better production of outputs but this is subjected to exceptions due to geographical factors, institutional failure (Resource curse hypothesis) etc. The exploitation of these resources for development and growth is the duty of state governments. We on the basis of three years (2005, 2007 and 2009) average GSDP<sup>3</sup> of major 19 Indian states observe that in general the relationship of GSDP with state size is

positive but there are few exceptions such as Haryana, Kerala and Tamil Nadu have performed better while Madhya Pradesh, Chhattisgarh, Assam and Jharkhand have poorly performed, compared to the theoretical expectations.

The better performance of the states can be attributed to good administration, effective enforcement of property rights, economic freedom, better resource utilization policies etc. of the state government while the poor performances of the states have various reasons which need to be analysed on case to case basis. The geographical deserts in Rajasthan, political instability in Jharkhand, negative impact of bifurcation on Madhya Pradesh and the militancy problem in Assam are the foremost reasons for poor show of these states and all these regional factors have lead to great variation of results from the theoretical expectations. We can say that area of the state is not the only variable for the growth determination, there are always some other factors causing the variations.

The cross state analysis of three years (2005, 2007 and 2009) average per capita state income (PCSI) reveals that the large size states have secured poor comparative rankings except the case of Maharashtra which has topped the list despite having the second largest population base in the country. The average GSDP of Maharashtra is almost twice that of second rank Uttar Pradesh, showcasing the efficient resource utilisation and production capacities of the state. The states like UP and Andhra have good ranking in GSDP but they fell back in the case of per capita state income largely because of very large population base and the inability of government\* to utilise its land and labour resources efficiently.

The performance of small states, Gujarat and Tamil Nadu is exceptionally well because of the well-focussed strategies and policies of the state governments, pointing at efficient utilisation of available land and labour resources. On the other hand Bihar, Jharkhand and Assam cases had been very disappointing primarily because of large population base and poor economic performance resulting in weak GSDP base causing the per capita state incomes to fall drastically. The exceptional performances of Maharashtra and Bihar tells that if the state wishes then it can leave all other behind or fall back than others, thus size is again not the sole factor for determining the economic growth results.

The analysis of third macroeconomic indicator, HDI<sup>4</sup> reveals that small states have topped the list while the large states have lagged behind, Madhya Pradesh being the worst performer and Maharashtra stood second in development indicator too showing the independence of state size to its development status. In the medium size states again Bihar, Orissa and Jharkhand are the worst performers due to poor socio economic conditions of the people in these states. This analysis of development indicator has again pointed out that the size of the state doesn't ensure about development level of its people. It is just that small size of state helps authorities to focus better on strategies and



administrative processes but at the same time large size states can also perform equally well depending on the administrative capacities of respective state government.

The cross state study of GSDP, PCSI and HDI shows that Indian states have shown great degree of variation in the performance from the theoretical expectations. With Maharashtra, Kerala out performing in all three indicators and Bihar, Jharkhand underperforming in the all, gives us more confidence to say that the size of the state is not the sole variable for the determination of its growth and developmental status rather there are other hidden influential reasons for each success and failure.

Hence it is very important to analysis those reasons which cause such variation in the performances. We can opt for small states so as to ensure better focus of governments on all the key critical issues of the state economy but at the same time we need to have a respectable size of the state so as to have the necessary resource base for the growth and development.

In the next section we shall try to analyse if the major state reorganisation of post 1956 has helped state economies to perform better on GSDP basis and if yes then is it the small state size that helped or were there some other hidden critical reasons for each success and failure?

### Part 3: Empirical Study of Post 1956 divisions of states

Since the mid-sixties, 3 major cases of state reorganisations have occurred. In 1966: Haryana was carved out of Punjab and some districts went to Himachal Pradesh. In 1971: Arunachal Pradesh, Meghalaya and Mizoram were separated from the state of Assam. In 2000: Uttaranchal (re-named Uttaranchal in 2007) created from Uttar Pradesh, Jharkhand from Bihar and Chhattisgarh from Madhya Pradesh.

So as to carry out the empirical study and interpret the results we should have (a) number of such cases of reorganisations (b) a long enough time should have passed after the reorganisation, (c) measures across a range of economic and socio-economic parameters need to be available, and (d) such measures need to be available both before and after the reorganisation.

Unfortunately all these conditions are not met satisfactorily in our case but however, all of these conditions are met partially. We focussed primarily on Gross State Domestic Product and will reason various socio-economic and political factors for the interpretation of the results.

**Case of Punjab, Haryana and Himachal Pradesh:** The demand for Haryana as a separate state was raised even before India's independence in 1947. However, this demand for unilingual states by Sikhs and Hindus gained momentum in the early 1960s and as a result Haryana was carved out of the mostly Hindi-speaking eastern portion of Punjab, while the mostly Punjabi-speaking western portion remained as current day Punjab.

As the data on individual sub-state part before the reorganization is not available so we cannot carry on a specific empirical study but the literature review reveals that the combined annualized growth of these three states have improved significantly.<sup>5</sup> Before the reorganization it was less as compared to that of India but post reorganization it was more than that of India.<sup>6</sup> So can we say re-organization really helped in the growth rate improvement?

The re-organization time was coincident with that of Green Revolution so we cannot say that the mentioned growth was solely due to re-organization. The important thing to notice, Uttar Pradesh<sup>7</sup> couldn't flourish as much as Punjab during the Green Revolution phase, so is it due to the large variation in state size or are there some other hidden factors contributing towards this contrast?

I guess it was the better coordination of small homogeneous Punjab with the central government in attaining their single objective of increasing their agricultural productivity. But after many years of re-organization, Haryana, the poorer part of Punjab has prospered not only in the growth rate but also in other important social parameters.

**Case of Assam:** In this case also the data of the small states is problem into which Greater Assam was reorganized namely Arunachal Pradesh, Meghalaya and Mizoram in 1971. We compare the growth rate of Assam with that of India and find that post reorganization period the growth rate of Assam actually marginally declined as compared to the pre reorganization period. So can we say that reorganization had a negative impact on Assam?

Assam suffered from the post 1971 war effects as it had to give shelter to thousands of refugees for almost a decade which put extra burden on its resources. During this period with the rise of ULFA, militancy also increased in this region which had a counter impact on the growth. At the same time the smaller size of Assam made it difficult to generate enough resources to counter the problem. So the small area of Assam actually made it less powerful to fight the militancy problem.

Lets us study empirically the growth trend pre and post reorganisation period.

Comparison of Economic Growth - Assam vs India			
Growth Trend	Time Period	Assam	India
Pre-organisation	1960-61 to 1970-71	3.77%	3.40%
Post Reorganisation (Immediate)	1970-71 to 1980-81	2.96%	3.52%
Post Reorganisation (Long Run)	1980-81 to 1990-91	4.20%	3.83%

**Source:** Estimates of annualized growth rates using CSO data

We can say that although Assam didn't gain much by this re organization immediately in terms of

economic growth but in long term it didn't do any harm to it either.

**Case of Jharkhand, Uttaranchal and Chhattisgarh:** Jharkhand is not a Mizoram or Meghalaya, not only because of its vastness but because of its very composition. Jharkhand is a mini India or, more correctly, a concentrated India. It has two simultaneous objectives: struggle and construction. Struggle against divisive forces and construction of the new state, Jharkhand state was carved out of Bihar with a population of 2.14 Crore of which 27.67 per cent were tribals, 15 percent harijan and 40 per cent other backward castes. (A K Roy 2000) Even as it is so rich in resources, it is inhabited by the poorest people of India. Darkness under light is Jharkhand.

Uttaranchal was constituted after a very long non-violent, spontaneous and massive movement in the real sense of the term. The popular argument around which real mobilisation became possible was that many related issues such as the forest, liquor and land mafias, anthropocentric and ecology-friendly development of the Himalayas and the developmental problems of the remote hill areas would be taken care of, only if a new ('pahari') state was created. (Pradeep Kumar 2001) The demand for a separate Chhattisgarh state was first raised in the 1920s. Similar demands kept cropping up at regular intervals but a well-organized movement was never launched.

Lets us study empirically the growth trend pre and post reorganisation period.

Annualized Trend Growth pre and post reorganisation in 2000		
State	1993-94 to 2000-01	2001-02 to 2008-09
Bihar	4.81%	8.57%
Jharkhand	4.50%	5.76%
Madhya Pradesh	5.12%	4.64%
Chhattisgarh	1.68%	7.90%
Uttar Pradesh	3.90%	5.80%
Uttaranchal	3.10%	8.78%

**Source:** Estimates of annualized growth rates using CSO data

*These figures give us quite interesting results in the annualised growth trends:*

Except Madhya Pradesh all other states have performed better post reorganisation on the basis of their GDP growth. Growth rate of small states formed is high as compared to the large parent state, post reorganisation except Jharkhand. Of the six new states formed out of the three older states, five have grown at a rate greater than the national average-MP being the only exception. Uttar Pradesh was not affected much with the reorganisation but Uttaranchal flourished significantly. This is largely due to the fact Uttaranchal didn't contribute significantly to Uttar Pradesh's GSDP pre reorganisation.

**Interpretation of re-organisation of year 2000:** Unlike in the other two cases of MP and UP,

Jharkhand was a very large part of the original Bihar, and its separation would have had a significant impact not only on itself, but also on the new smaller Bihar. The last few years have seen a significant increase in Bihar's growth. Can Bihar's reorganisation be given some credit to this?

We would argue that it should. It is generally argued that Bihar's improved performance in recent years can be the result of better governance levels of the new administration. Many institutions as well as the administrative units were not functioning as desired, a smaller state, with a narrower perspective, would have made it easier for the new administration to function well. So smaller states make it easier to govern well or it is the change in political party or leader?

Jharkhand is known for the vast track of mineral rich area in heartland of India with its plains and plateaus, hills and jungles. It had many expectations but it didn't perform well. The main contributing factor to this is the dividing force of belated capitalism which is constantly generating disaffection in society with lust for power. The problem of naxalites and the unstable government since its formation are the other factors contributing towards its failure. The adoption of sociologist approach for the development of this region can be the possible outcome and this can help in making an exploitation free Jharkhand.

Chhattisgarh's economy has grown rapidly in recent years with a growth rate of 11.49 per cent in GDP for 2009-2010. Chhattisgarh's success factors in achieving high growth rate are growth in agriculture and industrial production. It emerged with electricity generation and steel production plants.

Uttaranchal with its new industrial policy and generous tax benefits for investors, attracted massive capital investment. SIDCUL has established seven industrial estates in the southern periphery of the state, while dozens of hydroelectric dams are being built in the upper reaches. This comprehensive approach helped Uttaranchal to perform well.

The increase in growth rates of Uttaranchal and Chhattisgarh can be, to some extent due to the fact that the new administrations in these states could better focus on the issues of relevance for them. Moreover, in the case of both Uttaranchal and Chhattisgarh, the region under consideration accounted for a very small proportion of the larger states of UP and MP – in terms of population, land areas, as well as economy. Hence post reorganisation, greater focus on the issues at hand would enable much greater improvements in these states of Chhattisgarh and Uttaranchal, than would be expected in Jharkhand. The data reflect the same.

Next consider the argument, on how much the larger state gains. In the case of MP and UP, as mentioned broken off states were a small proportion of the total. The benefits would therefore be limited. Not surprisingly, UP's increase in growth was by a magnitude of 1.9 percentage points – about similar to that observed nationally. In the case of MP however, the growth rates have further fallen – a result that is

likely due to other factors, and not so much the break-up.

After the division of MP for better focussed administration it was almost paralysed for almost a decade due to shortage of electricity. Government had to invest heavily on this again to rebuild the resources which had a negative impact on the growth. But MP with a stable government performed well in other development areas.

From the limited data that is available, therefore we can postulate that when states break up, the smaller regions have the capability to work on their strengths and correct their weaknesses in a more efficient and cohesive manner towards higher growth. At the same time smaller states may also be more susceptible to other non economical forces that can cause systemic disruption. So we can say that breaking of states in to smaller part can't ensure growth and development in all the cases, we need to take decision keeping other factors into consideration.

#### **Is it the state size or effective governance, administration that results in better economic results and prosperity?**

The rationale stated by the centre behind creating more states is better governance and socio-economic development. But we have seen in the past that such claims don't seem to hold good. If we presume that the creation of new states will solve the problem of neglect and discrimination, then we are ignoring some important hidden facts.

We have seen the examples from the North-East to Jharkhand and Madhya Pradesh that how the creation of new states has resulted in the arrival of a whole new set of problems. New states created in that region in the name of development do not seem to have served up to the desired expected level. Almost all north-eastern states are existing under militancy and extremist movements.

The most recent demonstration is the bifurcations of 2000. A close review of the events preceding the bifurcation would reveal that political considerations rather than developmental needs led to the reorganisation of the states. Even if we say that small states lead to better growth and development, then too the analysis brings to light that it is not the case entirely, but there are always one or other hidden reasons that contribute towards it. For example, we saw how the change in political environment of Bihar saved it from collapsing when it was almost on the verge of bankruptcy due to the economic divide and uneven distribution of resources brought about by the reorganisation. On the other hand, Jharkhand, despite having sufficient financial and other resources, has not demonstrated the anticipated rate of progress. Instead it is struggling to cope up with its internal problems. Madhya Pradesh suffered drastically post division, due to transfer of certain vital resources for growth and development. If the states would have been reorganized from the economical point of view then such cases would not have been there.

The perception of 'small is beautiful' seems to be unrealistic; at least past experiences suggest that. It would be the most profound mistake if anyone thought that creation of new states is solution for all the problems. The immediate need is to concentrate more on development of the already existing states. It is not important whether the state is small or big; what is required is a strong political will to govern with full honesty and sincerity. Development requires an encouraging atmosphere to be created by both people and politicians.

#### **Notes**

1. Language was the predominant criteria for the State Reorganisation Commission, but not the only one – economy, population, synergies between different regions, all played some role.
2. We find rank co-relation coefficient between area (in sq. km) and population base of 28 Indian states to be equal to 0.76. Source of the data is Census Of India (www.censusindia.net/)
3. States are sorted and given ranks on the basis of the performance, we analysed the ranks and judged the performance accordingly.
4. Average for three years is taken so as to get an general idea about the performance of the state, spread over a considerable time period
5. Average of HDI values for the year 2004, 2007 and 2010 is taken for the analysis. Source of data is www.indiastat.com
6. We compared trend growth of 10 years period, pre and post reorganisation of India and combined Punjab, Haryana and Himachal Pradesh. Source of the data is CSO, Government of India
7. For Punjab, Haryana and Himachal Pradesh, data is available to some extent from the Punjab and Himachal Pradesh Statistical Abstracts from 1950-51. However, there are missing values in the series, which were intrapolated using other sources e.g Himachal Pradesh series for 1960s was created using the 3% growth rate for the period 1961- 1974 given by the Planning Department, Government of Himachal Pradesh.
8. The Green Revolution in Uttar Pradesh was and has remained restricted to the western districts and is not sufficient to yield higher growth rates for the state as a whole.

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### Annexure

**Table 1: Proposed New States under the States Reorganization Act 1956**

Name of the State	Area (Sq. Miles)	Population (Crores)	Language
Madras	50,170	3	Tamil
Kerala	14,980	1.36	Malyalam
Karnatak	72,730	1.9	Kanarese
Hyderabad	45,300	1.13	Telugu
Andhra	64,950	2.09	Telugu
Bombay	1,51,360	4.02	Mixed
Vidhrbha	36,880	0.76	Marathi
Madhya Pradesh	1,71,200	2.61	Hindi
Rajasthan	1,32,300	1.6	Rajasthani
Punjab	58,140	1.72	Punjabi
Uttar Pradesh	1,13,410	6.32	Hindi
Bihar	66,520	3.82	Hindi
West Bengal	34,590	2.65	Bengali
Assam	89,040	0.97	Assamese
Orissa	60,140	1.46	Oria
Jammu and Kashmir	92,780	0.14	Kashmiri

Source: BR Ambedkar 'Thoughts on Linguistic States', 1956.

**Table 2: State boundaries changed over the years**

States	Date of Creation	Change in Boundaries over the years		
		1956	1959	2000
Andhra Pradesh	1953	1956	1959	
Arunachal Pradesh	1971			
Assam	1951	1962	1971	
Bihar	1950	1956	1968	2000
Chhattisgarh	2000			
Goa	1987			
Gujarat	1960			
Haryana	1966	1979		
Himachal Pradesh	1966			
Jammu & Kashmir	1950			
Jharkhand	2000			
Karnataka	1950	1956	1968	
Kerala	1956			
Madhya Pradesh	1950	1956	2000	
Maharashtra	1950	1960		
Manipur	1971			
Meghalaya	1971			
Mizoram	1971			
Nagaland	1962			
Orissa	1950	1960		
Punjab	1950	1956	1960	1966
Rajasthan	1950	1956	1959	
Sikkim	1975			
Tamil Nadu	1950	1953	1959	
Uttar Pradesh	1950	1968	1979	2000
Uttarakhand	2000			
West Bengal	1950	1954	1956	

Source: 'Reorganisation of states in India', Mahendra Prasad Singh, EPW, March 15 2008, pp 70-75'

## Consumption Inequality in India: An Analysis of New Trends

Ranjan Kumar Nayak\*

### 1. Introduction

An important socio-political-economic ideals enshrined in the Constitution of India is reduce inequalities and promote equality. The Planning era of Indian economy during 1950-80 has not given up the objective, at least in rhetoric. However, introduction of neo-liberal policies seemed to have veered the nation into a different direction. Rising inequalities have been glaring. Several studies have indicated the effects of the policies and rising tide of inequality in the economy. Data limitations have always constrained inequality studies, while inequality is a multidimensional issue covering income, wealth, skills, education, health and even cultural aspects. Given data constraints, most studies examined consumption inequality, because of availability of NSS data. However, there are several ways of estimating consumption inequality.

This paper is a modest attempt to examine patterns of consumption inequality and causes of inequality in India.

Since the economic liberalization in the early 1990s, the facts suggest escalating inequality. The macroeconomic policies perhaps accountable for these trends include—fiscal tightening ,expenditure cuts and regressive tax policies ; financial sector reform that reduced institutional credit flow to small producers and agriculturalists; leading to more regional imbalance and skewed investment patterns, liberalization of rules for foreign and domestic investment, and trade liberalization, which has affected livelihoods and employment generation.

Indian policymakers have always been bothered with the reduction of inequality. However, between the first five year plan after independence in 1947 and the turn of the century, Indian economic policy making went through a sea of change. After independence and for an episode of about forty years, India followed an expansion policy based on central planning. The pace of policy change accelerated throughout the early 1990s, when the explicit adoption of neo-liberal reform programs marked the beginning of a period of intensive economic liberalization and changed attitudes towards state intervention in the economy As Chakravarty (1987) pointed out, one of the reasons for adopting an interventionist economic policy was the fear that total reliance on the market mechanism would cause in excessive consumption by upper-income groups, along with comparative under-investment in sectors vital to the development of the economy. According to Chakravarty (1987: 10), policymakers in India adopted a middle path, in which

“there was a tolerance towards consumption inequality, provided it was not excessive and could be seen to result in a higher rate of growth than would be possible otherwise.” In this framework however, the macroeconomic understanding to inflation as fallout from growth reflected government concerns regarding the redistributive effects of inflation, which typically affected peasants, workers and unorganized sectors more.

### 2. Received Literatures

Most studies have looked at inequality in terms of consumption expenditure. And the unit of analysis is households. But there are some studies, which have tried to address the inequality issue through credit, human development index, income, physical and social infrastructure.

The most important aspect here is the measurement. The commonly used inequality measure is Gini coefficient. Few studies have taken some different measures like coefficient of variation, Theil index, Atkinson's index, Population Weighted Gini index, Hoover's index, Coulter's index, and log mean deviation, the logarithm difference of arithmetic and geometric mean and variance of logarithm. One of the studies has taken the Lorenz curve technique to analyze the inequality.

In the received literature, Deaton & Dreze (2002) have noted that the increasing inequality in 90's is a new development in the Indian economy. They also have refuted the well-known Kuznet's curve argument in favor of increasing economic inequality. It is a graph with measures of increased economic development (presumed to correlate with time) on the horizontal axis, and measures of income inequality on the vertical axis hypothesized by Kuznets (1955) to have an inverted-U-shape. The argument is the trend of increasing inequality is short lived and it is as per expectation due to the liberalization.

On the other hand Singh, Khare, (2003) have argued the conclusion is sensitive to the measure of inequality taken by the specific study. They have used the consumption expenditure, but taking data from the Planning Commission's National Human Development Report. They have used these data to perform a regression to test for absolute convergence in per capita consumption expenditure across states. Singh & Others (2003) argue that between 1993-94 to 1999-2000 'the interstate disparities in well being have not been worsened'. Thus Sen & Himanshu (2005) provides evidence of increase in inequality in post reform period. Their analysis based on the real mean per capita expenditure by fractile groups, showed that where the consumption level of the upper tail of the population including top 20% of rural population went up remarkably during the 1990s, the bottom 80% of rural population suffered during this period. Another study undertaken by Dev & Ravi(2007) is also showing

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almost same trend as suggested Bhalla(2003) has shown that both rural and urban Gini has declined 28.5 to 0.20 and 34.31 to .31 between 1993-94 and 1999-2000.

A study by Sripad Motiram & Vakulabharanam (2011) has also highlighted the similar points as most of the earlier studies did by taking the measure Gini coefficient, and using the data from NSSO. Their result shows that inequality was decreasing between 1983 and 1993-94. But the decrease was slight. But later on the inequality has increased between 1993-94 to 2004-05. The Gini was almost same between 1983 to 1993-94, while between 1993-94 to 2004-05 the Gini coefficient has increased.

Motiram & Vakulabharanam (2007) had used the Indian Human Development survey conducted by the National Council of Applied Economic Research (NCAER) for 1994 and 2004-05. The findings are showing that the Gini coefficient of percapita income was 0.43 in rural India in 1994 but it increased to 0.50 in 2004-05. While in 2004-05 the urban and total Gini coefficients stood at 0.47 and 0.51 respectively. The ratio of the income of the average person in the 10<sup>th</sup> percentile to the median is 38.89% whereas the ratio of the income of the average person in the 90<sup>th</sup> percentile to the median is 347.60%.<sup>1</sup> Pinaki Chakraborty (2009) basically tried to portray how the raise in inequality in income and consumption can affect the access to various public services (like health and education).

### 3. Trends in Consumption Inequality in India

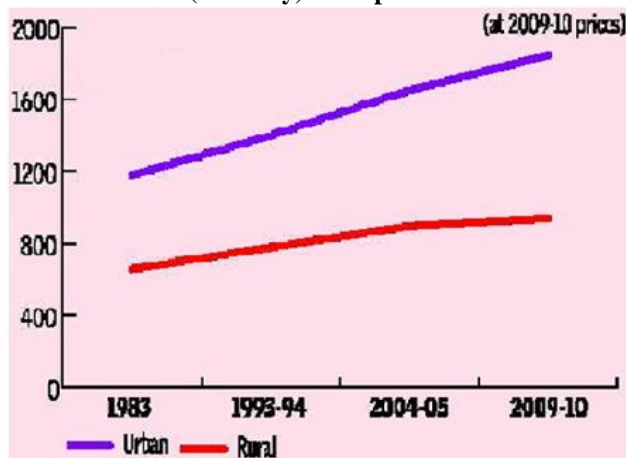
This study is based on secondary data. The required data have been collected from the National Sample Survey Organization (NSSO) on consumption expenditure, adapting it to the particular class structure used. The period of study is from 1983-2010. Here I shall be using the ratio of urban to rural consumption, Consumption Ratio of Different Groups and then some growth rate related to average consumption of rural and urban. Here I used the Modified Mixed Reference Period MPCE (or MPCEMRP) which is obtained by the Consumer Expenditure survey when household consumer expenditure on edible oil, egg, fish and meat, vegetables, fruits, spices, beverages, refreshments, processed food, pan, tobacco and intoxicants is recorded for a reference period of “last 7 days”, and for all other items, the reference periods “last 365 days”.

Then the combined ratio estimate ( $\hat{R}$ ) of the ratio ( $R = X/Y$ ) is obtained as  $\hat{R} = \hat{X}/\hat{Y}$ , Where,  $\hat{X}$  and  $\hat{Y}$  be the overall estimates of the aggregates X and Y for two characteristics x and y respectively at the State/UT/all-India level. Here, I shall present the inequalities in consumption across the sectors and classes.

<sup>1</sup> Motiram & Vakulabharanam (2011).

This part will give an overview of ratio of urban to rural consumption, Rural Percapita Consumption, Consumption by Urban Groups, Consumption Ratio of Different Groups, Growth Rate of Average Rural Consumption by Decile Groups in Percentage, Growth Rate of Average consumption by Urban Decile Groups and they are discussed one by one as follows.

**Graph 1: Average Percapita Consumption (Monthly) in Rupees**

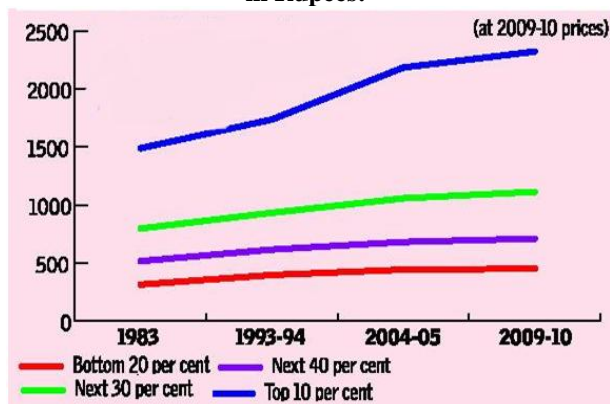


Source: Compiled from Different NSS Round up to 66<sup>th</sup> Round (July 2009 – June 2010)

Graph 1 shows that average urban consumption (at constant 2009-10 prices) has been increasing much faster than rural consumption, and the latter, in fact, narrowed off in the most recent five-year period. The ratio of urban to rural consumption rose from 1.79 in 1983 to 1.96 in 2009-10, with the most rapid widening of the gap coming after 2004-05.

But even within locations, there were significant differences between the upper and lower ends of the consumption spectrum in the matter of time trends. Then we will see the rural percapita consumption in India.

**Graph 2: Rural Percapita Consumption (Monthly) in Rupees:**



Source: Source: NSS Round up to 66<sup>th</sup> Round

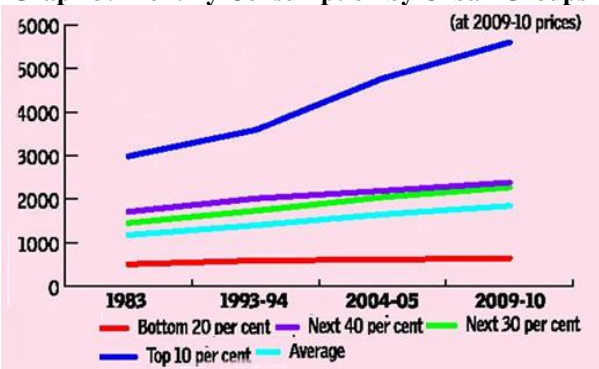
As manifest from Graph 2, in rural areas, it is actually only the top decile that shows noteworthy increases in per capita consumption after 1993-94. The relative constancy of consumption for all the other groups is remarkable, particularly given that this was a period of rapid GDP growth.

Unquestionably, there was hardly any change in per capita consumption of rural between 2004-05 and 2009-10, not only for the lowest quintile of the population, but also for the next 40 per cent and even for the following 30 per cent just underneath the top decile.

Within the rural areas, thus, only the top decile benefited from the aggregate income growth in a manner as to be able to increase their consumption appreciably. Next we will be discussing the monthly consumption by urban groups.

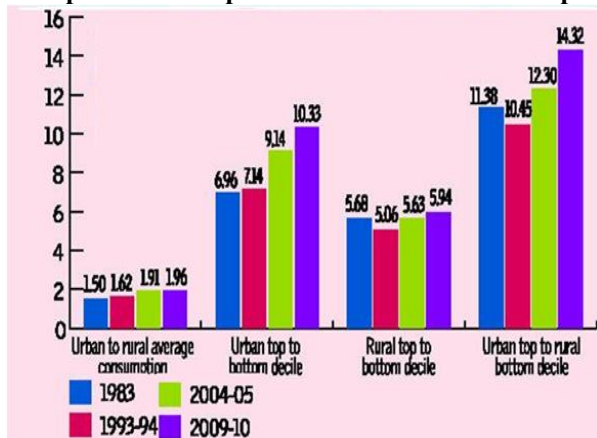
Graph 3 indicates the degree to which the consumption of the top decile has zoomed far exceeding all the other groups. Incidentally, it should be borne in mind that the NSSO surveys generally and probably increasingly underestimate the consumption expenditure of the rich, so the consumption of the top ten per cent is likely to be even higher than indicated here. Then we will see the consumption ratio of different groups as below.

**Graph 3: Monthly Consumption by Urban Groups**



Source: Source: NSS Round up to 66<sup>th</sup> Round

**Graph 4: Consumption Ratio of Different Groups**

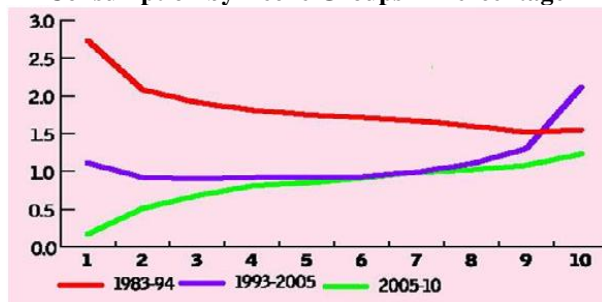


Source: NSS Round up to 66<sup>th</sup> Round

Graph 4 suggests that this process has not been smoothly steady through the whole period since 1983. Indeed, in rural areas, the gap between top and bottom deciles in consumption spending fell slightly and then increased only marginally, thereby is remaining broadly the same over the entire period. This is in sharp contrast to urban India, where the gap between richest and poorest deciles increased consistently and even sharply. There after we will discuss the growth rate of average rural consumption by decile groups in percentage.

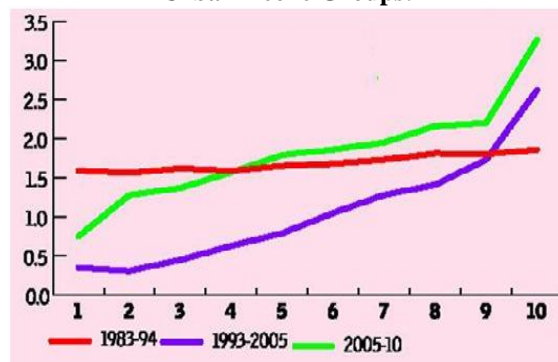
From Graph 5, an exciting pattern emerges: in the decade 1983 to 1993-94, the fastest growth in consumption expenditure (notwithstanding from much lower base) was registered by the poorest groups, and each of the successive deciles exhibited slightly lower rates of improvement in average consumption. This suggests a progressive pattern of consumption distribution at the margin. In both of the other periods (1993-94 to 2004-05 and 2004-05 to 2009-10) the pattern was reversed, with the richest deciles showing the fastest growth rates of consumption. Then we will move towards the discussion of growth rate of average consumption by urban decile groups.

**Graph 5: Growth Rate of Average Rural Consumption by Decile Groups in Percentage**



Source: NSS Round up to 66<sup>th</sup> Round

**Graph 6: Growth Rate of Average consumption by Urban Decile Groups:**



Source: NSS Round up to 66<sup>th</sup> Round

The pattern for urban areas, as evident from Graph 6, is only slightly different. In the decade 1983 to 1993-94, the rate of growth of consumption

increased with decile (rising from the lowest to the highest) but only marginally, so that the difference in rates of growth across consumption decile were not that significant, as indicated by the relatively flat line in Graph 6.

However, in both of the other periods, the trend of accentuated inequality was marked and increasing: with the rate of growth increasing quite sharply as one moved across consumption deciles, and the rate of growth of consumption of the top deciles being several multiples of the relatively low consumption increase of the lower deciles.

Overall, this provides further confirmation of the fact that the growth process of recent times has been marked by increasing inequality.

Generally top class constitute businessmen, top professionals including doctors, lawyers, industrialists, managers, IT professionals, real estate brokers, politicians and bureaucrats. Their source of income is faster rise in their business. Increased opportunity for private sector, increased casualisation of employment, reduced tax rates, decreased customs and excise taxes, privatization, deregulation, etc. All these would increase profits, reduce share of wages and on the other hand corruption, giving land to mining companies, creating financial booms.

The factors that account inequality between urban and rural consumption are decline in terms of trade, reduced subsidies, reduced credit allocation to the sector, and reduced government capital formation, neglect of technology.

#### **4. Neoliberalism Factors and Growing Inequality**

Neoliberalism principles includes governments reduce deficit spending, limit subsidies, reform tax law to broaden the tax base, remove fixed exchange rates, open up markets to trade by limiting protectionism, privatize state-run businesses, allow private property and back deregulation.

#### **I. Fiscal Policy:**

An vital element of the economic reform process adopted in India was the belief that a high fiscal deficit level was liable for the 1991 crisis, and the deficit should therefore be brought down to a certain pre-determined target. It was argued that a high fiscal deficit is bad for an economy because it can be inflationary, can give rise to external deficits, can lead to high interest rates and therefore crowd-out private investment, and can put an unsustainable interest rate burden on an economy through accumulation of public debt<sup>2</sup>.

It can be concluded that the fiscal policy measures initiated in the reform period did not allow the government to build up productive capacity in the economy. Lack of public investment dampened

aggregate demand, negatively affected private investments, created infrastructure bottlenecks to future growth, and adversely affected the provision of important public services. Moreover, in a developing country, where capital expenditure on infrastructure and social services tends to crowd in private investment, reduced expenditure on these sectors led to the crowding out of private investment. As a result of reduced public and private investment, there was inadequate productive employment generation, both in rural and urban areas. This was a key factor behind the increased inequality and slows down of poverty reduction in the country.

#### **II. Financial Sector Reform:**

Financial liberalization was considered to bring about the following objectives: a) make the central bank more independent; b) relieve financial repression by freeing interest rates, and introduce various new financial instruments and innovations in the Indian financial system; c) reduce directed and subsidized credit; and d) allow greater openness and freedom for various forms of external capital flows. It should be noted that these objectives were not realized in full, and indeed, the lack of completeness of such financial liberalization has been one important reason for the relative financial stability of the country, unlike several other 'emerging markets.

The most unfavorable effect of financial liberalization on inequality came from policies which eased 'priority sector'<sup>3</sup> lending norms for nationalized banks. Until the 1980s, nationalized banks had obligations to fulfil priority sector lending targets. But post-liberalization, the priority sector definition was widened to include many more activities, and the emphasis in banking shifted instead towards maintaining the capita adequacy level prescribed by the Basle accord. As a consequence, most banks now evade lending to small farmers and small scale industries, as they are supposed to be less creditworthy customers. This has had vivid effects on the viability and cultivation of small enterprises, which are the largest employers in the country, and has therefore indirectly impacted income distribution and poverty reduction.

It has observed that there is reduced credit allocation to the small scale industries and small farmers which results in decline in their income and leads to decrease in consumption level and patterns.

#### **III. Liberalization of Foreign and Domestic Investment:**

Enormously skewed inter-state distribution of domestic and foreign direct investment (FDI) has also contributed to increased inter-regional disparities in India. There is also a strong regional disparity in the pattern of FDI flows, with the southern and western

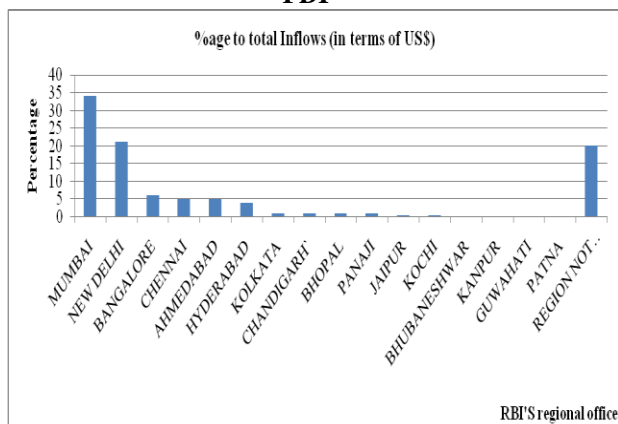
<sup>2</sup> neo-liberal arguments against high fiscal deficits

<sup>3</sup> small and medium scale enterprises and agriculture



states faring much better than the other parts of the country. Three southern states (Andhra Pradesh, Karnataka and Tamil Nadu) received more than 20 per cent of total FDI, while Maharashtra and Gujarat (both in Western India) received 17.35 per cent and 7.7 per cent of FDI respectively. In contrast, the seven North-Eastern states together received only 0.03 per cent of total FDI during the same period. This unequal distribution of FDI across states in India is not unexpected, as FDI inflows tend toward states with better infrastructure and development. The concentration of FDI in a few pockets in India therefore did not help to reduce inequality during the reform period.

**Graph 7: Region Wise Percentage of Total Inflow of FDI**



Source: Compiled from Department of Industrial Policy and Promotion.

The regional distribution of FDI inflows in the graph 7 shows highly concentrated patterns. Five regional offices receive around more than 70% of Indian FDI inflows. Mumbai, New Delhi, and their surroundings include almost the half of the FDI received by India since 2000. The areas of Bangalore, Ahmadabad receives 6 % and 5% respectively and Chennai and Hyderabad each with 5% lag behind. Then there are places surrounding Kolkata (1%), Chandigarh (1%) Panaji (1%).

#### IV. Trade Liberalization:

It is basically inequitable in nature since it distributes income in favour of the export sector and beside the import competing sector. Unless the gains from trade are redistributed, trade liberalization will always change income distribution, which may imply higher inequality. In India, an analogous phenomenon can be observed, but not necessarily along the lines predicted by traditional Hecksher-Ohlin trade theory. The more employment-intensive sectors have been adversely affected, rather than encouraged, by trade liberalization. Opening up trade has helped certain sub-sectors, both in manufacturing and services, where India is internationally competitive, but mainly in activities

using relatively skilled labour in the Indian context. By expanding the markets for these sectors, trade liberalization has definitely created some pockets of prosperity in India, but on the other hand, it has negatively affected most other manufacturing sectors and agriculture.

The decline terms of trade are another cause of increase in income inequality because the income elasticity of demand for manufactured goods is greater than that for primary products - especially food. Therefore, as incomes rise, the demand for manufactured goods increases more rapidly than demand for primary products that the rural people consume more.

#### 7. Conclusion

In India, although there are claims that inequality has decreased in the post-liberalization period, careful analysis of data shows that these views are mostly unsubstantiated. Several authors have also pointed out that though the richer sections of the population benefited in the post-liberalization period, there has been a stagnation of incomes for the majority, with the bottom rung of the population severely negatively affected by this process. There is also evidence that, both at the national and the state levels, income disparities between the rural and urban sectors increased during this period.

I attempt to place my findings regarding the growing inequality in the economy of India over the period considered. Many studies have confirmed that this adoption of neoliberal policies lead to an increase in economic inequality in India. My study indicates this as well.

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## Growth of Human Development Factors in India

Anil Gupta\* and K.G. Arora\*\*

### Abstract

The paper attempts to examine the Growth of Human Development Factors in India. The focus is on education and health indices. The paper also carries an exercise to find out the level of influence of the government expenditure on health. The analysis is supported by estimated regression equations in alternative forms, taking education, health and human development factors. Impact of GDP and GFCF is worked out on such social variables. The results support the positive correlation between education and health mutually but contribution of education for health is more propounded than contribution of health to education. Favorable and contrary impacts of GDP and GFCF are also observed on included social variables.

**Key Words** – *Human Development, Human Capital, Life Expectancy at Birth, Education Index, Health Index, Gross Domestic Product, Gross Fixed Capital formation.*

### Introduction

India has been experiencing a consistently high growth rate during the post-liberalisation period following the implementation of economic reforms in early 1990s. It has achieved excellence in several core areas ranging from information technology and pharmaceuticals to automotive parts, and is now considered as one of the fastest growing economies of the world. Despite these positive developments, India is still among the countries with some of the lowest indicators of human development. Its levels of malnutrition, illiteracy, unemployment and poverty are highly questionable. The rise in income inequalities and regional disparities are also a matter of concern. Employment has grown, but the jobs created are not of high quality and sufficient. Although there has been an expansion in social services like health, nutrition and education, the quality of most of these services remains poor in most of the rural areas. And above all, an overwhelming majority of the population is deprived of basic social goods. Policy-makers are thus faced with a paradox—the persistence of deprivations and increasing insecurities among a large section of the population amidst growing affluence and prosperity for some. The Eleventh Five-Year Plan has also reflected upon these concerns and has highlighted the need for balanced and ‘inclusive growth’ (World Bank Consultation Report, 2011).

For the economic development of an economy, we need physical resources like land, buildings, etc. and also human capital like engineers, doctors, teachers, managers etc. Societies need good human resources to generate human capital. An improvement in skills and physical capacity of the people constitute an increase in human capital, as it enables them to produce more as well as efficiently.

The economic growth rate of a country would be meaningful only if it is accompanied by an improvement in the quality of human life, no matter what the level of growth (8 or 9%) is? To quote J.R.D. Tata “I do not want India to be an economic power. I want India to be a happy country” Finance Minister P. Chidambaram quoted in his budgetary speech on 29<sup>th</sup> March, 2008. **That** “Education and Health are the twin pillars on which rest the edifice of social sector reforms”. Human development is development of the people, development for the people, and development by the people. Development of the people involves building human capabilities through the development of human resources. Development for the people implies that the benefits of growth must be translated into the lives of people, and development by the people emphasizes that people must be able to participate actively in influencing the processes that shape their lives

Recent models of economic growth such as Romer (1986) and Lucas (1998) emphasize that investment in human capital is an important factor contribution to economic growth. These models generate persistent growth endogenously from the actions of the individuals in the economy. An additional role for human capital may as engine for attracting other factors such as physical investment, which also contributes measurably to per capita income growth. Recent experience with attempts to accumulate physical capital at a rapid rate in poor countries bears out the necessity of due attention to human capital because it has become evident that the effective use of physical capital itself is dependent on human capital. If there is under- investment in human capital, the rate at which additional physical capital can be productively utilized is limited since technical, professional, and administrative people are needed for the effective use of physical capital. Lucas (1990) suggested that physical capital fails to flow to poor countries because of their relatively poor endowments of complementary human capital.

The first Human Development Report in 1990 opened with the premise that “People are the real wealth of a nation.” In the Words of **Prof. Amartya Sen**: Human development, as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it.” **Mahbubul Haq** in the Human Development Report says “The basic purpose of development is to enlarge people’s choices. In principle, these choices can be infinite and can change over time. People

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often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secured livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives. "Human development implies the development of abilities and skill among the population of the country. Present study is two variables viz. education Index and health Index to measure human development.

**The Education Index** is measured by the adult literacy rate (with two-third weighting) and the combined primary, secondary, and tertiary gross enrollment ratio (with one-third weighting). Education is a major component of well-being and is used in the measure of economic development and quality of life, which is a key factor determining whether a country is a developed, developing, or underdeveloped. **Health Index** is measured by life expectancy rate besides others.

### Review of Literature

Economists, Academicians and Development experts have devised several indices based on health and education indicators to measure the quality of human life. Using cross-country data, Steve Dowrick, Yvonne Dunlop and John Quiggin (1998) estimated an equation that explains that a cost reduction in age-specific mortality rates is sufficient to save the life of one person in terms of the prices of specific goods and services. Shirley Cereseto and Howard Waitzkin (1988) compared the Physical Quality of Life (PQL) of 123 capitalist and socialist countries (97 percent of the world's population) taking into account the level of economic development. Gary S. Becker, Tomas J. Philipson and Rodrigo R. Soares (2005) computed a "full" growth rate that incorporates the gains in health experienced by 96 countries for the period between 1960 and 2000.

For a long time there prevailed an assumption amongst economist that the Per capita GNP is the best index of economic well being of a country and the basic needs such as health and education would be taken care as a by-product of the growth in GNP. But the outcomes of many studies (Morris 1979, Ram 1982, Burket 1985) have showed that this was not the case.

Daniel J. Slotjee devised an index that measures and compares the quality of life as comprehensively as possible using 20 attributes of the quality of life for 123 countries.

The above literature shows that the indices developed are better indicators of the quality of human life in a country as compared to economic growth.

There are not many studies that link Economic reform programmes with the quality of human life for following reasons:-

- a) Many economists are of the view that reform programme is only a tool to correct the macro economic instability in the economy and has no link with the quality of human life.
- b) There are no direct studies of the poverty effects of trade and trade liberalization.
- c) There are no historical instances in which liberalization could be identified as the main economic shock.

Despite the above reasons, there are several highly visible cross-country studies (David dollar, 1992, Jeffrey Sachs and Andrew Warner, 1995 and Sebastian Edwards,1998) that foster the 1990s conviction that openness is good for economic growth. But Rodriguez and Rodrik (2001) contradict that the above conviction rest on very weak empirical foundations such as faulty measures of openness and serious econometric short comings. Moreover liberal trade is usually only one of several indicators of openness used that often weighs rather lightly in the overall result (Ann Harrison, 1996). Besides this, economists like L. Alan Winters, Neil McCulloch and Andre McKay, 2004 are also of the view that trade liberalization harms poorer sectors in the economy in the short and even in the successful long run open regimes.

Several earlier studies have attempted to analyze the impact of the economic reforms of 1991 on the economy and industrial sector of India. In one of the earlier studies, Nambiar et al. (1999) started from the expectation that trade liberalization "encourages economic activity and hence raises production and employment"; Although this expectation may be justified in the longer run, it seems somewhat unrealistic to expect immediate benefits since trade liberalization always implies increased foreign competition, which in turn may lead to the closure of less competitive firms and therefore job losses and income reduction in the initial phase following trade liberalization. In spite of the accelerated growth figures of the mid-1990s being already available, Nambiar et al. (1999) concluded that "trade has over the years shrunk India's manufacturing base, both in terms of value addition and employment". Although the admit that "this high protection-high cost-poor quality' syndrome needed to be corrected by import liberalisation", their assessment of the reform impact looks pessimistic.

A positive picture was drawn by Panagariya (2004), who argued that growth in the 1990s was more robust than that of the 1980s and that it was achieved through important policy changes. The main policy changes held responsible for accelerated growth are the liberalization of foreign trade, the reduction in industrial licensing and opening to foreign direct investment. Balasubramanyam and

Mahambre (2001) attempted to relate different aspects of the reforms with changes in industry performance, in particular with productivity change.

### Objectives of the Study

The proposed study aims to examine the initial impact of Gross Domestic Product (GDP) of India on Education, Health and overall Human Development Index (as prepared by the UNDP) for domestic economy. Similar kind of impact is also viewed by incorporating Gross Fixed Capital Formation (GFCF) with GDP, and by using Education and Health as interdependent variables.

Key hypothesis seems to state that Education and health are interdependent factors influencing each other in turn. Notwithstanding, Education and health and overall human development seem to depend on the levels of GDP and GFCF in the economy over the years.

Study uses three important health indicators, viz., life expectancy at birth (in years), many years of schooling and the level of influence by the government expenditure on health. Other prominent indicators of education are also included in the analysis.

Basic objective of the study is to find out the contribution of rising GDP and GFCF over the years on educational achievements, health standards and overall human development status of the people in India. In addition to it, it is also tried here as to how education influences the health and vice versa.

### Data and Methodology

The proposed paper is based on secondary data, mainly compiled with from economic Survey, Government of India, and Ministry of Finance, United Nation Development Programme Report 2011 (UNDP), and domestic product and gross fixed capital formation (both at constant prices of 2005 in USD), and for education, health and human development indices. These are taken for the entire reference term 2000-01 through 2011-2012 for the Indian economy.

Alternative simple and multiple regression models are estimated. Education, health and human indices are considered as the endogenous variables while gross domestic product (GDP) and gross fixed capital formation (GFCF) at constant prices in USD (at 2005 prices) are considered as the exogenous variables in alternative multiple regression models as given in the model formulation. Test-statistic includes t-values, adjusted R-square, F-values and Durbin Watson (DW) coefficients.

### Model 1: Simple Regression Model

(a) It is used to estimate the impact of GDP on Education Index as given below:

$$E = a_1 + a_2 \text{ GDP} + e_1$$

(b) It is used to estimate the impact of GDP on Health Index as given below:

$$H = a_1 + a_2 \text{ GDP} + e_1$$

(c) It is used to estimate the impact of GDP on Human Development Index of India (prepared by UNDP) as given below:

$$\text{HDI} = a_1 + a_2 \text{ GDP} + e_1$$

### Model 2: Multiple Regression Model

It is used to estimate the impact of GDP, GFCF and Health Index simultaneously on Education Index as given below:

$$E = a_1 + a_2 \text{ GDP} + a_3 \text{ GFCF} + a_4 \text{ H} + e_1$$

### Model 3: Multiple Regression Model

It is used to estimate the impact of GDP, GFCF and Education Index simultaneously on Health Index as given below:

$$H = a_1 + a_2 \text{ GDP} + e_1$$

where,  $a_1$  is the respective intercept in different regression formulations;  $a_2$   $a_3$   $a_4$  are respective regression coefficients in different regression models; accordingly  $e_1$  is the disturbance-term, accordingly, E is the Education Index

H is the Health Index (both E and H are used as endogenous as well as exogenous variables in alternative regression equations)

HDI is the Human Development Index for India (Prepared by UNDP)

GDP is the Gross Domestic Product at constant prices in US \$ (2005)

GFCF is the Gross Fixed Capital Formation at constant prices in US \$ (2005)

### Data and Methodology

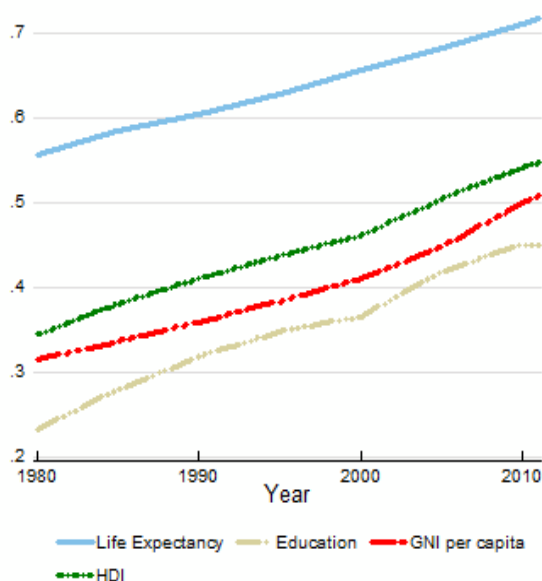
The Proposed paper is based on secondary data collected from **Economic Survey**, Government of India, Ministry of Finance, UNDP report 2011, and world development report 2011. The data includes the GDP (constant 2005 US\$), Gross fixed capital formation of India during the study period. The dependent variable is taken as education index and health index GDP and independent variables are taken to GDP (constant 2005 US\$), and gross fixed capital formation

### Social overhead Indicators

Present Study uses health and education as the prominent indicators for measuring the human development in India. Health index and education index are used in the regression exercises as endogenous variables. Such indices are based on the relevant social data as given in succeeding tables; such tables are either self explanatory or followed by brief explanation. Table 1 reveals the India's HDI trends during 1980-2011, showing progress of HDI components (Table 1 is mentioned in the annexure).

Table 2 is mentioned in the annexure. Figure 1 below shows the contribution of each component index to India's HDI since 1980.

**Figure 1: Trends in India's HDI component indices 1980-2011**



India's 2011 HDI of 0.547 is below the average of 0.630 for countries in the medium human development group and below the average of 0.548 for countries in South Asia.

Table 3 is mentioned in the annexure. It highlights India's Global Position in Social Development Indicators, which indicates the existing gap in health and education indicators as compared to developed countries and also many of the developing countries indicates the need for much faster and wider spread of basic health and education. Life expectancy at birth in India was 65.4 years in 2011 as against 81.1 years in Norway, 81.9 years in Australia, 74.9 years in Sri Lanka, 73.5 years in China, and the global average of 69.8 years. However, it has increased by one percentage points from 64.4 in 2010 to 65.4 in 2011. The other countries referred to are almost stagnant during this period. Similarly, the performance of India in terms of mean years of schooling is not only much below that of countries like Sri Lanka, China, and Egypt which have higher per capita incomes but also below that of Pakistan, Bangladesh, and Vietnam which have lower per capita incomes. It is also much lower than the global average (Table 3).

The National Human Development Report (NHDR) 2011 of the Institute of Applied Manpower Research and Planning Commission states that India's HDI between 1999-2000 and 2007-8 has increased by 21 per cent, with an improvement of over 28 per cent in education being the main driver. The increase in HDI in the poorest states of India has

been much sharper than the national average and hence the convergence in HDI across states.

Table 4 is mentioned in the annexure. Central government expenditure on social services and rural development (Plan and non-Plan) has consistently gone up over the years (Table 4). It has increased from 13.36 per cent in 2006-7 to 18.47 per cent in 2011-12. Central support for social programmes has continued to expand in various forms although most social-sector subjects fall within the purview of the states. Major programme specific funding is available to states through centrally sponsored schemes. Expenditure on social services (which include education, sports, art and culture, medical and public health, family welfare, water supply and sanitation, housing, urban development, welfare of SCs, STs and OBCs, labour and labour welfare, social security, nutrition, and relief for natural calamities,) by the general government has also shown an increase in recent years (Table 4) reflecting the higher priority given to this sector.

Table 5 is mentioned in the annexure. Expenditure on social services as a proportion of total expenditure increased from 21.6 per cent in 2006-7 to 24.1 per cent in 2009-10 and further to 25 per cent in 2011-12 (BE). As a proportion of the gross domestic product (GDP), its share increased from 5.57 per cent in 2006-7 to 6.76 per cent, 6.91 per cent, and 7.34 per cent in 2008-09, 2009-10, and 2010-11 respectively, helping India face the global crisis without much adverse impact on the social sector. In 2011-12 it is expected to be 6.74 per cent as per the BE. While expenditure on education as a proportion of GDP has increased from 2.72 per cent in 2006-7 to 3.11 per cent in 2011-12 (BE), that on health has increased from 1.25 per cent in 2006-7 to 1.30 per cent in 2011-12 (BE). Of total social services expenditure, that on 'Others' has fallen in 2011-12 BE).

## Empirical Analysis

### Model 1:

$$1.a. \quad E = .306 + .956GDP$$

$$(27.78) \quad (10.24)**$$

$$adj \ R^2 = 0.904 \quad F - Value = 105.02 (1, 10)$$

\*\*

$$DW \text{ test} = 0.539$$

\* Figures in parentheses denote t-values at 95 per cent level.

\*\* Figures in parentheses denote d.f.

It is evident from the test statistics computed in the form of adjusted  $R^2$  (.955) and F-value (105.21) that these are found satisfactory giving the idea of goodness of fit. Computed regression coefficient of GDP is estimated positive and significant at 95 per cent level of confidence during the period 2000-01 to 2011-12. This indicates rise in GDP helps government to provide more facilities for the education level in general. However, the value of estimated DW test is not found satisfactory (quite low).

**1. b.  $H = .618 + .974GDP$**   
**(116.74) (13.63)\***  
**adj  $R^2 = 0.974$  F – Value = 116.74 (1, 10)\*\***

DW test = 0.660

\* Figure in parentheses denotes t-values at 95 per cent level.

\*\* Figures in parentheses denote d.f.

It is evident from the test statistics computed in the form of adjusted  $R^2$  (.955) and F-value (116.74) that these are found satisfactory giving the idea of goodness of it. Computed regression coefficient of GDP is estimated positive and significant at 95 per cent level of confidence during the period 2000-01 to 2011-12. This indicates increase in GDP helps to provide more facilities by the government for in general. The value of estimated DW test is not found satisfactory (quite low)

**1.c.** It is to analyze the response on HDI (prepared by UNDP) for India in regard to variation in Gross Domestic Product (GDP) during the period 2000-01 to 2011-12, a simple linear regression model is used

**The estimated regression equation is as follows:**

**HDI = .417 + .979 GDP**  
**(2.59) \* (15.33)\***  
**adj  $R^2 = 0.955$  F – Value = 235.04(1,10)\*\***  
**DW test = 0.667**

\* Figures in parentheses denotes t-values at 95 per cent level.

\*\* Figures in parentheses denote d.f.

It is evident from the test statistics computed in the form of adjusted  $R^2$  (.955) and F-value are [235.04] that these are found satisfactory, giving idea of goodness of fit. It indicates that GDP played a vital role in increasing the Human development, in terms of HDI. Computed regression coefficient of GDP is estimated positive and significant at 95 per cent level of confidence during the period 2000-01 to 2011-12. However, the value of estimated DW test is not found satisfactory (quite low) might be due to auto-regressive and other specifications errors in the model.

**Model 2:**

**The estimated regression equation is as follows:**

**$E = -.101 - 1.269 GDP + 1.786 GFCF + 0.46 H$**   
**(-.703) (-4.820) (7.70) (3.23)**  
 **$R^2 = 0.98$  F – Value = 309.8 (2, 10) \*\* DW**  
**Test = 2.42**

\* Figures in parentheses denote t-values at 95 per cent level.

\*\* Figure in parentheses denotes d.f.

It is evident from the test –statistics computed in the form of adjusted  $R^2$  (.970) and F-value are [118.32] that these are found satisfactory giving indication of goodness of fit. Computed regression coefficient of

GDP is found contrary (and may be attributed to the fact that education is commercialised since economic reforms day by day). Computed regression coefficient of Gross Fixed Capital Formation Education Index is estimated a positive and significant at 95 per cent level of confidence during the period 2000-01 to 2011, indicating that GFCF is playing vital role for increasing education sector. Also the coefficient of Health Index is estimated a positive and significant at 95 per cent level of confidence during the period 2000-01 to 2011-12. This indicates sound health of the people increases the education level

**Model 3:**

**The estimated regression equation is as follows:**

**$H = 0.362 + 1.911 GDP - 2.11 GFCF + 1.21 E$**   
**(3.55) \* (3.88) \* (2.11) \* (3.2) \***  
**Adj  $R^2 = 0.958$  F – Value = 235.04(1,10) \* \***  
**DW test = 1.91**

\* Figures in parentheses denote t-values at 95 per cent level.

\*\* Figures in parentheses denote d.f.

It is evident from the test statistics computed in the form of adjusted  $R^2$  (.970) and F-value are [118.32] that these are found satisfactory giving indication of goodness of fit. Computed regression coefficient of GDP is found positive and significant, indicating its vital role in changing Health index. Also computed regression coefficient of Education Index is estimated as positive and significant at 95 percent level of confidence during the period 2000-01 to 2011-12. This indicates Education Index is playing a vital role in raising health index. However, computed regression coefficient of gross fixed capital formation is found contrary (and may be attributed to the fact that alone physical medical infrastructure is not sufficient to improve the level of health index in general).

**Emerging Issues Policy Implications**

India's 2011 HDI of 0.547 is below the average of 0.630 for countries in the medium human development group and below the average of 0.548 for countries in South Asia India's Global Position in Social Development Indicators, indicates the existing gaps in health and education indicators as compared to developed countries and also many of the developing countries. The need for much faster and wider spread of basic health and education, seems invariably required.

*As per World Bank consultation Report (Human Development in India: Emerging Issues and Policy Perspectives)* In India the education policy should shift its focus from enrolment to improvement in the functioning of schools as well as towards raising the quality of education outcomes. Special strategies are needed to improve the outreach of the school system to the disadvantaged and marginalised groups in the country. A more

systematic school mapping exercise should be undertaken to provide these groups access to both lower and upper primary classes, for removing social barriers to education. Shared public space should be created in education to allow private schools to co-exist with government schools in the delivery of education. Further, there is a need for standardisation of schools, with the mechanical provisioning of core inputs and a well-developed pedagogy. Long-term goals are required to bridge the gender gap, which constitutes a key hurdle in achieving literacy in the country, along with measures to ensure universalization of elementary education among girls.

There is a need to plug the gaps in teaching inputs. For this, a well-designed programme of recruitment, retention and deployment of teachers needs to be put into place in each state to ensure a high level of teaching quality and also to clear the backlog of vacancies at all levels. The issue of child labour, which is estimated at a whopping figure of 12 million children, should be tackled at the earliest, as without it, there can be no improvement in child participation in schools. The implementation and monitoring of this strategy should be done at the state level, for which respective governments should create additional supervisory structures and mobilise financial and human resources.

Effective policies in the public health sector call for a convergence of initiatives in different sectors. The focus should be on certain wider determinants of healthcare like food and livelihood security, drinking water, women's literacy, better nutrition and sanitation, and above all, confidence in convergent community action. The public health policy should focus on the prevention of diseases by providing clean water and sanitation rather than fighting diseases by administering antibiotics. This necessitates training of public health specialists and development of health facilities at all levels.

Crucial attention should be paid to the financing of healthcare. Public expenditure on health in the country constitutes only around 1 per cent of the GDP. It should be raised to about 2 per cent during the next five years. There is also a dire shortage of healthcare staff. In order to meet these challenges, the government could forge partnerships

with various stakeholders.

### Conclusions

Broad conclusions drawn on the basis of above held empirical analysis of the problem under hand are as below mentioned:

1. GDP (Gross Domestic Product) seems to have positive contribution to education and health sectors in different forms in India. Rising levels of GDP year over year influence favorably both education and health in general.
2. Some similar is found in case of HDI (Human Development Index) for India as stated above.
3. Both education and health are positively correlated and do influence each other favorably. But, the contribution of education seems stronger to health conditions, while, health seems to encourage education but not so strongly as education seems favorable for health. This may be considered as phenomenal in Indian economy. This implies that educated people are more health-conscious while healthy people seem less education-conscious.
4. GDP along with GFCF seems quite comfortable for health and medical care facilities while contrary is observed in case of educational facilities and education. This may be considered as phenomenal and may be attributed to the fact that education is being privatized and is being commercialized day by day particularly in technical and higher education after the inception of economic reforms in India since 1991. (It would not be out of place to mention here that the government is emphasizing more on 'literacy' than on 'education' though literacy is a sub-set of education).
5. GFCF seems to contribute positively and comfortably for expanding educational facilities in the economy in general.
6. GFCF seems to contribute in contrary fashion for medical sector as a whole. Again, GFCF may provide better 'physical' medical care and health facilities in the economy but not all categories of facilities required in medical –sector comprising both 'man' and 'material' for improving health conditions of people in the economy in general.

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**Annexure**  
**Table 1: India's HDI Trends (1980-2011)**

Years	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2005 PPP\$)	HDI value
1980	55.3	6.5	1.9	896	0.344
1985	57.0	7.3	2.4	1,043	0.380
1990	58.3	7.7	3.0	1,229	0.410
1995	59.8	8.3	3.3	1,453	0.437
2000	61.6	8.4	3.6	1,747	0.461
2005	63.3	9.9	4.0	2,280	0.504
2010	65.1	10.3	4.4	3,248	0.542
2011	65.4	10.3	4.4	3,468	0.547

Source: UNDP Report 2011

**Table 2: India's HDI Indicators For 2011 Relative To Selected Countries And Groups**

	HDI value	HDI rank	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (PPP US\$)
<b>India</b>	0.547	134	65.4	10.3	4.4	3,468
<b>Bangladesh</b>	0.500	146	68.9	8.1	4.8	1,529
<b>Pakistan</b>	0.504	145	65.4	6.9	4.9	2,550
<b>South Asia</b>	0.548	—	65.9	9.8	4.6	3,435
<b>Medium HDI</b>	0.630	—	69.7	11.2	6.3	5,276

Source: UNDP Report 2011

**Table – 3**  
**India's Global position in Human Development Index 2011**

Country	HDI 2011	HDI rank 2011	Gross national (GNI) per capita 2005 PPS\$) 2011	Life expectancy at birth (years) 2011 a	Mean years of schooling (years) 2011 a	Expected years of schooling (years) 2011 a
Norway	0.943	1	47,557	81.1	12.6	17.3
Australia	0.929	2	34,431	81.9	12.0	18
Poland	0.813	39	17,451	76.1	10.0	15.3
Malaysia	0.761	61	13,685	74.2	9.5	12.6
Russian Fed.	0.755	66	14,561	68.8	9.8	14.1
Brazil	0.718	84	10,162	73.5	7.2	13.8
Turkey	0.699	92	12,246	74.0	6.5	11.8
China	0.687	101	7,476	73.5	7.5	11.6
Sri Lanka	0.691	97	4943	74.9	8.2	12.7
Thailand	0.682	103	7694	74.1	6.6	12.3

Philippines	0.644	112	3478	68.7	8.9	11.9
Egypt	0.644	113	5269	73.2	6.4	11.0
Indonesia	0.617	124	3716	69.4	5.8	13.2
South Africa	0.619	123	9469	52.8	8.5	13.1
Vietnam	0.593	128	2805	75.2	5.5	10.4
India	0.547	134	3468	65.4	4.4	10.3
Pakistan	0.504	145	2550	65.4	4.9	6.9
Kenya	0.509	143	1492	57.1	7.0	11.0
Bangladesh	0.5	146	1529	68.9	4.8	8.1
<b>World</b>	<b>.682</b>		<b>10,082</b>	<b>69.8</b>		<b>7.4</b>

Source Economic Survey 2011-12

**Table 4: Trends in India's Social-Sector Expenditures**

Item	as percent of total expenditure)					
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
	actual	actual	actual	RE	RE	BE
1. social services						
a. education, sports, youth affairs	4.28	4.02	4.27	4.15	4.24	4.63
b. health & family welfare	1.87	2.05	2.09	2	1.83	2.15
c. information & broadcasting	0.25	0.22	0.23	0.2	0.21	0.2
d. water supply, housing, etc.	1.72	2.02	2.54	2.39	2.13	2.1
e. welfare of SCs/STs and OBCs	0.34	0.36	0.41	0.43	0.57	0.67
f. labour & employment	0.32	0.27	0.28	0.22	0.24	0.24
g. social welfare & nutrition	0.85	0.82	1.15	0.87	0.9	1.02
h. north-eastern areas	0	0	0	0.02	1.68	1.86
i. other social services	-0.17	1.29	1.55	1.67	1.56	0.32
total	9.47	11.06	12.52	11.94	13.36	13.2
2. rural development	2.84	2.8	4.56	3.77	3.79	3.68
3. Pradhan Mantri gram Sadak Yojana (PMGSY)	1.08	0.91	0.88	1.11	1.81	1.59
4. social services, rural dev. & PMGSY	13.36	14.77	17.95	16.82	18.96	18.47
5. total central government expenditure	100	100	100	100	100	100
source: Budget documents,						
note: PMGSY-Pradhan Mantri Gram Sadak Yojana; Re-Revised Estimates; BE is Budget Estimates.						

Source: Economic Survey 2011-12

**Table 5: Trends in Social Services Expenditure by General Government**

items	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
					RE	BE
<b>total expenditure</b>	<b>1109174</b>	<b>1316246</b>	<b>1599533</b>	<b>1852296</b>	<b>2256369</b>	<b>2403348</b>
expenditure on						
social services	239340	294584	380628	446382	562970	600516
of which i) education	116933	127547	161360	197070	249343	276866
ii) health	53557	60868	73898	88050	103742	115426
iii) others	68850	106168	145370	161262	209885	208224
	as percent of GDP					
<b>total expenditure</b>	<b>25.83</b>	<b>26.39</b>	<b>28.41</b>	<b>28.69</b>	<b>29.4</b>	<b>26.97</b>
expenditure on						
social services	5.57	5.91	6.76	6.91	7.34	6.74
of which i) education	5.57	5.91	6.76	6.91	7.34	6.74
ii) health	2.72	2.56	2.87	3.05	3.25	3.11
iii) others	1.6	2.13	2.58	2.5	2.73	2.34
	as percent of total expenditure					
expenditure on						
social services	21.6	22.4	23.8	24.1	25	25
of which i) education	10.5	9.7	10.1	10.6	11.1	11.5
ii) health	4.8	4.6	4.6	4.8	4.6	4.8
iii) others	6.2	8.1	9.1	8.7	9.3	8.7
	as per cent of social services expenditure					
i) education	48.9	43.3	42.4	44.1	44.3	46.1
ii) health	22.4	20.7	19.4	19.7	18.4	19.2
iii) others	28.8	36	38.2	36.1	37.3	34.7
source: RBI as obtained from budget documents of union and state governments.						
BE: budget estimates;		RE: revised estimates.				

*Source: Economic Survey 2011-12*

## Raison d'être and Essence of Economic Reforms in India

Shirin Rais\*

### Abstract

The paper focuses on the impact of economic reforms in enhancing economic immunity among common people particularly those belonging to the lower and lower middle class to bear and counter the attack of economic crisis either domestic or global. The study reveals that despite achievement of high economic growth rates and gross domestic product in post reform period in India, economic reforms failed to enhance 'Economic Adaptive Capability' among people and bridge the gap between haves and have nots.

**Keywords:** Economic Adaptive Capability, Economic Crisis, Economic Growth, Economic Reforms, Human Development, Social Sector.

### Introduction

There were many external and internal imbalances in India that led to the economic crisis in 1991 as the Indian economy was very vulnerable in pre-reform period. It was followed by reforms which were revolutionary in nature. The introduction of economic reforms in 1991 put Indian economy on the growth path. Today India is the third richest economy in the world in terms of Purchasing Power Parity (PPP) and one of the fastest growing economies in the world. But does India achieve 'Acceptable Development' in post reform period? It implies that whether India's high economic growth rate in post reform period has a 'Human Face'? Whether neo-liberalism has enhanced the 'Economic Adaptive Capability' of the people in India?

Therefore, alongwith economic reforms it is important to analyse the question of its implications especially after more than twenty years of reforms in India. In terms of economic progress these reforms have transformed India to the second fastest growing economy while fourth richest in 2007 and third richest in the world recently. Therefore, economic reforms have undoubtedly proved a major push of economic success even beyond expectations in some sectors. The impact of economic reforms on external sector more importantly; foreign trade, foreign direct investment and external debt have been outstanding. Then how come the question of credibility of neo-liberalism in terms of its impact on the social sector often comes up? Is it really important or less important than economic indicators or completely claptrap? This is due to the perplexing as well as perilous impacts of neo-liberalism on social sector in India if we consider it from the point of view of welfare objective or enhancing 'Economic Adaptive Capability' among Indians. A distinct judgment comes up if we look at the welfare aspect

in India which is far below expectations and failed to make any noticeable improvement. Therefore, the paper discusses these very indispensable and critical issues that are the most neglected pieces lost in today's glorified Indian economic scenario.

### Raison d'être for Economic Reforms in India

The foundation of economy of India in early nineties was not muscular enough to shoulder the burden of unprecedented economic crisis. Indian economy witnessed number of external and internal instabilities like droughts, floods, wars, political instabilities, high oil prices which inflated import bill etc (Rais, 2010) in pre-reform period that over a period of time deteriorated Indian economy's balance of payment situation. All these factors slowly eroded economic immunity of India to counter major economic crisis or recessions. Therefore, India could not bear the attack of several global instabilities (like Gulf War, disintegration of Soviet Union, increase in global oil prices, etc) and domestic crisis (high expenditures in the decade of eighties, political crisis, rising debt burden, falling foreign exchange reserves etc) in 1991 which capitulated to economic crisis.

In 1991 all the critical economic indicators were in danger zone. The consolidated gross fiscal deficit of the central and state governments had reached the level of 9.4 percent of GDP, the current account deficit 3.1 percent of GDP and trade deficit 3.2 percent GDP. The inflation rate was more than 10 percent and by the summers of 1991, foreign exchange reserves were below two weeks worth of imports. GDP growth rate was 1.3 percent in the crisis year 1991-1992. The debt servicing payments amounted to as much as 35.3 percent of current foreign exchange receipts. Short term debts amounted to a dangerously high level of 146.5 percent of foreign exchange reserves by the end of March 1991. The internal debt increased from 35 percent of GDP in 1980-1981 to 53 percent of GDP in 1990-1991. India's external debt was \$ 83.8 billion and the debt service payment was about 30 per cent of exports of goods and services in 1990-91. The affect was directly on foreign exchange reserves which declined to \$1.1billion (Srinivasan and Tendulkar, 2003). The last options for Indian economy after persistent efforts like obtaining reserves from banks in England and Switzerland by shipping gold for meeting its import requirements and to control continuously destabilizing economic indicators were two; either to approach IMF or become a defaulter. India opted for former one. IMF in turn asked for 'Economic Reforms'. Thus, grudgingly India introduced hesitant and reluctant reforms with bleak economic prospects for the critics. Although over the period of time it proved to be 'Blessing in Disguise' for India's 'Economic' growth rate.

There were multiple reasons for emergence of economic crisis in 1991, but one of the most blamed factors seems to be the deficits of the Indian government. Therefore, the economic reforms began with the pledge to reduce deficits by controlling government expenditures, which would in turn led to

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fall in levels of production and hence exports. Therefore, reliance on privatization with incentives to widen their base was considered the best option. It was thought that through disinvestment many public sector units can be made productive. Thus, the process of 'Privatization' began. In order to provide stimulus to domestic industrial production base, many incentives like license raj was abolished, MRTP Act was put to an end, number of industries reserved for public sector were reduced in order to reduce the costs of inputs, tariff rates were also curtailed etc, to bring in 'Liberalized' regime. Lastly, 'Globalization' means integration of Indian economy with rest of the world, was considered an important element for penetration of India in international markets, for bringing in raw materials, foreign technologies, and international collaborations, etc. All these radical changes led to tremendous improvement in the performance of 'economic indicators' of Indian economy in post reform period. India's economic growth rate, GDP (PPP), foreign exchange reserves, foreign investment inflows etc improved tremendously while external debt, current account deficits, trade deficits, etc remained under control.

As said earlier, the motive of introduction of economic reforms was to strengthen the very foundation of Indian economy and at the same time it was believed that the benefit of high GDP will be transferred to the population since the economic crisis of 1991 had an adverse impact on people too where the lower and lower middle class were the worst victim. Now there are many ways in which the impact of reforms on population can be analyzed, e.g by studying the impact on social sector as a whole, or on health and education, increase in per capita income etc. An attempt has been made in this paper to present this issue in a slightly different way. Since economic reforms were introduced due to economic crisis, whose impacts are most dreadful on weak and vulnerable section of the society, therefore the very essence of economic reforms should also led to strengthen the capability of its population to bear the attack of such crisis either domestic or global in near future with enhancing 'Economic Adaptive Capability' of the population.

### **Economic Adaptive Capability in India**

Economic Adaptive Capability (EAC) implies how far economic reforms have geared up the common people in a country to face adverse consequences of either global or domestic economic crisis. EAC consists of indicators which are essential for strengthening the potentials of population in any economy. It is important to examine how far India does well on this front in post reform period. Today 'Economic Adaptive Capability' is extremely significant since global economic crisis as well as domestic crisis (such as; inflation, etc) has become a regular phenomenon. Therefore, it is not possible to avoid the impact of such recessions but at least the adverse consequences can be minimized by strengthening 'Economic Adaptive Capability' or

increasing society's immunity for such uncertainties. For example: the lower 'economic adaptive capability' of people implies lower per capita output during crisis years and hence economy takes a longer period to come back on the growth path in post crisis years. Further lower 'economic adaptive capability' will put greater burden on the government at the time of crisis. We need to prepare our public to understand such phenomenon and act like daring citizens at the time of crisis rather than raising further burden on the government. At normal times it is the government which runs the country but at the time of recession it is the people efforts and contributions which facilitate government to recover from such situation.

The components of 'Economic Adaptive Capability' are:

#### 1. Greater Understanding or Awareness among Population:

Simply by having an improvement in literacy rate is not enough. We need to broaden the horizon of people. They should be made aware about the importance of their contribution to the economy as a human resource. People particularly from lower and lower middle class (which constitute the masses) should be the focus since they are the most uninformed and ignorant section which over a period of time become burden on the economy. Even after becoming the third richest economy in the world India paid insignificant attention on this issue. It still possesses a large section of population who are unaware about the basic economic information. This trend is more observable in people living in rural areas, tribal areas, slum dwellers, poor migrants etc. Their only aim is to get two time meal a day. India has to convert that section of population into human resource since they constitute a significant portion of India's population. Media can play a crucial role in this direction.

#### 2. Human Development Index:

Even after two decades of economic reforms, Human Development Index rank of India is among world's poorest economies. HDI rank should be moved up by increasing spending on social sector. For example: high per capita income implies high disposable income which inturn will raise purchasing power among Indians and will support their vital requirements at the time of economic crisis. A high level of per capita income will also help to counter adverse consequences of inflation. The reason for low HDI rank is the long time period involved in the outcome from investment in social sector, like health and education, etc. Government in order to brighten up their progress cards for elections invests mostly in sectors that give quick returns and raise GDP. It is for this reason that India's HDI rank is equivalent to world's poorest economies while GDP rank is among world's richest economies.

Raising 'economic adaptive capability' of people implies in other words improving human resource. It is important for India to turn the huge population of India into economically productive group so as to reduce the burden of population on

Indian economy.

### 3. Women's Role in Economic Development:

A significant portion of dependent population in India consists of women. Women's contribution in Indian economic development is still poor due to various cultural and traditional constraints. Still they are not seen as a source of income creator and their potentials remain unutilized. In case of some metropolitan cities like Delhi, Mumbai, etc women play a far better role in economic development than rest of the country. The very discrimination begins at the time of providing primary education to girls. Such phenomenon is more observable in rural, remote areas in India. It is ironical that economic reforms in more than two decades failed to improve the economic status of women particularly in rural areas and still they are the most vulnerable elements which are adversely affected by economic crisis. Investment in women's development is still an unnoticed aspect in India. Evidence proves that increase in income of women leads to overall improvement in standard of living of household, i.e children's education, health, etc thereby contributing towards improvement in 'Economic Adaptive Capability'.

### 4. Per Capita Output:

High Per Capita Output will ensure stability at times of economic crisis. India has a large population but has over the period of time become a burden on Indian economy due to their low and sometime negligible economic productivity. Indians produce poor per capita output. There is a need to increase skilled labour force in India which could fetch high per capita output as well as earn them high per capita income.

### 5. Banking System:

An effective banking system will provide a shield to the economy against adverse consequences of economic crisis. This will ensure deposit security. A sense of economic insecurity among masses at time of economic crisis could prove perilous for the recovery process of economy after economic crisis and will subsequently threaten the investment prospects too.

### 6. Agricultural Sector:

Developed agricultural sector implies high productivity and hence more supply of food products at low prices. It is important to ensure required supply of food products to people at reasonable prices and reduce import bill burden at the time of economic crisis. In India poor public distribution system further deteriorate the supply process of agricultural products thereby leading to inflation problem too.

India can no more give 'population' factor as a justification for poor social sector performance because other highly populated, high GDP (PPP) economies provide far better social sector services therefore much better HDI ranks (Rais and Wahab, 2010).

**Table. 1**

Economic s	GDP Rank *	HDI Rank*	Population Rank***
USA	1	4	3
China	2	101	1
India	3	134	2
Japan	4	12	10
Russia	6	66	8
Brazil	7	85	5

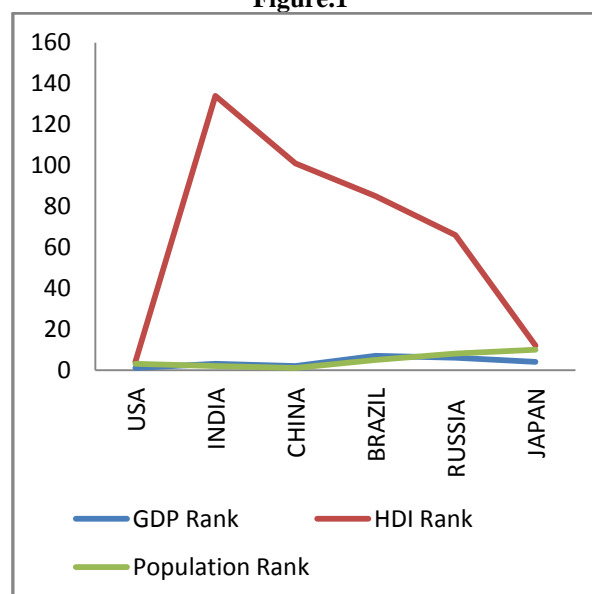
Source: \* International Monetary Fund 2011, Washington D.C.

\*\* Human Development Report 2011, United Nations Development Programme, New York.

\*\*\* Population Division, United Nations Department of Economic and Social Affairs, New York.

Table 1 shows that world's richest economies like USA, China, Japan, etc are not only the richest economies but also among world's most populated economies ;China, world's most populated country; USA third most populated after India; Brazil fifth largest populated economy, all these economies have higher human development index rank than India particularly USA, Japan, Brazil. Figure 1 shows that among all the selected economies the difference between HDI ranks and GDP/Population ranks is highest for India.

**Figure.1**



### **Conflicting Ideas**

Therefore, outcomes of neoliberal reforms created a diverse schools of thought among economists, some shielding on account of economic progress while others conflicting on the basis of social sector breakdown. Which factor is more significant? Let us now put it in different perspectives. The definition for a rich economy implies more importantly high GDP while that of poor means low GDP and countries are ranked accordingly by international agencies. Today, India is third richest economy in the world, much

appreciation are due to economic reforms in 1991, without which this would have been an unattainable dream. But in terms of human development, India's performance is equivalent to poorest nations of the world. This implies that economic reforms in India have failed to fulfill its basic essence due to lack of motivation, management and the obsession towards GDP. In other words it failed to enhance 'Economic Adaptive Capability' among Indians to counter global or internal economic recessions.

Following are some of the views of the top Indian economists about the impact of economic reforms on Indian economy:

According to Jagdish Bhagwati economic reforms must emphasise on –

*"The two areas where reforms are necessary and critical, if the outward orientation is to produce growth rates of 9%-10% rather than of 6% and we are to truly reproduce the East Asian miracle a quarter century behind are –*

*(i) The public sector which cries to be privatized now.*

*(ii) The ability of firms to extract greater efficiency from the labour force, including the application of changed laws that permit workers to be laid off as necessary through with appropriate safeguards".* (Jagdish Bhagwati, 2008)

However, some economists are more concerned about neglected sectors in policies of economic reform. For example, according to Abhijit Sen –

*"A curious aspect of the current liberalization policies now being implemented with verve, and amidst much debate, in India is that there is almost no discussion about the likely impact on agriculture.... The most remarkable aspect of the current economic reform strategy of the government so far is that while it purports to be a virtual overhaul of the entire economy which will revolutionise its working, there is effectively no serious consideration of agriculture".* (Abhijit Sen, 1992)

Further there are economists who have raise concerns of possible adverse consequences of reforms in India. Of them is Utsa Patnaik, who emphasize the viewpoint that we must also take into account possible consequences of trade liberalization –

*"It is often accepted as an unquestioned truism by economists, including economists from developing ex-colonized countries, that the freest possible international trade, is necessarily a good thing for everyone participating in that trade. For over two centuries now the ideology of free trade has been so thoroughly dinned up into the heads of students via, the textbooks and in today's world also via the conventional wisdom filtering through the print and electronic media, that any systematic alternative viewpoint which stresses the costs of 'free trade' is hardly ever encountered"* (Utsa Patnaik, 1999).

Also, we have a group of economists raising questions about the inclusion of social dimensions in policies of economic reforms. For example according

to Amartya Sen –

*"If the 'strategy' behind India's economic reforms and liberalization draws not only on theory (such as comparative cost, economies of scale and so on) but also crucially on the empirical observation of successful experiences of export oriented growth in other countries, particularly in east and south east Asia, the question has to be asked whether the relevant conditions – both social and economic are really similar.....Conditions that are particularly favourable to widespread participation of the population in economic change. The relevant features include high rates of literacy.... can we expect in India results similar to those that the more socially egalitarian countries have achieved, given that half the Indian population are still illiterate.....were the reforms much too conservative in keeping intact governmental over action in trade and manufacturing industries?"* (Amartya Sen, 2008).

### **Other Challenges in India**

The need for creating 'Economic Adaptive Capability' among Indians becomes more important in today's era of economic uncertainties. In recent years, frequent eruption of economic instabilities in European economies warned of yet another global economic recession in near future and this time it will be greater in intensity since the world markets are still recovering from the distasteful impact of global economic recession of 2007.

Further, India's domestic economic crisis (2012) is aggravating day by day. India's critical economic indicators are giving perilous warnings signals. The crucial economic indicators like; economic growth rate is falling down, growth rate in services sector, manufacturing and farm sector is below expectation, inflation rates going up, foreign exchange reserves witnessed a sharp fall this year, etc.

If global economic recession appears in 2014 as is expected, it will be unsafe for Indian economy since the world economies will be facing the impact of global economic recession while India will probably be the only economy to face global economic recession as well as domestic economic crisis (might be similar to 1991) if domestic economic indicators are not improved immediately. The year 2014 will also be a parliamentary election year for India. In case of impact of global recession on Indian economy who is going to take responsibility or provide solution? Such situation requires immediate solution. All of us know the chaotic situation which our politicians create at the time of election for getting votes. At that time that the politicians will not be ready to spare their time for thinking about measures to deal with the adverse consequences of global economic recession in India. Rather they will prefer spending their time for rallies, preparing speeches, keeping an eye on opposition party's movements etc. Further the large scale expenditures on elections in 2014 will be enough to destabilise the Indian economy in the event of continued rise of inflation. India has to prepare its

population for such uncertainties.

Besides this, other challenges where India has to do a lot are:-

1. Climate change.
2. Increasing population and unplanned urban development.
3. Unskilled population eventually becoming burden on economy.
4. Unsustainable economic growth rate.
5. Rising crime rates.
6. Rising corruption/scams in India.
7. High expenditure on defence.
8. Regional inequality.
9. Inflation.
10. Poor representation of women in economic development process.
11. Low literacy rates/high dropout rates.
12. Poor HDI rank.

### Conclusions

Economic reforms brought radical changes in the crucial economic indicators of Indian economy. The

gross domestic product increased many folds and India became third richest economy in the world in terms of purchasing power parity index. However, over the years India failed to percolate the gains of high GDP into its masses. A large number of lower and lower middle class population still feels economic insecurity which led to poor 'Economic Adaptive Capability' among Indians.

The outcome of economic reforms depends on the degree of economic reforms introduced, that is: the intensity and frequency of reforms introduced along with the timing of reforms. The results will be much more fruitful and prolific if they are introduced in normal years rather than in abnormal years or at time of economic crisis. Therefore, economy should not wait for any recession to initiate the programme of economic reforms. It should be considered a continuous process.

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## Analyzing the Technical and Scale Efficiency of Paper Firms in India

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### Abstract

This paper analyzes the technical and scale efficiency of paper industry in India for the year 2009-10 using the non-parametric approach Data Envelopment Analysis (DEA). Empirical results show high technical efficiency levels for most of the firms under study. However, their technical efficiency levels can be further improved by upgrading the skills of local workers through increased expertise and training and by investing in research and development to identify the suitable alternate fibrous raw materials to replace the imported conventional fibres used for paper making.

**Keywords:** Data envelopment analysis, Indian paper industry, Technical efficiency

### 1. Introduction

Paper Industry is one of the most important industries having a bearing on the economic, environmental, and social development objectives of the country. Indian paper industry is the 15<sup>th</sup> largest in the world with the total production of 10.11 million tons paper per annum which is 2.6% of the total world production of 394 million tons/annum of paper (Government of India (GOI), 2011). It was in 1832 that the first paper mill in India was set up at Sreerampur, West Bengal. It was based on grasses and jute as raw material. The paper industry is the second industry to be liberalized in India after the cement industry. However, prior to the liberalization phase of the 1990s, the Indian paper industry was partially delicensed in 1984-85. Indian paper industry has witnessed rapid growth in level of output, number of production units and variety of paper and paper products over the period of time. However, the industry has not been able to fill the gap between demand and supply through domestic production resulting into growing imports of paper and paper products. In 2010-11, the demand and supply of paper in India was 11.15 and 10.11 million tons respectively (GOI, 2011).

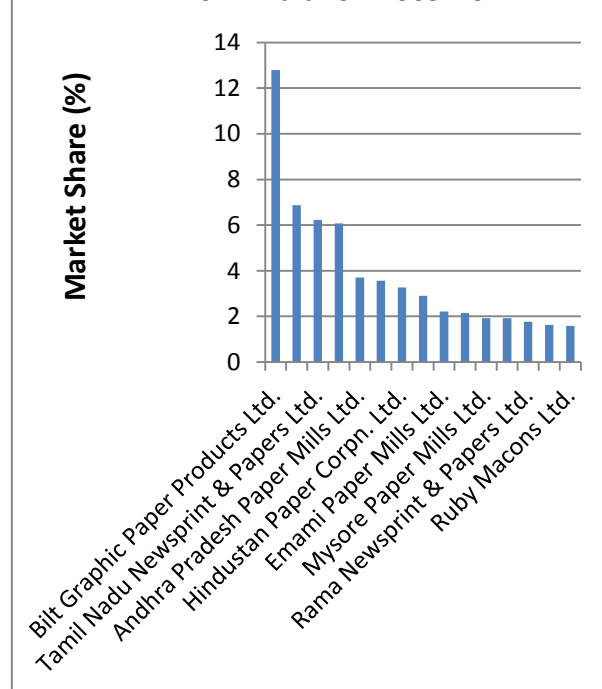
The paper industry in India is also highly energy-intensive and pollution emitting industry. It is ranked sixth largest energy consumer in the Indian industrial sector. About 75–85 percent of the energy requirement in pulp and paper production is used as process heat and 15–25 percent for electrical power. Coal and electricity are the two major sources of energy in Indian paper industry (World Bank, 2011). The Indian paper industry emitted 5222.50 million tons of CO<sub>2</sub> emissions in the year 2007 which is

about 1.2% of the total CO<sub>2</sub> emissions of Indian industrial sector in 2007 (GOI, 2010).

The Indian paper industry consists of few large players and large number of small players.

The top fifteen players in the paper industry account for about 60 percent of total market share in India. Rest of the market is captured by large number of small players. Figure 1.1 presents the market share of the top fifteen firms in the Indian paper industry for the year 2009-10. It can be seen from figure 1.1 that Bilt Graphic Paper Products Ltd. has emerged as a leader with a market share of 12.78 percent whereas J K Paper Ltd. and Tamil Nadu Newsprint & Papers Ltd. are the second and third largest players in the market with the market share of 6.8 and 6.2 percent respectively. Ballarpur Industries Ltd. and Andhra Pradesh Paper Mills Ltd. are the fourth and fifth largest players in the market. In view of immense importance of paper industry in the socio-economic development of the country, it becomes extremely important to analyze the efficiency performance of Indian paper industry in the changing-policy scenario. Moreover, measurement of firm performance can provide useful insights into the competitiveness of firms and their potential for increasing efficiency levels and improving resource use. Being a highly energy-intensive industry, the development of this industry

**Figure 1.1: Market Share of Paper Firms in India for 2009-10**



Source: Based on data from CMIE

will put tremendous pressure on the already depleting energy resources of the country. It is important to note here that increase in efficiency of manufacturing sector in general and energy intensive sector in particular has the effect of moderating the growth of energy demand (Mongia et al. 2001). Enhancing the

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technical efficiency level of paper industry would definitely put lesser pressure on the energy resources leading to sustained growth of industry. With this background in our mind, the present study aims to evaluate the relative technical and scale efficiency level of paper firms in India.

This paper is organized as follows. The review of literature on Indian paper industry is discussed in section two. Section three describes the methodological framework and the database for the current work. Section four presents empirical results and section five concludes the paper.

## 2. Review of Literature

As far as the paper industry in India is concerned few researchers (Schumacher and Sathaye, 1999; Pradhan and Barik, 1999; Mongia et al. 2001; Pattnayak and Thangavelu, 2005) have tried to analyze the productivity of this industry. The brief outline of productivity studies conducted in the paper sector of India is discussed below.

Schumacher and Sathaye (1999) derived both growth accounting and econometric estimates of productivity growth for the paper and pulp sector of India. Results show that productivity declined over the observed period from 1973-74 to 1993-94 by 1.1% per annum with a bias towards increased use of energy and material over labor and capital inputs. Since 1990, the sector has suffered a tremendous downfall in accordance with overall economic recession. The decline in productivity was mainly caused by the high tariffs on imported paper products and other policies, which allowed inefficient, small plants to enter the market and flourish.

Pradhan and Barik (1999) estimated TFPG of eight most polluting industries including paper and pulp, cement, chemical and chemical products, glass, iron and steel, non-ferrous metals, pottery and earthen-ware and structural clay with the help of translog cost function. The empirical findings of the exercise on data of aggregate manufacturing sector and eight selected industries of India reveals that the decline in TFPG is consistent with that of aggregate manufacturing sector in six out of eight industries (cement, glass, iron and steel, non-ferrous metal, pulp and paper, pottery and earthenware) as one moves from 1975-76 to 1985-86 to 1992-93. The average TFP in the paper and pulp sector was 0.0352 during the study period.

Mongia et al. (2001) assessed the impact of policy reforms on total productivity growth in five energy-intensive sectors of India, namely aluminium, cement, fertilizer, iron and steel, and paper. Assuming a four-input translog production function specification, they used growth accounting method to decompose the growth of output into growth of inputs and a residual representing total productivity growth. A major finding of the paper is that overall productivity growth in these industries was quite low during 1973-1994. However, there were significant differences in productivity growth across industries during this time period. The results show that total productivity growth in these industries during the

period 1973-1994 was insignificant, although productivity growth varied across industries. It was significantly positive in the fertilizer industry, positive but low in aluminium and cement, and negative for paper and iron and steel industry. Productivity growth was not uniform over time either. The analysis of results for two sub-periods, 1973-1981 and 1981-1994, show that changes in technologies and production conditions triggered or induced by policy reforms helped increase productivity growth significantly in the cement and the fertilizer industry. The effect of policy changes was less significant in the case of aluminium industry. Productivity growth was adversely affected in the case of paper and iron and steel sector. The paper industry witnessed a decline in productivity for almost the entire period of our study. Significant declining trends in the capital and energy productivity were mainly responsible for the TPG rate of 0.88% p.a. Overall, policy reforms did not go far enough to significantly affect productivity growth in India's energy intensive sectors.

Pattnayak and Thangavelu (2005) studied the economic reform and productivity growth in Indian manufacturing, including paper and paper products industry and found a little increase in the growth of TFP of paper and paper product industry during post-reform period.

Chirayil (2008) applied the Malmquist Productivity Index in order to estimate total factor productivity growth and its components (efficiency change and technological progress) in Indian paper and paper products industry during pre and post-reform period. The obtained estimates of TFP change indicate that the net impact of economic reforms on the productivity growth of paper and paper products industry was negative. It was found in this study that the technical efficiency change and the technical change was the deteriorating factor for productivity change in Indian paper and paper products industry (Table 2.1 - refer annexure).

Above studies pertaining to Indian paper sector covers relatively older time period in the past. With the implementation of policy reforms and environmental regulations, there is need to conduct the performance evaluation of paper firms in India using recent data. Therefore, the current paper is an attempt to bridge this gap with the objective of examining the relative technical and scale efficiency of paper firms in India.

## 3. Methodology and Database

### 3.1 Methodology

For studying production efficiency there are two principal methods. These are parametric and non-parametric methods. Among the parametric methods, it is Stochastic Frontier Analysis (SFA) and among non-parametric methods it is Data Envelopment Analysis (DEA) that is widely used by the researchers. DEA is an effective analysis tool for productivity and efficiency analysis, which permits the simultaneous incorporation of multiple inputs and outputs in the analysis. Also, being non-parametric in

nature, it does not require the specification of a priori, well-defined functional form for the particular production process being analyzed. The principal advantage of SFA over DEA is that it accounts for stochastic noise.

DEA has gained increasing popularity as a tool for evaluating efficiency of a Decision making unit (DMU). Applications have been numerous and most applications can be found in public sectors such as health care, education, transportation and bank institutions. An extensive survey of DEA-based studies has been done by Emrouznejad et al. (2008). The DEA model can either be an input-oriented or an output-oriented. The earlier one indicates by how much the inputs of an inefficient DMU could be reduced to maintain the same levels of output to make it DEA efficient. The later one provides information by how much the output could be increased by using the same levels of inputs to make it DEA efficient. Costs incurred by any firm are under the direct control of its management. Therefore, in this study an input-oriented model has been followed. The model proposed by Charnes et al. (1978a, 1981b) is based on the assumption of constant returns to scale (CRS) under which the production possibility frontier is formed without any scale effect. Later, Banker et al. (1984) popularly known as BCC, proposed that the CRS model can be extended to variable returns to scale (VRS) model by adding the convexity constraint to it. This revised model allows the breakup of CRS technical efficiency into VRS technical efficiency and scale efficiency. In this study, BCC DEA model is used. The relevant DEA model to measure technical efficiency is as follows:

$$\theta^* = \min \theta$$

Subject to the following constraints:

$$\sum_{j=1}^n x_{ij} \lambda_j \leq \theta x_{i0} \quad (i = \text{capital, labour, energy, material}) \quad (i)$$

$$\sum_{j=1}^n y_j \lambda_j \geq y_0 \quad (\text{output}); \quad (ii)$$

$$\sum_{j=1}^n \lambda_j = 1 \quad (iii)$$

$$\lambda_j \geq 0, \quad j=1,2,\dots,n \quad (iv)$$

Note that Inequality (i) indicates that inputs employed by the virtual DMU (weighted combination of the all the inputs of all the firms) must be less than or equal to actual number of inputs employed by the test DMU. Inequality (ii) ensures that the output of virtual DMU (weighted combination of the outputs of all the firms) should be atleast equal to the output of the test DMU. Equation (iii) indicates the variable returns to scale (VRS). In case of constant returns to scale (CRS), condition (iii) is relaxed.

### 3.2 Database

In the current work, firms have been selected on the basis of their performance in terms of market share. For measuring the technical efficiency, the top 25 firms in terms of sales, for which data is available for 2009-10 from PROWESS, a statistical database that is produced and maintained by the Centre for Monitoring Indian Economy (CMIE), India, have

been chosen to form the sample. These 25 firms account for 72 per cent share of the paper industry. The data on value of output and four input variables viz., raw material expenses, salaries and wages, power and fuel expenses and capital employed for the year 2009-10 have been collected from PROWESS. The results have been obtained by using DEAP software developed by Coelli (1996).

### 4. Empirical Results

Findings of the empirical analysis conducted on paper firms in India for the year 2009-10 using DEA are presented in Table 4.1 (in annexure). The figure representing both CRSTE and VRSTE of paper firms in India for the year 2009-10 is given in annexure.

A firm is technically efficient if it produces the maximum attainable output and scale efficient if operating under CRS. It may be noted from the results that under CRS framework, ten firms out of twenty five firms emerged as technically efficient (Table 4.1, refer annexure). But when this assumption is relaxed and VRS model is considered, nine more firms turned out to be lying on the technical efficiency frontier. Hence, these nine firms that are inefficient on CRS frontier are as a matter of fact not inefficient but since the CRS TE measures are confounded by scale efficiency therefore, firm's performance on the pure technical efficiency is not revealed. On VRS frontier, nineteen firms are emerging as technically efficient and eleven firms are scale efficient (Table 4.1, refer annexure). These nineteen firms are Bilt Graphic Paper Products Ltd., J K Paper Ltd., Tamil Nadu Newsprint & Papers Ltd., Ballarpur Industries Ltd., Andhra Pradesh Paper Mills Ltd., Hindustan Paper Corpn. Ltd, N R Agarwal Inds. Ltd., Mysore Paper Mills Ltd., Hindustan Newsprint Ltd., Ruby Macons Ltd., Shah Paper Mills Ltd., Rainbow Papers Ltd., Star Paper Mills Ltd., Shreyans Industries Ltd., Pudumjee Pulp & Paper Mills Ltd., Karur K C P Packagings Ltd., Kuantum Papers Ltd., Ruchira Papers Ltd., Parksons Packaging Ltd. Rama Newsprint & Papers Ltd. is the worst performer in the entire group, can produce the same output by 82 per cent of the inputs. The mean efficiency of VRS model for the firms is higher than those of CRS model. Overall, the industry shows a good performance with mean technical efficiency levels of 0.98 (VRS framework) and 0.94 (CRS framework) respectively. The mean technical efficiency of 0.98 (VRS) implies that it would be possible for the paper firms to produce the same output by 98 percent of the inputs. Empirical results show high technical efficiency levels for most of the firms under study. However, there is a scope for the industry to further improve its technical efficiency level. If we look at returns to scale findings, nine firms are showing increasing returns to scale, signifying the underutilization of plants. These firms are Sirpur Paper Mills Ltd., Rama Newsprint & Papers Ltd., Satia Industries Ltd., Star Paper Mills Ltd., Shreyans Industries Ltd., Pudumjee Pulp & Paper Mills Ltd., Karur K C P Packagings Ltd., Kuantum Papers Ltd. and Ruchira Papers Ltd. These

firms can take advantage of returns to scale by expanding their operations upto the scale efficient size. Five firms viz. Bilt Graphic Paper Products Ltd., Ballarpur Industries Ltd., West Coast Paper Mills Ltd., Hindustan Paper Corpn. Ltd. and Emami Paper Mills Ltd. are exhibiting decreasing returns to scale inferring over utilization of their plant capacities. This suggests that these firms should bring down their size of operation to the optimum plant size in order to attain cost benefits.

### 5. Conclusion and Recommendations

This work is an attempt to examine the relative production performance of the paper companies in India by assessing their technical and scale efficiency performance for which data was available in the Prowess for the year 2009-10. Input-oriented model is used to measure the technical efficiency of firms. Results show the mean technical efficiency scores of

0.98 (VRS framework) and 0.94 (CRS framework) for the Indian paper industry. However, Indian paper industry has the untapped potential to further improve its technical efficiency level. Firms with low efficiency levels should be encouraged to invest in skill development to use existing technology more effectively through enhanced expertise and training. R & D needs to be taken up to identify the suitable alternate fibrous raw materials to replace the imported conventional fibres used for paper making to ensure constant supply of raw material to the industry.

### 6. Scope of Future Research

With the help of Malmquist DEA index approach, productivity and efficiency growth pattern of the firms, along with the sources of productivity growth, can be examined over the years.

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### Annexure

<b>Author(Year)</b>	<b>Year</b>	<b>Sector</b>	<b>Key Findings</b>
Schumacher and Sathaye (1999)	1973-74 to 1993-94	Indian Paper and Pulp Sector	Paper and Pulp industry has shown downfall in productivity during the observed period. The decline in productivity was caused mainly by the by high tariffs on imported paper products and other policies, which allowed

			inefficient, small plants to enter the market and flourish.
Pradhan and Barik (1999)	1975-93	Eight most polluting industries including paper and pulp, cement, chemical and chemical products, glass, iron and steel, non-ferrous metals, pottery and earthen-ware and structural clay	Paper and Pulp industry shows declining trend in the total factor productivity growth (TFPG) during the study period.
Mongia et al.(2001)	1973-74 to 1993-94	Six energy intensive industries namely, cement, iron and steel, aluminium, fertilizers, glass, paper and paper products	Paper industry witnessed a decline in productivity for almost the entire period of study. Productivity growth varied across industries. Overall, policy reforms did not go far enough to significantly affect productivity growth in India's energy- intensive sectors.
Pattnayak and Thangavelu (2005)	1981-1998	121 Indian manufacturing industries	Total Factor Productivity (TFP) improvements for most of the industries after the 1991 reform initiatives, which support the evidence of improvements in economic efficiency in key Indian manufacturing industries. Paper industry showed little increase in the growth of TFP during post-reform period.
Chirayil (2008)	1980-81 to 2004-05	Indian Paper Industry	Productivity growth shows declining trend during the study period.

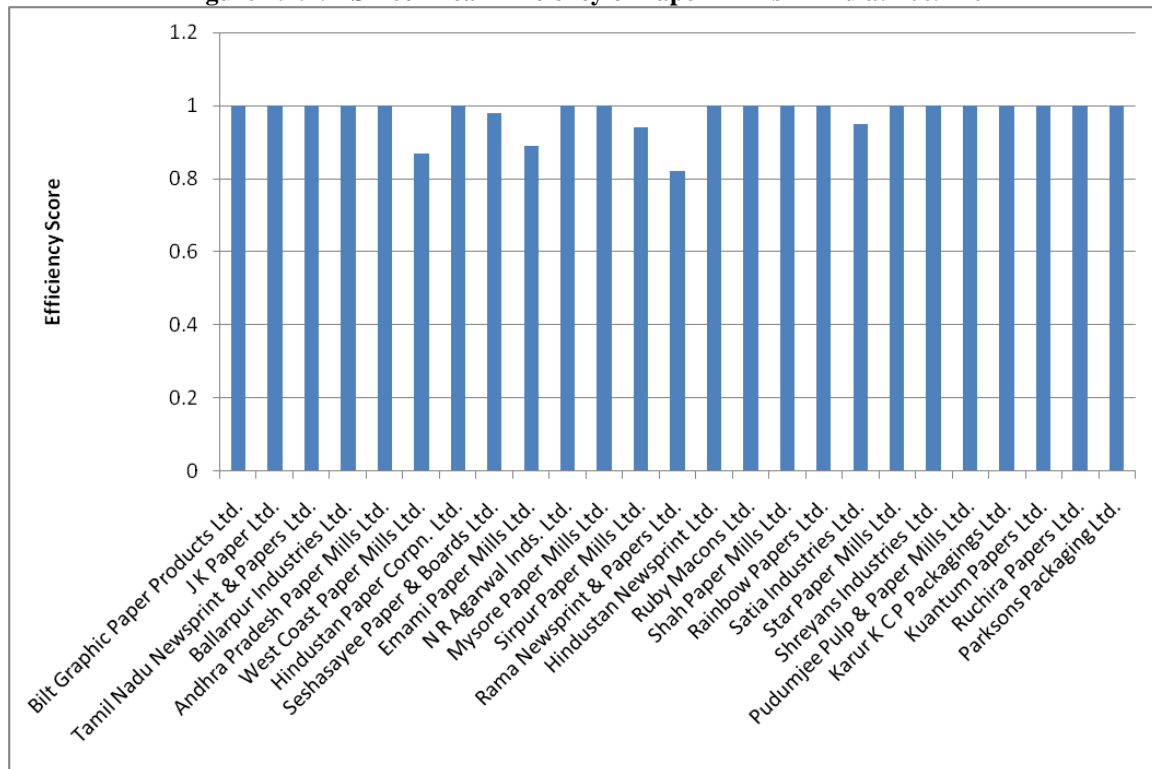
**Table 4.1: DEA Efficiency Scores for Paper Firms in India: 2009-10**

Firm Name	CRSTE	VRSTE	Scale Efficiency	Returns to Scale	Market Share(%)
Bilt Graphic Paper Products Ltd.	0.91	1	0.91	Decreasing	12.78
J K Paper Ltd.	1	1	1	Constant	6.87
Tamil Nadu Newsprint & Papers Ltd.	1	1	1	Constant	6.22
Ballarpur Industries Ltd.	0.93	1	0.93	Decreasing	6.06
Andhra Pradesh Paper Mills Ltd.	1	1	1	Constant	3.70
West Coast Paper Mills Ltd.	0.85	0.87	0.98	Decreasing	3.56
Hindustan Paper Corpn. Ltd.	0.89	1	0.89	Decreasing	3.27
Seshasayee Paper & Boards Ltd.	0.98	0.98	1	Constant	2.90
Emami Paper Mills Ltd.	0.88	0.89	0.99	Decreasing	2.22
N R Agarwal Inds. Ltd.	1	1	1	Constant	2.14
Mysore Paper Mills Ltd.	1	1	1	Constant	1.92
Sirpur Paper Mills Ltd.	0.80	0.94	0.85	Increasing	1.91
Rama Newsprint & Papers Ltd.	0.80	0.82	0.97	Increasing	1.77
Hindustan Newsprint Ltd.	1	1	1	Constant	1.62
Ruby Macons Ltd.	1	1	1	Constant	1.58
Shah Paper Mills Ltd.	1	1	1	Constant	1.56

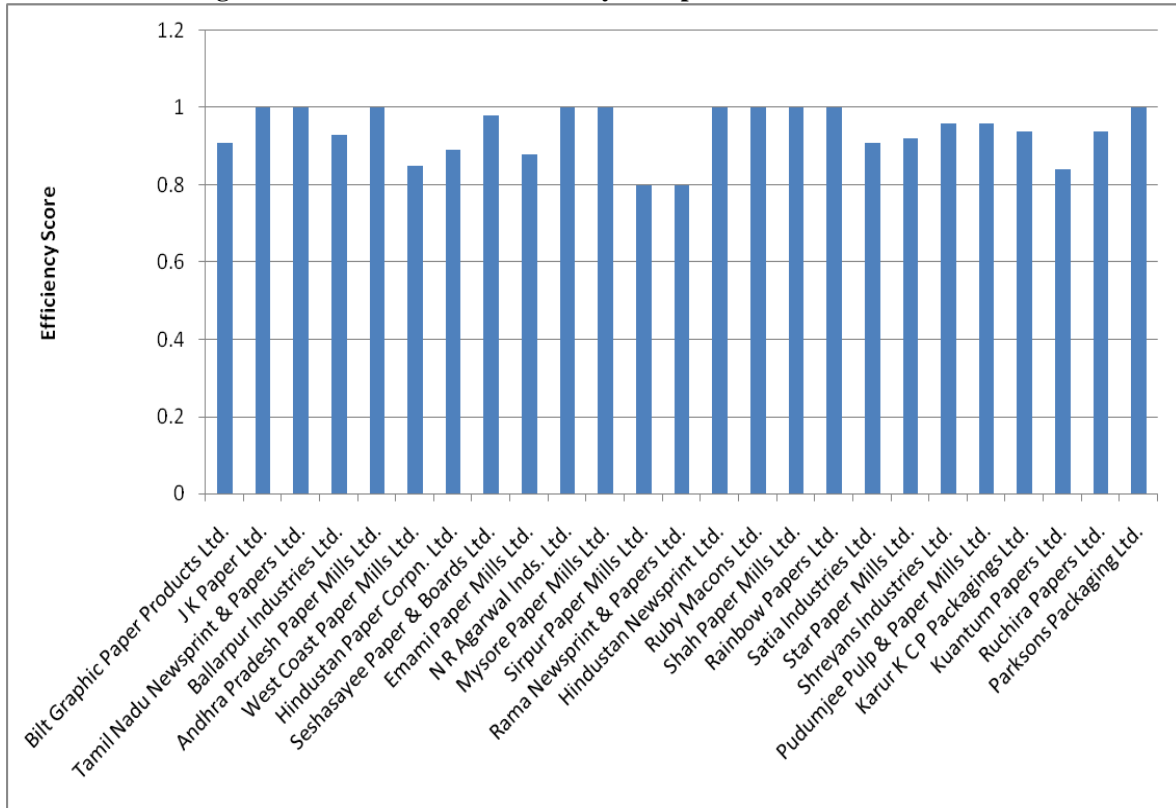
Rainbow Papers Ltd.	1	1	1	Constant	1.53
Satia Industries Ltd.	0.91	0.95	0.96	Increasing	1.48
Star Paper Mills Ltd.	0.92	1	0.92	Increasing	1.45
Shreyans Industries Ltd.	0.96	1	0.96	Increasing	1.36
Pudumjee Pulp & Paper Mills Ltd.	0.96	1	0.96	Increasing	1.23
Karur K C P Packagings Ltd.	0.94	1	0.94	Increasing	1.21
Kuantum Papers Ltd.	0.84	1	0.84	Increasing	1.21
Ruchira Papers Ltd.	0.94	1	0.94	Increasing	1.13
Parksons Packaging Ltd.	1	1	1	Constant	1.11
<b>Mean</b>	0.94	0.98	0.96		

**Note:** CRSTE: Constant Returns to Scale Technical Efficiency; VRSTE: Variable Returns to Scale Technical Efficiency

**Figure 4.1: VRS Technical Efficiency of Paper Firms in India: 2009-10**



**Figure 4.2: CRS Technical Efficiency of Paper Firms in India: 2009-10**



## A Study of Wages of Casual Workers in India

Vandita Sahay\*

### Abstract

Since the early 1990s, the employment structure of workers in India has undergone substantial changes with the steep rise in the use of casual workers in place of permanent workers. This process has led to increased wage inequality, discrimination as well as the concern for job security in the labour market especially for the casual workers. The focus of the paper is on the average daily wages paid to casual workers. The study uses data from the National Sample Survey reports of 2004-05 and 2009-10 on Employment and Unemployment situation in India. State-wise analysis of average daily wages paid to casual workers is done for 15 major states of India. The paper finds that Kerala is the state with the highest average daily wages per person. There is wage gender disparity between male and female workers and urban wages are higher than rural wages. Casual workers are paid the lowest wages in the primary sector and the highest amount is paid in the secondary sector. The wages of casual workers should increase and should be given permanent status.

### I. Introduction

Employment generation is seen as a vital agent, in the process of development, to productively employ the growing labour force. Employment and wages are two growth engines that provide livelihood to millions of workers in India. The level of wages provides an indicator of the standard of living of the working population. Wages, especially in a developing country, are determined by the demand and supply of labour.

With the reforms in the 1990's, employment generation was given a huge boost with many government sponsored schemes, to provide financial and technical assistance. But during the last one and a half decades, growth in employment and wages in India has been disappointing. The overall economic growth has not been able to translate itself into an increment in the wages and earnings of the workforce. The rate of growth of employment has also slowed down. Also wages differ across different sectors and between male and female and in urban and rural areas as well. The gender differential in employment and wages is quite stark. Although female employment is quite high across all sectors in both rural and urban areas but their wages are often less than male workers.

Casual workers constitute 30% of the workforce and given the strike that took place in June 2012 at Maruti Suzuki plant in Manesar it is all the more important to provide job security to casual workers and to give them the wages they deserve (Padmanabhan, 2011). The paper attempts to study the structure and trends of average daily wages per

person for 15 states, urban casual workers in agriculture and non-agriculture activities and daily wages per person for casual workers in the three sectors. 15 major states are taken on the basis of their area. Many people from North Eastern states migrate to work in these big states. It is based on data from the National Sample Survey reports for the years 2004-05 and 2009-10. The paper attempts to see whether there is a wage disparity between male and female workers? Has the employment rate for women casual workers increased over the years. Which are the states with the highest average daily wages? The paper is divided into four sections. Section II contains the literature review. Section III is about data analysis and interpretations and section IV talks about the findings, conclusion and recommendations.

### II. Literature Review

According to the NSS classification, employed persons are categorised into three broad groups according to their status of employment. These broad groups are: (i) self-employed, (ii) regular employees and (iii) casual labour. According to NSS definition a casual wage labour is a person who was casually engaged in others' farm or non - farm enterprises (both household and non - household) and, in return, received wages according to the terms of the daily or periodic work contract.

Casual workers tend to be the least protected and paid lower wages. Casual workers are employees who do not enjoy the same benefits and security as tenured employees. All daily wage employees and some categories of contract employees are casual labourers. Casual workers constituted about one fifth of the workers in the unorganised non-agricultural sector. In 2004-05, 53% of the casual workers were in the construction sector, followed by 19% in the manufacturing sector (GOI, 2007). According a paper published in Live Mint and The Wall Street Journal, between 2004-05 and 2009-10, number of casual workers grew by 21.9 million, while growth in the number of regular workers nearly halved (compared with the period between 1999-2000 and 2004-05) to 5.8 million; the number of the self-employed, dominated by agricultural workers, declined by 25.1 million. Analysts say that this is being caused by the country's ancient labour laws and by the partly exclusive nature of economic growth (Padmanabhan, 2011). According to the author, the NSS report shows a substantial shift between 1999-2000 and 2009-10 in the structure of the labour force which can be broadly divided into self-employed, regular, and casual workers. Part of the reason could be that 2009-10 was a drought year, possibly forcing some among the self-employed (farmers are part of this category) into casual labour.

Unemployment is among the highest in casual workers compared to the rest other categories of workers. Among them, in rural areas, as high as 66 per cent (among males) and 76 per cent (among females) were engaged as casual labour, while in urban areas, about 31 and 36 per cent males and

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females respectively were casual labour (NSS report 2004-05)

“Till last year, we thought India’s growth could do no wrong. We took it for granted... Now it comes to a point that none of these can be taken for granted. Growth is slow, inflation is structural and structure of employment is not enough to cater to the growing labour force.” said Pratap Bhanu Mehta, president, Centre for Policy Research, a Delhi-based think tank.

Manish Sabharwal, chief executive officer of leading staffing company TeamLease Services Pvt. Ltd, said casual workers constitute 30% of the workforce and added that the main issue is that 92% of India’s workforce is in the unorganized sector.

Agriculture, which used to have the maximum number of labourers employed under it at one point of time, is now unable to productively absorb the growing rural labour force. On the other hand, there has been growth of non-agricultural activities in rural areas in construction, trade, transportation and services which have offered better earnings than agriculture. Most of these employment opportunities have been of temporary and casual nature. But they have provided either full-time or supplementary employment adding to the incomes of the rural households (Papola, 2006).

There has been a structural shift in the rural areas which has resulted in increasing number of casual workers in the total employment. This could be due to the fact that marginal landholders and the landless are not finding gainful work in agriculture and take up whatever work they find in the non-agricultural activities, irrespective of earnings from them. But according to NSS reports many are opting for non-farm work due to more regular employment and better earnings. This has been possible partly on account of various state sponsored employment programmes, and partly because of an increase in the demand for labour in expanding construction, trade and service activities in rural areas (Papola, 2006).

But despite the structural shifts taking place in rural areas, the primary sector still provides employment to bulk of the women workforce in India. In spite of some gradual decline in the percentage of women workers, their share compared to men in agriculture remains significant and has in fact risen due to the shift of men away from agriculture (Rustagi, 2010). According to employment data of NSS reports, women workers, in rural areas, have also shifted into manufacturing; construction; trade, hotels and restaurants; and community, social and personal services, while urban women gained employment in manufacturing and finance, insurance and real estate sectors. The eleventh Five Year Plan document for the first time in the history of Indian planning recognizes women not only as equal citizens but as 'agents of sustained socio-economic growth and change' (GoI, 2008, p. 5).

But even with the recognition of women workers as agents of sustained economic growth, they not only receive lower wages than their male counterparts, the difference is also severe. However,

according to some papers, the overall gender differential in wages is declining over the years, implying a higher wage growth for female workers. Non-farm wages in rural areas is higher than agricultural wages and the gender difference has widened during the post-liberalization period. Wage growth in the informal non-farm sector has decelerated and casual workers, particularly in the agricultural sector, have witnessed the slowest increase in wages (Karan & Selvaraj, 2008).

In India, the labour market is divided in terms of formal-informal, employment status of workers, occupation types, sectors of employment, states and regions, etc. Accordingly, wages and earnings of workers differ across different segments of the labour market (Karan & Selvaraj, 2008). A recent study on the non-farm sector concludes that between 18-25 per cent of rural employment occurred in the non-farm sector at the beginning of the 1990s (Fisher et al 1997). Other important sectors in terms of employment shares were found to include retail trade, personal services, construction, wood products and furniture, land transport, and textiles. While manufacturing activities are often given importance in the non-farm sector, the study shows that services are easily as important.

Traditionally, rural households in developing countries are seen as being exclusively engaged in agriculture. There is evidence, however, that rural households can have highly varied (and often multiple) sources of incomes by working in a wide range of non- agricultural activities, such as wage and self-employment in commerce, manufacturing and services, alongside the traditional rural activities of farming and agricultural labour. Such non-farm incomes can contribute significantly to total incomes of farm households in developing countries (Lanjouw & Shariff, 2004).

Overall, wage rates in the rural non-farm sector are tend to be higher than the agricultural wage, indicating that non-farm activities are emerging as a source of income to casual workers who have either lost their land holdings or are looking for an additional source of income in rural India. It has been noticed that there has been an increase in the share of non- agricultural employment in the rural workforce during the 1980s, with the trend more clearly evident among males than among female workers (Lanjouw & Shariff, 2004) But in the past few years more number of females are working in both farm and non-farm activities. In addition, the evidence appears to point to a more rapid expansion of tertiary sector employment rather than of secondary sector employment, and that the bulk of employment growth is of a casual rather than permanent nature (Lanjouw & Shariff, 2004).

Sachs et al (1999) attributed the low share of employment to the labour market rigidity. The degree of flexibility depends on many aspects of the labour market such as employment contracts, wages, working hours and work organisation (Sivananthiran, 2004). Job and employment security regulations create a network of restrictions that reduce the ability

of the employer to adjust to the changing market conditions (Anant et al, 1999). To cope with such rigidities firms often find alternative route involving various forms of informalities in labour recruitment in the form of casual workers, temporary worker, agency worker, part-time worker and the like. This leads to less and less directly employed workers and increasing number of employed through contracts or agencies (Bhandari & Heshmati, 2006).

India's manufacturing sector is shedding permanent jobs and hiring casual hands to increase profits. This has divided the labour movement and created tensions. The Manesar violence is an example of this change and a cause for a worsening problem. According to an article in Hindu published last year there were an estimated 2,000 workers inside the Maruti Suzuki India plant at Manesar. This included about 700 regular workers. Workers had gone on a strike demanding that the casual workers of the Manesar plant, who have been kept out by the management after signing a deal to end a 33-day long standoff with permanent workers, be taken back. "It is unfair not to take back the casual workers while the permanent workers have been allowed to resume duties," Suzuki Motorcycle India Employees Union president Anil Kumar said.

According to an article "Down and out on India's shop floor" in Hindu 2012, wage payments, as a percentage of the net value created by firms, have dropped from 30.3 per cent to 11.6 per cent over 30 years, as profits have increased from 23.4 per cent of the net value to 56.2 percent, suggesting that firms have become more efficient, but wages have not risen in proportion with profits. The rise of cheap casual labour without any health benefits, provident funds and pensions, could explain this trend.

Leading companies prefer casual workers who can be paid less, given no job security and earn more profits from hiring these workers at low cost. It is with this in mind that the paper tries to see the pattern of average daily wages paid to these workers in 15 states and in the three sectors, namely, primary, secondary and tertiary.

### **Objective**

The objective of the paper is to study the average daily wages and number of casual workers in farm and non-farm sector and to see the trend of daily wages for 15 major states of India. Since the interests of casual workers are not taken care of and their wages are abysmally low the paper tries to analyse their average daily wages per person for the three sectors i.e. primary, secondary and tertiary sectors.

### **Methodology and data**

The paper uses data on casual labourers as they are paid daily wages according to the type of work they are engaged in. Casual workers are taken for study because they constitute 30% of the workforce and also due to data availability. State-wise analysis for 15 states of India for average daily wages is done. The data is taken according to NIC 1998 and 2004 industry divisions for activity status number 51 where

casual wage labour works in other types of works, which include primary, secondary and tertiary industries. The details of the industry divisions are given in the annexure. The data for wages and number of casual workers in the three sectors is taken separately. State-wise gender analysis for average daily wages in urban and rural areas has been done followed by the number of casual workers working in urban areas and finally the average daily wages for the three sectors.

### **III. Data Analysis and Interpretation**

#### **1. State-wise analysis of average daily wages per person**

15 major states of India were taken up to do a comparative study of the average daily wages paid to casual workers for the years 2004-05 and 2009-10. The data is for both rural and urban areas and gender-wise as well. Graph 1 is in the annexure.

Graph 1 shows the state-wise absolute values of average daily wages paid per person to rural casual workers. In 2004-05, Kerala was the state with the highest amount of Rs. 135 paid to casual male workers followed by Arunachal Pradesh with Rs. 104 per person per day. Lowest male wages were for the states Chhattisgarh and Madhya Pradesh at Rs. 37 per person and Rs.38 per person respectively. Similarly, for females, Kerala was the state with the highest amount of wage at Rs. 66 per person, followed by Punjab and Rajasthan at Rs. 53 per person and Rs. 52 per person respectively. Lowest female wages were in Maharashtra at Rs. 28 per person. The female wages for Delhi were not mentioned in the NSS report. In 2009-10, Kerala again was the state with the highest amount of male average daily wages of Rs. 227 per person, followed by Delhi at Rs. 195 per person. The lowest male average daily wages were in Chhattisgarh, followed by Madhya Pradesh at Rs. 70 per person and Rs 74 per person respectively. Similarly, for females, the state with highest average daily wages was Delhi with Rs 200 per person followed by Arunachal Pradesh at Rs. 159 per person. The lowest female average daily wages were in Madhya Pradesh and Maharashtra.

There was a difference in the average daily wages paid per person between male and female casual workers in all states. The wages were higher in 2009-10 compared to 2004-05 for both gender and in all 15 states. There was around 80% rise in male wages for states like Bihar and Uttar Pradesh from 2004-05 to 2009-10. Female wages also doubled in states like Rajasthan and Chhattisgarh between the same period.

It can be seen that although there is a gender gap between the daily wages paid to casual workers, but the wage inequality gap has reduced for most of the states from 2004-05 to 2009-10. Graph 2 is the annexure.

Graph2 shows the state-wise absolute values of average daily wages paid per person to urban casual workers. In 2004-05, Kerala was the state with the highest amount of Rs. 137 paid to casual male workers followed by Arunachal Pradesh with Rs. 134

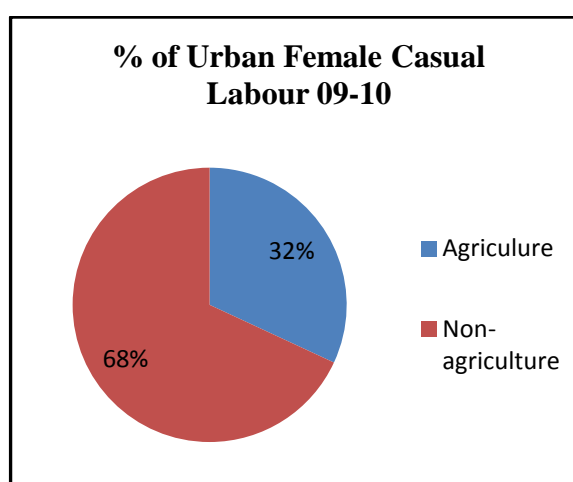
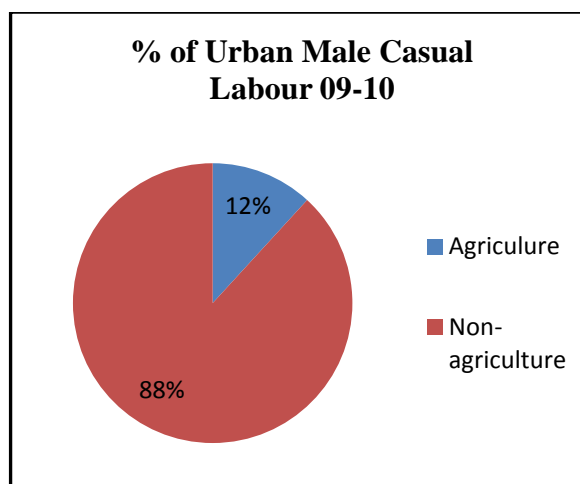
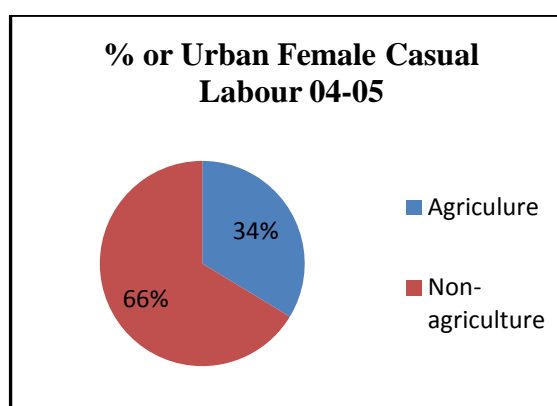
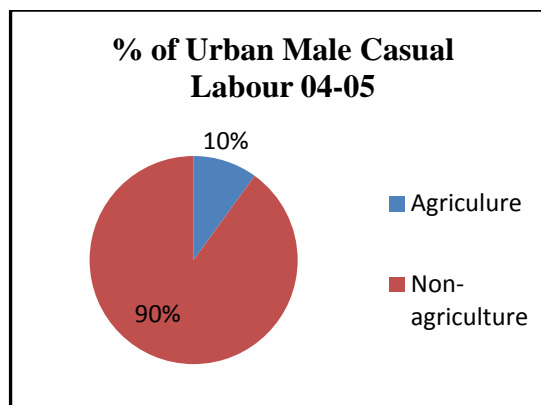
per person per day. Lowest male wages were for the states Chhattisgarh and Madhya Pradesh at Rs. 48 per person and Rs.51 per person respectively. Similarly, for females, Arunachal Pradesh was the state with the highest amount of wage at Rs. 162 per person, followed by Bihar and Kerala at Rs. 81 per person and Rs. 67 per person respectively. Lowest female wages were in Chhattisgarh and West Bengal at Rs. 32 per person and Rs. 33 per person respectively. In 2009-10, Kerala again was the state with the highest amount of male average daily wages of Rs. 237 per person, followed by Delhi at Rs. 173 per person. The lowest male average daily wages were in Madhya Pradesh, followed Bihar by at Rs. 89 per person and Rs 94 per person respectively. Similarly, for females, the state with highest average daily wages was Arunachal Pradesh with Rs 148 per person followed by Rajasthan at Rs. 100 per person. The lowest female average daily wages were in Maharashtra and Bihar.

In absolute term, urban wages were higher than rural wages for both male and female casual workers. But in 2009-10 there was not much difference in the urban male wages between the higher and lower wage values. There was a huge jump between rural and urban female wages for Arunachal Pradesh in 2004—05. They were Rs.50 per person in rural areas and in urban they were Rs. 462, which is a huge increase. Also states like Gujarat and Maharashtra, which are considered to be the most industrialised states in the country, had their average daily wages per person below the national average. Kerala is the state with the highest average daily wages. This could be due to higher literacy rate and less labour available and also the fact that farming is not a major activity in this state and agriculture comprises of mostly cash crops, where the paying capacity is higher.

The wages for female workers were higher in urban areas with a very slight difference from rural areas in the same year. There has been a gender difference in the wages between in 2004-05 which has reduced in 2009-10 in most of the states.

## 2. Employment in agriculture and non-agriculture activity

The non-agriculture sector is one of the major ways of diversification of the rural economies. It has gained importance in recent years due to inability of the agriculture sector to absorb the unemployed rural people. Non-agriculture sector constitutes of a whole range of activities from collecting tree twigs which is used as a tooth brush to teaching in schools. However, most of them are traditional and low technology based. It has been noticed by many studies that there has been a structural shift in labour market from agriculture to non-agriculture activities. This section will see the percentage of urban casual workers working in either of these activities. The data for rural casual workers is not taken as it was not given in the same format in the NSS report.



Source: NSS 61<sup>st</sup> and 66<sup>th</sup> round 04-05, 09-10. Computed.

The pie charts depict the share of casual workers in agriculture (farm) and non-agriculture (non-farm) activities for urban India. The data for rural India on the number of casual workers was not available in the NSS reports. In 2004-05 percentage of urban males working in non-agricultural activities was 90%. Compared to male casual workers more number of urban females were engaged in agricultural activities. But the share of non-agricultural activities was higher for both male and female casual workers. In 2009-10, male casual workers share in agriculture increased by only 2% with 88% still being engaged in non-farm activities. Similarly, for female casual workers the percentage increase in non-farm sector was by 2% and the decrease in farm sector was by 2% compared to 2004-05.

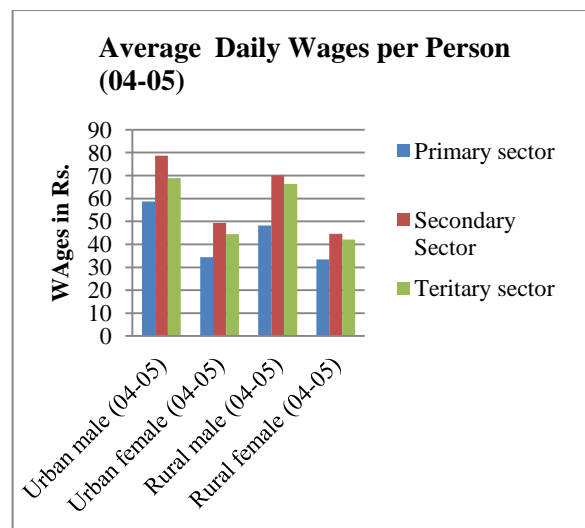
Majority number of casual workers both in 2004-05 and 2009-10 were working in non-farm sector. This is due to the fact that wages in non-farm sector have gone up in the last 10 years. Male casual workers have shifted from working on farm to working in secondary and tertiary sectors like manufacturing, construction, trade, hotels, restaurants, etc. There has been a structural shift from working in agriculture activities to working in secondary and services sector.

It can be observed that a higher percentage of both male and female casual workers have been working in the non-farm sector but the percentage of female casual workers working in agriculture sector has been more than male casual workers in both the years. This shows that more number male casual worker shifted to working in non-agricultural activities.

Over the years the average daily wages in the farm sector has been the lowest compared to the non-farm sector. This can be seen in the next section.

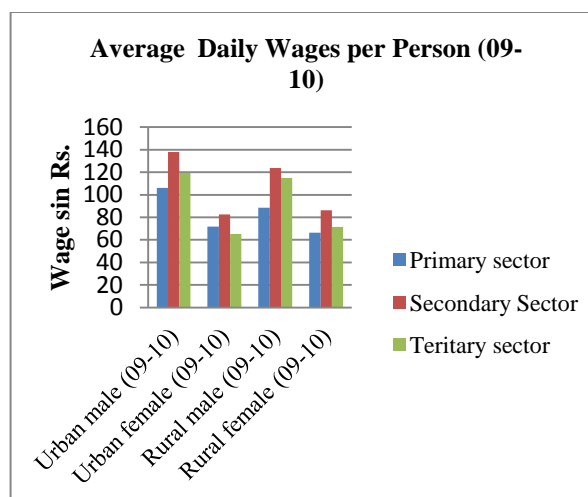
### 3. Average daily wages per person in the three sectors

The average daily wages per person is given for the three sectors i.e. primary, secondary and tertiary. The comparison is done between urban male and female and rural male and female for the year 2004-05 and 2009-10.



Source: NSS 61<sup>st</sup> and 66<sup>th</sup> round 04-05, 09-10. Computed.

The average daily wages paid per person in 2004-05 shows that lowest daily wages were paid in the primary sector followed by the tertiary sector. Secondary sector paid the highest daily wages to both males and females. There is difference in the amount of average daily wages being paid to both genders. Male casual workers were paid higher wages than female workers in all three sectors and in both urban and rural India. The difference between rural male and female wages in the primary sector in 2004-05 was the lowest.



Source: NSS 61<sup>st</sup> and 66<sup>th</sup> round 04-05, 09-10. Computed.

The average daily wages per person increased in 2009-10. For urban males they nearly doubled from 2004-05 in all three sectors. The wages for the secondary sector were the highest for both genders in rural and urban India. The gender difference in wages was minimum in the primary sector between urban male and female. Rural wages were lower compared to urban wages. Also, female wages were lower than male wages for the three sectors.

#### IV. Conclusion

##### Findings

i. In absolute term, urban wages were higher than rural wages for both male and female casual workers. But in 2009-10 there was not much difference in the urban male wages between the higher and lower wage values. In percentage share, it was seen that the share for female wages in both rural and urban areas for the year 2009-10 increased for all states. The wages for female workers were higher in urban areas with a very slight difference from rural areas in the same year. There has been a gender difference in the wages in 2004-05 which got reduced in 2009-10 in most of the states. States like Gujarat and Maharashtra, which are considered to be the most industrialised states in the country, had their average daily wages per person below the national average. Kerala is the state with the highest average daily wages. This could be due to higher literacy rate and less labour available and also the fact that farming is not a major activity in this state and agriculture comprises of mostly cash crops, where the paying capacity is higher.

ii. It can be observed that a higher percentage of both male and female casual workers have been working in the non-farm sector but the percentage of female casual workers working in agriculture sector has been more than male casual workers in both the years. This shows that more number male casual worker shifted to non-agricultural activities. There is a structural shift in workers preferences as more casual workers are working non-agricultural activities.

iii. The average daily wages were highest for the secondary sector for both genders in both rural and urban India. The female average daily wages were lower than their male counter parts in all the sectors. Average daily wages for primary sector were lowest in both the years.

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##### Action to be taken

Provision of a minimum social protection to the large mass of casual workers is a challenge. It requires special attention of the state and society at large in the coming years. As there is a shift in the labour force toward non-farm sector activities, wages and job security should accordingly be provided to the casual workers. Even if the market driven high growth is accompanied by an expansion in employment opportunities, it may not be adequate to address the issue of social protection, in areas like health, nutrition, housing and universal education.

Job security and safe working conditions for casual workers are the need of the hour. Casual workers working in manufacturing and agriculture sector should be given special attention as these workers deal with machinery and technical tools and need safeguard measures. Also the government should try to convert contract labourers who are exploited, into permanent workers as 30% of the workforce in India works on a contractual basis, without any job security.

MNREGA scheme has been a boon for the casual labourers in the rural areas especially the women, who have largely benefited out of the scheme and were able to make choices of their own and have become less dependent on the males. The scheme also has an income effect, where an increase in the income of a woman worker, increases her ability to choose her consumption pattern and makes her independent to make her own choices regarding household expenditure on food, health and education. Tapan Sen, secretary general of the Centre of Indian Trade Unions, said, "Whatever GDP (gross domestic product) is growing, it is because of the labour force. Profit is growing, but the value of labour is going down."

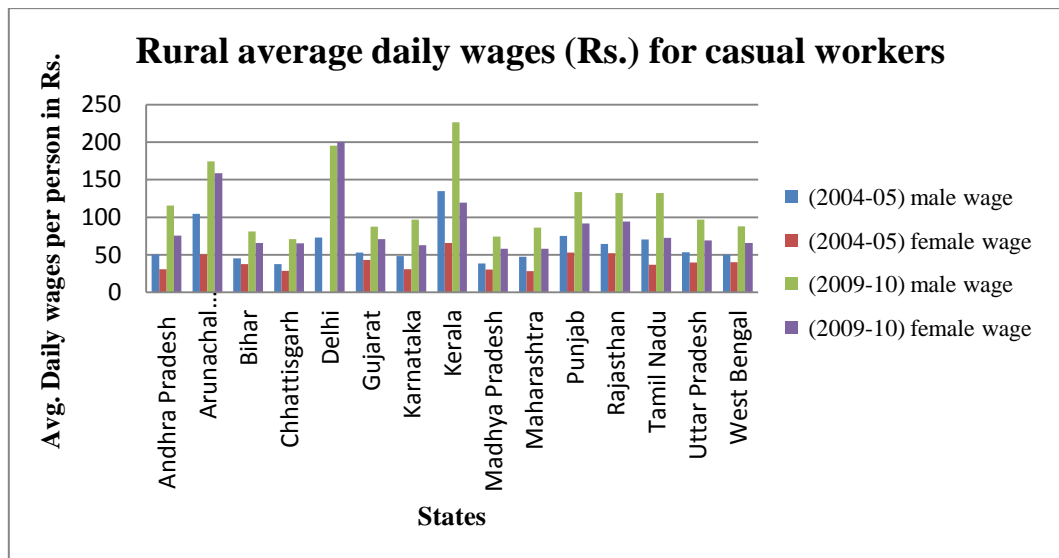
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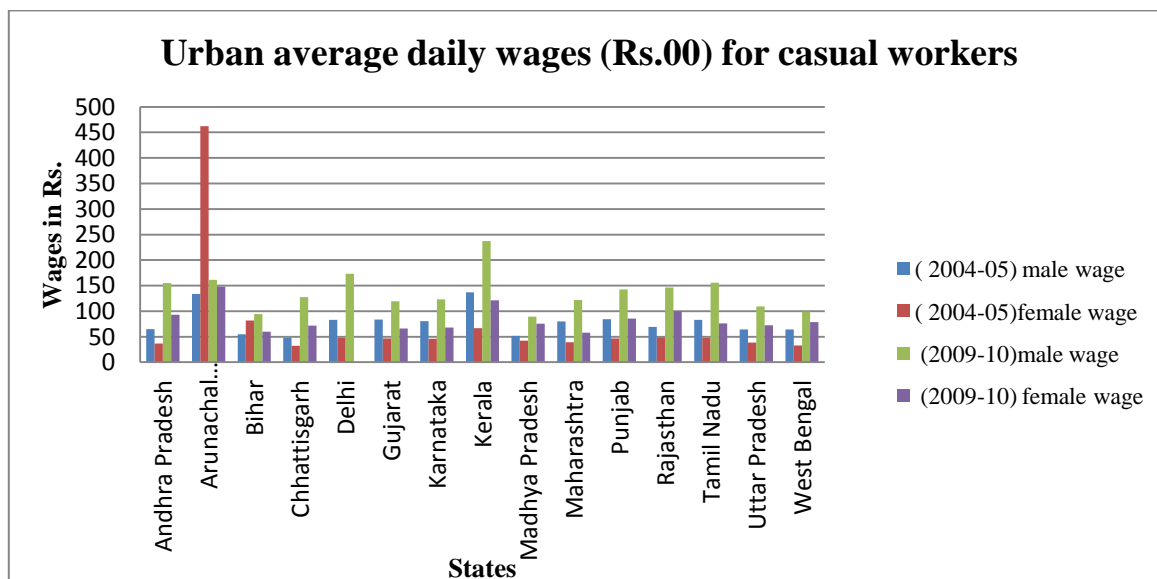
**Annexure**

**Graph 1**



Source: NSS 61<sup>st</sup> and 66<sup>th</sup> round 04-05, 09-10.

**Graph 2**



Source: NSS 61<sup>st</sup> and 66<sup>th</sup> round 04-05, 09-10.

**Table1: Broad industry division by NIC code 2004**

Agriculture, etc.	(01-05)	Primary sector
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Mining and quarrying	(10-14)	Secondary Sector
Manufacturing	(15-37)	
Electricity and water, etc.	(40-41)	
Construction	45	
Trade, Hotel and restaurant	(50-55)	Tertiary sector
Transport, etc.	(60-64)	
Other services	(65-74) (75-99)	
All	(01-99)	

**Table 2: Number of casual workers and their average daily wage sin the three sectors**

<b>.Urban female (04-05)</b>		<b>Casual Labour</b>	<b>Average daily wages per person</b>
51	Primary sector	33	34.4
	Secondary Sector	40	49.34
	Teritary sector	25	44.4
	All	98	43.43
<b>Urban male (09-10)</b>		<b>Casual Labour</b>	<b>Average daily wages per person</b>
51	Primary sector	49	106.17
	Secondary Sector	274	137.96
	Teritary sector	92	119.47
	All	415	130.05
<b>Urban female (09-10)</b>		<b>Casual Labour</b>	<b>Average daily wages per person</b>
51	Primary sector	30	71.76
	Secondary Sector	41	82.67
	Teritary sector	23	65.2
	All	94	74.94

**Table 3: Average daily wages (Rs.0.00) for casual workers of age 15-59 years engaged in works other than public works (activity status code:51) for 15states**

Rural	(2004-05) male wage	(2004-05) female wage	(2009-10) male wage	(2009-10) female wage
Andhra Pradesh	50.3	30.88	115.41	75.71
Arunachal Pradesh	104.38	50.6	174.42	158.47
Bihar	45.41	37.42	81.03	65.81
Chhattisgarh	37.6	28.55	70.83	65.49
Delhi	73.1	-	195.23	200
Gujarat	52.8	43.17	87.31	70.99
Karnataka	48.33	30.74	96.91	62.77
Kerala	134.86	65.75	226.6	119.31
Madhya Pradesh	38.58	30.53	74.46	58.13
Maharashtra	47.37	28.16	86.01	58.22
Punjab	75.14	53.1	133.46	91.8
Rajasthan	64.33	52.03	132.29	94.31
Tamil Nadu	70.45	36.53	132.14	72.62
Uttar Pradesh	53.37	39.54	97.04	69.21
West Bengal	49.88	39.99	87.76	65.94
<b>All India</b>	<b>55.03</b>	<b>34.94</b>	<b>101.53</b>	<b>68.94</b>

**Table4: Average daily wages (Rs.0.00) for casual workers of age 15-59 years engaged in works other than public works (activity status code:51) for 15states**

Urban	( 2004-05) male wage	( 2004-05)female wage	(2009-10)male wage	(2009-10) female wage
Andhra Pradesh	64.71	36.29	155.2	92.85
Arunachal Pradesh	133.74	162	161.22	148.34
Bihar	54.65	81.91	94.04	59.63
Chhattisgarh	47.62	32.43	127.18	71.65
Delhi	82.87	47.94	173.35	-
Gujarat	83.46	46.35	119.02	66.32
Karnataka	80.75	46.25	123.03	67.88
Kerala	137	66.96	237.42	120.9
Madhya Pradesh	51.55	42.02	88.92	75.48
Maharashtra	79.57	39.1	121.55	57.64
Punjab	83.9	46.41	142.65	85.68
Rajasthan	69.15	48.26	146.04	100.04
Tamil Nadu	83.1	47.56	155.4	76.19
Uttar Pradesh	63.99	38.61	109.3	72.37
West Bengal	64	32.95	98.98	78.46
<b>All India</b>	<b>75.1</b>	<b>43.88</b>	<b>131.92</b>	<b>76.73</b>



## Analyzing the Technical Efficiency and Scale Efficiency of Micro, Small and Medium Enterprise in India: Industry-wise Study

Krishna Satapathy<sup>1</sup> and Seema Sharma<sup>2</sup>

### Abstract

The Micro, Small and Medium Enterprise (MSME) sector is a significant contributor to the Indian economy. This sector contributes an overall of 8% towards the Indian economy in the Gross Domestic Product (GDP) and has employed 59.7 million persons (Ministry of MSME, November 2008). Efficiency performance is the primary element for the development of any industry which can give a boost to the industrial growth of an economy. In this paper an endeavor has been made to analyze the efficiency level of the industries of the registered MSME sector in India with the help of Data Envelopment Analysis (DEA). By exploring the technical and scale efficiency of industries, we found that there is lack of optimum utilization of resources which reflects a huge scope of production and employment generation in MSME sector.

**Key Words:** DEA, MSME, Scale Efficiency, Technical Efficiency

### 1. Introduction

The micro, small and medium enterprises (MSMEs) play a key role in the development of economies with their effective, efficient, flexible and innovative entrepreneurial spirit. MSMEs including khadi and village/rural enterprises are credited with generating the highest rates of employment growth and account for a major share of industrial production and exports. The Ministry of Small Scale Industries and Agro and Rural Industries was first created on 14th October 1999 and, on 6th September 2001, further bifurcated into two separate ministries, namely, Ministry of Small Scale Industries and Ministry of Agro and Rural Industries. Subsequent to enactment of “Micro, Small and Medium Enterprises Development Act, 2006” by the Parliament, the President under Notification dated 9th May, 2007 has amended the Government of India (Allocation of Business) Rules, 1961. Pursuant to this amendment, Ministry of Agro and Rural Industries and Ministry of Small Scale Industries were merged into a single Ministry, namely, “Ministry of Micro, Small and Medium Enterprises.”

The micro, small and medium enterprises (MSMEs) sector contributes significantly to the manufacturing output, employment and exports of the country. Further, this sector has consistently registered a higher growth rate than the rest of the industrial sector. The definition of small-scale industries in India has undergone several changes

over the years in terms of investment limits. The recent Micro, Small & Medium Enterprises Development Act (MSMED) 2006, while increasing the upper limit of investment, also defines enterprises into two separate classifications namely, manufacturing and the services enterprises. The manufacturing enterprises are defined in terms of investment in plant and machinery whereas the service enterprises are defined in terms of investment in equipment. The investment limit of both manufacturing and service sector of MSME is given in Table 1.1.

**Table 1.1: Investment limit of Micro, Medium and Small Enterprise Development Act, 2006**

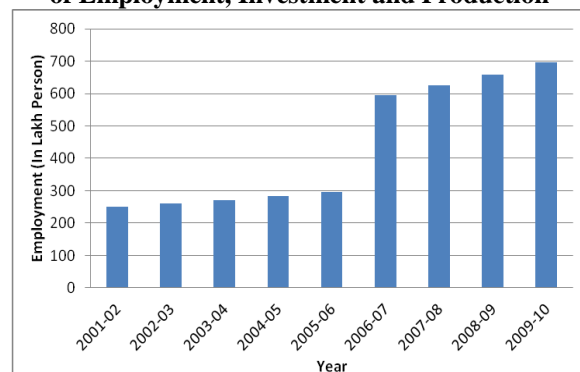
Enterprise	Manufacturing Sector (in Million INR)	Service Sector (in Million INR)
Micro	2.5 and below	1 and below
Small	2.5 – 5.0	1 – 20
Medium	5.0 – 10.0	20 – 50

Source: Office of Development Commissioner, Ministry of Micro, Small and Medium Enterprises (MSME), Government of India (2007)

The Office of the Development Commissioner (MSME) provides estimates in respect of various performance parameters relating to this sector. The time series data in respect of the sector on various economic parameters is given in the Table 1.2 (Refer Annexure).

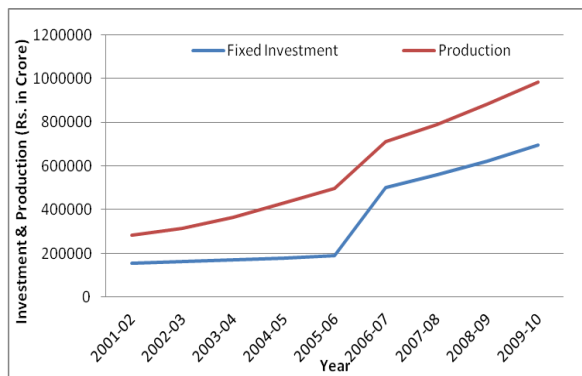
The below two figures are the graphical representation of the performance of MSME over the year. From the Figure 1, we can have a clear view that the performance of micro, small and medium enterprise in terms of employment, investment and production has an increasing trend. Till the year 2005-06, the performance of Industries were given in term of only Small Scale Industries and from the year 2006-07 it has been merged with the micro, small and medium enterprise, so a sudden increment in every aspects of MSME performance has been recorded.

**Figure 1: MSME performance year-wise in terms of Employment, Investment and Production**



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As we know that, MSME sector is a significant contributor to the Indian Economy. From the official statistics of 4<sup>th</sup> Census of MSME Sector, it employs an estimated 59.7 million persons spread over 26.1 million enterprises. It is estimated that in terms of value, MSME sector accounts for about 45% of the manufacturing output and around 40% of the total export of the country. The existence of technical inefficiencies in production has been recognized since the pioneering work of Farrel (1957). Consequently, the measurement of efficiency of industries has gained significant importance in terms of growth in MSME sector. Analysis of technical and scale efficiency of MSME sector results in summarizing the strength of the industries in present and the capability of further growth of industries.

## 2. Review of Literature

Already there have been a lots of studies carried out on small scale industries and micro, small and medium enterprises sector. Let us have a look at some of the recent studies in this sector and the future prospect on this.

The technical and scale efficiency of Small scale industries in India were analyzed by Sharma and Sharma in the year 2010. The main purpose of the study was to examine the relative production efficiency of state-wise clusters in the registered SSI sector of India. Input oriented BCC DEA model was used to analyze the performance of 23 states and 3 union territories for the year 2001-02 extracted from 3<sup>rd</sup> all Indian census of SSI. Data on gross output, fixed asset and employment in numbers have been taken for the state-wise clusters in the registered SSI sector. Here the study mainly focuses on the state-wise clusters of industries which signify the scope for investment and further employment generation in specific states. It also reflects the performance efficiency of the state level policies for the small scale industries.

E. Bhaskaran has done several studies on MSME sector. In the year 2011, one of his study was on analyzing the physical and financial performance of MSME sector in all the states and union territories of India for the year 2006-07 extracted from 4<sup>th</sup> all India census of MSME. Input oriented CCR DEA model, compound annual growth rate (CAGR), correlation analysis and multiple regression analysis was used for analyzing the performance of state-wise registered MSME sector. Data on units, employment,

net worth and gross output were used. It is found from his study that manufacturing enterprises have performed well when compared to service enterprises. He has also concluded that the increase in number of enterprises has gone up due to the inclusion of the unregistered trade activities, which is considered as service activities as per the MSMED act, 2006. In another study, he has conducted the technical efficiency of MSME clusters in Tamilnadu. Here, he has used both input oriented CCR as well as BCC model by taking the number of units, employment of 19 DMUs and turnover into consideration. He also has conducted the variable returns to scale analysis of MSME clusters. He concluded with the fact that the inefficient MSME clusters should increase their turnover for inclusive growth and sustainable development.

In the year 2012, E Bhaskaran has carried out the study on Food Processing industries in India and the automotive component industry clusters in Chennai. Here, he used CCR DEA model for food processing industries and BCC DEA model for automotive component industry clusters. The efficiency analysis of state-wise clusters of food processing industries were done, which shows the present performance and the opportunity for further development of food parks cluster in the states. So that, a concrete decision can be made on further investment in food processing industries for the specific state, which can help in inclusive growth of the MSME sector in India. But in the study of Automotive Component Industry (ACI) clusters in Chennai, he has focused on the Cluster Development Approach (CDA). Then he analyzed the technical efficiency, peer weights, input slacks, output slacks and variable returns to scale of ACI before and after CDA. It was seen that, there is significant increase in the technical efficiency of ACI after CDA.

Bhandari et al (2011) have done a study on the technical efficiency of Textile industry in India. They have used both a grand frontier applicable to all firms and a group frontier specific to firms from any individual state, ownership or organization type in order to evaluate their efficiencies. This study has given a clear picture on how location, proprietary and organizational characteristics of a firm affect its performance. Here, the study was limited to the Textile Industry only.

Hemant Saikia (2012) has analyzed the financial performance of Small Scale Industries in Assam by using DEA. Here, he has done the study of SSI in districts by randomly selecting from 25 districts and then measured the development of SSI by taking 8 major variables for preparing a composite index.

Joshi et al (2012) have developed a different qualitative concept to evaluate performance of MSME. He has named the qualitative concept as a Synthetic model. The dimensions which were taken into consideration were (a) knowledge of key people and decision makers of a firm which is micro, small and medium enterprise in nature, (b) financial performance, (c) policies, people and their impact

and (d) corporate social responsibility (CSR). He has concluded that, the policy which can be made by taking these four dimensions as their key indicators will be more efficient in the growth and sustainable development of MSME in India.

We can see from the above discussion that a lot of studies have been carried out on the efficiency measurement of inter-state clusters of industries or cluster of industries in a particular state or inter-state study on specific industry. So, in this paper the efficiency analysis is carried out on the 2-digit level industries of the registered micro, small and medium enterprise sector to have an in depth study on each industries.

### 3. Objective of the Study

- To analyze the relative technical efficiency of industry-wise registered MSMEs in India.
- To study the relative scale efficiency as well as the scale economies performance of industry-wise MSMEs in India.

### 4. Methodological Framework

Data Envelopment Analysis (DEA) is a mathematical tool based on linear programming technique that produces a best practices frontier composed of efficient decision-making units (DMUs). Farrel (1957) attempted to measure the production efficiency in a single input and output model. His work was further extended to multi input and output model by Charnes, Cooper and Rhodes (1978, 1981). They defined a DMU as technically efficient if there exists no other DMU or linear combination of DMUs that produces the same vector of output with a smaller vector of inputs (in the input-oriented model) or produces a larger vector of outputs with the same vector of inputs (in the output-oriented model). The main advantage of DEA is that being non parametric in nature, it does not require any specification of a priori, well-defined functional form for the particular production process to be analyzed. This feature makes it preferable to other performance measurement techniques such as traditional ratio analysis and Stochastic Frontier Analysis. Further, DEA also permits the simultaneous incorporation of more than one input and output because of its capacity to maximize the relationship between a 'virtual' output and a 'virtual' input. The model proposed by Charnes, Cooper and Rhodes (CCR) is based on the assumption of constant returns to scale (CRS). Banker, Charnes and Cooper (1984) popularly known as BCC, proposed that the CRS model can be extended to variable returns to scale. The BCC version is more flexible and allows variable return to scale. For a DMU to be considered as CCR efficient, it must be pure technically efficient. But for a DMU to be considered as BCC efficient, it must be both scale and technically efficient. Further it allows the breakup of CRS technical efficiency in the form VRS technical efficiency and scale efficiency. This paper uses the BCC model to analyze the performance of all industries in the registered MSME

sector. The following input oriented BCC model provides efficiency measure of the *i*th reference state:

$$\text{Min}_{\theta, \lambda} \theta_i$$

Subject to

$$\begin{aligned} Y\lambda &\geq Y_i \\ X\lambda &\leq \theta_i Y_i \\ k'\lambda &= 1 \\ \lambda &\geq 0 \end{aligned}$$

Where,

$\theta_i$ : the efficiency score for *i*th DMU.

Y: the output matrix for all *k* firms

$Y_i$ : the output vector of DMU *i* (*i* = 1, 2, .....*k*)

$X_i$ : the input vector of DMU *i* (*i* = 1, 2, .....*k*)

X: the input matrix all the *k* firms.

$k'$ : the unit vector.

$\lambda$ : *k* × 1 vector of constants.

A DMU is considered technically efficient and hence lies on the efficiency frontier if and only if the optimal value of  $\theta_i$  is equal to 1. A value less than one indicates relatively inefficient firm lying below the frontier. In order to find the efficiency score for other firms, such mathematical model has to be formulated separately for each firm. In order to get a value of  $\theta$  for all firms linear programming problem has to be solved *n* times (Farrel, 1957; Coelli, 1996). In this study, one output and two inputs are considered for analysis in BCC model. The database for the current study is drawn from the fourth all-India census of small-scale industries (2006-2007), published by Development Commissioner (MSME) Government of India in 2011. Data on gross output, value of fixed assets and employment in numbers have been taken for the 2 digit industries in the registered MSME sector. As per the fourth all-India census of micro, Small and medium industries, there are total 46 categories of industries and also made another category of 'not recorded' industries. So, this paper has taken 47 DMUs for analyzing the technical and Scale efficiency.

### 5. Analysis and Interpretation

The efficiency analysis of 47 industries has been carried out here by taking three major variables i.e. number of employment, value of fixed assets and gross output. While talking about input of any industry, the number of employment and the value of fixed asset play a major role. Production of the industry can be controlled or maximized by these two major variables. Of course the value of gross output shows the performance level of the industry. So, these three variables have been taken into consideration for analysis. The performance of these three variables for the year 2006-07 has been presented in Table 5.1 (Refer Annexure). Input orientated DEA model is chosen due to the reason that an industry or firm has more control over inputs which means they can optimize the use of inputs to maximize output.

Scale assumption: VRS

CRSTE = technical efficiency from CRS DEA

VRSTE = technical efficiency from VRS DEA

Scale = scale efficiency = CRSTE/VRSTE

The study aims at finding the technical as well as scale efficiency of 47 firms of India using input oriented data envelopment analysis. All the DMUs are divided into three groups on the basis of their VRSTE score. The first group consists of 10 industries, which are technically efficient under VRS assumption, means their VRSTE score is 1. The second group consists of the moderate technically efficient industries whose VRSTE score is between 0.60 to 0.99. The third group consists of the industry laggards whose VRSTE score is below 0.60. Their technical as well as the scale efficiency level is very low. The average VRS technical efficiency for the industries came out to be 0.48 indicating a 48% level of technical efficiency in the registered MSME sector (Table 5.2, in Annexure). It can further be inferred that better utilization of resources can be made to enhance the efficiency of production in this sector.

Under CRS assumption, only one industry namely, Recycling industry came out to be technically efficient. However, when this assumption is relaxed and VRS framework is considered 9 more industries are coming on the VRS frontier along with Recycling industry. Therefore, the group of best performer comprises of 10 industries that are technical efficient under VRS assumption (Table 5.2, in Annexure). Further in this group, only recycling industry is operating at its optimum scale as its scale efficiency score is one. In case of the other industries (out of the 10 industries of 1<sup>st</sup> group) the entire efficiency reflected by CRSTE score is taking place due to inefficient scale operation and not by technical efficiency. The summary of technical efficiency of these industries is presented in Table 5.3.

It is notable that in the first group, 'Collection, purification & distribution of water' and 'Research & Development' industries are showing increasing returns to scale whereas the other 7 industries (excluding Recycling industry) are exhibiting decreasing returns to scale. This indicates that, with the same utilization of resources, these two industries are producing more than the double units of output; still the optimum utilization of resources is not done.

**Table 5.3: Distribution of Industries in different groups of Technical Efficiency**

Group	No. of Industries	VRS score
<b>Best Performer (1<sup>st</sup> group)</b>	10 (21.28%)	1
<b>Moderate Performer (2<sup>nd</sup> group)</b>	11 (23.40%)	0.60-0.99
<b>Laggards (3<sup>rd</sup> group)</b>	26 (55.32%)	Below 0.60

So, if all the 9 industries (excluding Recycling industry) from the first group is to be provided with better facilities to optimize their use of resources, it will give more output, which can lead faster economic growth in MSME sector. The second group consists of 11 industries showing moderate performance on technical efficiency font under VRS

assumption. These industries are exhibiting average efficiency of 75%. The third group of laggards is comprised of 26 industries. In this group the average VRSTE score is 30%. The standard deviation for the moderate performers and the laggards came out to be 13 and 14 indicating almost similar pattern of variation in the two groups. Out of 47 types of industries, 37 industries are showing technical efficiency ranging from a low of 11% to a high of 94%. In total, 55.32% of industries are showing efficiency levels below 60% (Table 5.3). This indicates that in these industries, output can be increased by having efficient utilization of resources and better management abilities using the existing resources and technology.

Regarding scale efficiency, it is observed that 10 industries are showing increasing returns to scale indicating the underutilization of the production plants (Table 5.3). These industries should motivate MSMEs to increase the production so that they can move towards the optimum production size with reduction in costs to gain the benefits of sale economies. Supporting factors like better facilities, availability of credit, infrastructure development and marketing of their products can play a crucial role in the growth of micro, small and medium enterprise sector. This will create more employment opportunities with higher production at a lower unit cost.

Out of the total 47 industries considered in this study, 36 industries are witnessing decreasing return to scale. Such a finding becomes very crucial in case of Indian MSME sector, as it indicates the over utilization of the installed capacity. These industries should emphasize more on adoption of better technologies to bring down the cost in order to achieve scale efficiency. Nevertheless, this finding might be the result of limit constraint on investment in this sector.

## 6. Conclusion

The micro, small and medium Enterprise (MSME) Sector is one of the most vibrant sectors of the Indian Economy. The promulgation of MSMED Act, 2006 has expanded scope and ambit of the sector from the erstwhile small scale industries to micro, small and medium enterprises with the inclusion of both industrial and service sector. But from the above discussion, we saw that out of 47 industries only 10 industries are technically efficient. It means nearly 55% of registered MSME industries exhibits efficiency level less than 60%. Similarly, in terms of scale efficiency, only recycling industry exhibited constant returns to scale signifying optimum production level and 10 industries showed increasing returns to scale where as a major portion of industries i.e. 36 industries showed decreasing returns to scale. Therefore, MSME sector needs more attention to formulate new policies and provide supporting financial facilities and more improved technologies to the industries to increase production with the installed capacity. There is a massive scope of production expansion as well as employment

generation in MSME sector. The optimum utilization of resources and the efficiency level of industries

should be raised for the sustainable growth of the MSME sector in India.

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## Annexure

**Table 1.2: MSMEs Performance: Units, Employment, Investments, Production & Exports**

Sl No.	Year	Total MSMEs working (Lakh numbers)	Employment (Lakh persons)	Fixed Investment (Rs. in crore)	Production (Current Price Rs. in crore)	Exports (Rs. in crore)
1	2001-02	105.21	249.33	154349	282270	71244
2	2002-03	109.49	260.21	162317	314850	86013
3	2003-04	113.95	271.42	170219	364547	97644
4	2004-05	118.59	282.57	178699	429796	124417
5	2005-06	123.42	294.91	188113	497842	150242
6	2006-07	261.12	595.66	500758	709398	182538
7	2007-08	272.79	626.34	558190	790759	202017
8	2008-09	285.16	659.35	621753	880805	N.A.
9	2009-10	298.08	695.38	693835	982919	N.A.

Source: Annual Report 2011-12, Ministry of Micro, Small and Medium Enterprises, Government of India

**Table 5.1: Industry-wise Distribution of Principal Characteristics of the Enterprises (At 2-digit level of NIC 2004) (Value in Rs. Crore)**

Sl No.	NIC 2004	Characteristics/Industry	Gross Output	Market Value of Fixed Assets	Employment
1	1	Agriculture, Hunting and Related Service Activities	2758.87	1087.27	24990
2	2	Forestry, Logging and Related service activities	2061	700.78	9054
3	13	Mining of Metal Ores	1434.01	400.52	7086
4	14	Other Mining and Quarrying	6172.16	4991.06	129188

5	15	Food Products & Beverages	137287.4	60195.91	1468426
6	16	Tobacco Products	5371.35	1549.97	208120
7	17	Textiles	65759.89	49270.96	1024990
8	18	Wearing Apparel	33525.92	24780.92	900729
9	19	Leather & Leather Products	13703.22	7352.13	165541
10	20	Wood & Wood Products	9629.72	9291.19	225689
11	21	Paper & Paper Products	16478.69	7862.55	147887
12	22	Publishing, Printing & Reproduction of Recorded Media	11210.28	10050.83	213925
13	23	Coke & Refined Petroleum Products	6212.41	2026.45	32323
14	24	Chemicals & Chemical Products	59598.93	34599.12	493985
15	25	Rubber & Plastic Products	30643.14	18716.52	304321
16	26	Other Non-metallic Mineral Products	21998.03	20861.87	615229
17	27	Basic Metals	64356.69	23693.64	305072
18	28	Fabricated Metal Products	52017.14	37568.17	757617
19	29	Machinery & Equipment n.e.c	42364.81	34466.07	512210
20	30	Office, Accounting & Computing Machinery	4746.36	2582.69	27034
21	31	Electrical Machinery & Apparatus n.e.c.	22692.33	8898.27	179428
22	32	Radio, TV & Communication Equipment & Apparatus	7167.56	3802.87	70202
23	33	Medical, Precision & Optical Instruments, Watches & Clocks	9439.35	4612.29	89694
24	34	Motor Vehicles, Trailers & semi-trailers	8396.76	2888.61	60712
25	35	Other Transport Equipment	21808.28	7056.69	178852
26	36	Furniture	17864.41	19289.1	363407
27	37	Recycling	363.85	63.59	1577
28	40	Electricity, Gas, Steam & Hot Water supply	1040.09	735.42	4892
29	41	Collection, Purification & Distribution of Water	6.44	16.37	457
30	45	Construction	73.06	53.83	1041
31	50	Repair & Maintenance of Motor Vehicles; Retail Sale of Automotive Fuel	7733.16	10704.87	171522
32	51	Wholesale Trade & Commission Trade	564.95	421.92	6259
33	52	Repair & Maintenance of Personal & Household Goods; Retail Trade	5107.33	13261.33	247737
34	55	Hotels & Restaurant	176.19	473.31	7360
35	60	Land Transport	75.16	129.02	2181
36	63	Supporting & Auxiliary Transport & Travel Agents Activities	2095.74	3679.21	27108
37	64	Post & Telecommunications	1223.96	3967.97	41102
38	70	Real Estate Activities	57.73	92.62	743
39	71	Renting of Machinery & Equipment and Personal & Household Goods	52.25	26.03	1442
40	72	Computer and Related Activities	2290.26	5997.79	77269
41	73	Research and Development	2.12	21.88	104
42	74	Other Business Activities	4311.44	5330.84	87365
43	80	Education	217.87	125.61	2711
44	85	Health and Social Work	95.66	238.55	4581
45	92	Recreational, Cultural and Sporting Activities	108.77	220.15	7091
46	93	Other Service Activities	1777.13	1151.66	22270
47		Not Recorded	5438.39	3829.98	78963

		<b>Total</b>	<b>707510.27</b>	<b>449138.4</b>	<b>9309486</b>
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Source: Final report of 4<sup>th</sup> all India census of Micro, Small & Medium Enterprises 2006-2007: Registered Sector, Development Commissioner of MSME, Government of India

**Table 5.2: Relative Technical Efficiency of Firms in Registered MSME sector**

Firm	NIC 2004	Characteristics/Industry	VRSTE	CRSTE	Scale Efficiency	Returns to Scale
<b>Industries with VRSTE score as 1</b>						
1	2	Forestry, Logging and Related service activities	1.00	0.99	0.99	DRS
2	13	Mining of Metal Ores	1.00	0.88	0.88	DRS
3	15	Food Products & Beverages	1.00	0.41	0.41	DRS
4	16	Tobacco Products	1.00	0.61	0.61	DRS
5	23	Coke & Refined Petroleum Products	1.00	0.83	0.83	DRS
6	27	Basic Metals	1.00	0.91	0.91	DRS
7	35	Other Transport Equipment	1.00	0.54	0.54	DRS
8	37	Recycling	1.00	1.00	1.00	CRS
9	41	Collection, Purification & Distribution of Water	1.00	0.07	0.07	IRS
10	73	Research and Development	1.00	0.09	0.09	IRS
<b>GM</b>			<b>1.00</b>	<b>0.47</b>	<b>0.47</b>	
<b>SD</b>			<b>0.00</b>	<b>0.35</b>	<b>0.35</b>	
<b>Industries with VRSTE score as 0.60 to 0.99</b>						
11	34	Motor Vehicles, Trailers & semi-trailers	0.94	0.60	0.64	DRS
12	40	Electricity, Gas, Steam & Hot Water supply	0.93	0.92	0.99	DRS
13	31	Electrical Machinery & Apparatus n.e.c.	0.86	0.55	0.64	DRS
14	71	Renting of Machinery & Equipment and Personal & Household Goods	0.86	0.35	0.41	IRS
15	30	Office, Accounting & Computing Machinery	0.81	0.76	0.94	DRS
16	1	Agriculture, Hunting and Related Service Activities	0.77	0.48	0.63	DRS
17	21	Paper & Paper Products	0.71	0.48	0.68	DRS
18	33	Medical, Precision & Optical Instruments, Watches & Clocks	0.67	0.46	0.68	DRS
19	24	Chemicals & Chemical Products	0.63	0.52	0.83	DRS
20	32	Radio, TV & Communication Equipment & Apparatus	0.61	0.44	0.72	DRS
21	19	Leather & Leather Products	0.61	0.36	0.59	DRS
<b>GM</b>			<b>0.75</b>	<b>0.52</b>	<b>0.69</b>	
<b>SD</b>			<b>0.13</b>	<b>0.17</b>	<b>0.16</b>	
<b>Industries with VRSTE score below 0.60</b>						
22	25	Rubber & Plastic Products	0.58	0.44	0.76	DRS
23	45	Construction	0.51	0.30	0.59	IRS
24	28	Fabricated Metal Products	0.50	0.30	0.59	DRS
25	17	Textiles	0.50	0.28	0.56	DRS
26	18	Wearing Apparel	0.47	0.24	0.50	DRS
27		Not Recorded	0.45	0.30	0.66	DRS
28	70	Real Estate Activities	0.45	0.34	0.76	IRS
29	93	Other Service Activities	0.45	0.35	0.78	DRS
30	29	Machinery & Equipment n.e.c	0.44	0.36	0.81	DRS
31	51	Wholesale Trade & Commission Trade	0.39	0.39	0.99	DRS
32	14	Other Mining and Quarrying	0.39	0.22	0.55	DRS
33	80	Education	0.37	0.35	0.94	IRS
34	22	Publishing, Printing & Reproduction of Recorded Media	0.36	0.23	0.63	DRS

35	26	Other Non-metallic Mineral Products	0.34	0.18	0.54	DRS
36	63	Supporting & Auxiliary Transport & Travel Agents Activities	0.34	0.34	0.99	DRS
37	20	Wood & Wood Products	0.33	0.19	0.56	DRS
38	36	Furniture	0.32	0.21	0.68	DRS
39	74	Other Business Activities	0.26	0.21	0.83	DRS
40	50	Repair & Maintenance of Motor Vehicles; Retail Sale of Automotive Fuel	0.24	0.20	0.81	DRS
41	60	Land Transport	0.22	0.15	0.67	IRS
42	92	Recreational, Cultural and Sporting Activities	0.14	0.09	0.64	IRS
43	64	Post & Telecommunications	0.13	0.13	0.99	DRS
44	72	Computer and Related Activities	0.13	0.13	0.98	DRS
45	85	Health and Social Work	0.13	0.09	0.70	IRS
46	52	Repair & Maintenance of Personal & Household Goods; Retail Trade	0.12	0.09	0.73	DRS
47	55	Hotels & Restaurant	0.11	0.10	0.94	IRS
<b>GM</b>			<b>0.30</b>	<b>0.21</b>	<b>0.72</b>	
<b>SD</b>			<b>0.14</b>	<b>0.10</b>	<b>0.16</b>	
<b>Mean of all Industries</b>			<b>0.58</b>	<b>0.39</b>	<b>0.71</b>	
<b>GM of all Industries</b>			<b>0.48</b>	<b>0.31</b>	<b>0.65</b>	



# Impact of Liberalisation and Globalisation on Growth of Firms: An Empirical Analysis of Indian Automobile Industry

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## Abstract

The objective of this study is to analyse the determinants of growth of firms in the Indian automobile industry across two policy regimes viz., liberalisation policy (1991-92 to 2000-01) and globalisation policy (2001-02 to 2010-11) and to know the variability in the growth process and the reasons for the same. The analysis broadly followed the evolutionary theoretical framework. Import of capital goods as the technology related variable (embodied technology), has significantly positive impact on the firms' growth during both policy regimes. Imports of disembodied technology and R&D intensity have significantly negative impact during the same period. Therefore, the relationship between technology licensing and in-house R&D may be substituting type or complementary, depending upon these two opposite effects. Apart from technology licensing, firms may purchase capital goods and equipments incorporating new process technologies. Such knowledge resources embodied in capital goods can also impart competitive advantage to firms. Equity participation by foreign promoters also has a positive effect on growth of firms. Equity participation by foreign promoters has a positive effect on growth of firms.

**Keywords:** Liberalisation, Globalisation, Technology Acquisition and Growth of Firm.

## I. Introduction

The Indian automobile industry, one of the core sectors, has undergone changes with the advent of new business and manufacturing practices because of liberalisation and globalisation. For much of the developed world and increasingly for the developing world, it is a pillar industry and a flag of economic progress.<sup>3</sup>

With the vision of the need to bring in a competitive atmosphere involving technological modernisation and high rates of output growth, the automobile industry in India has been subjected to substantial policy changes over the last two decades. The policy changes in the automobile industry took place in two phases, i.e. liberalisation policy since 1991 and globalization from early 2000 onwards till date. The post 1991 could be termed as a phase of

liberalisation as the Indian automotive market was the beneficiary of the opening up of India's economy. The liberalisation of policies like abolition of industrial licensing, automatic approval for inward foreign investment, technology imports and liberal approach to trade, put this sector on a dynamic process of technological learning at the firm level. The dynamic effects of liberalization are thought to enhance learning, technological change and economic growth. On the technology front, the liberalisation concerning foreign technology agreements and foreign collaborations infused world-class technology into the industry. The important policy decision was the relaxations on imports of capital goods and technology. In general, liberalisation and the accompanying entry of foreign firms have raised the technological competence level of India's automotive industry. The growing competition in the 1990s forced the existing Indian automobile firms to constantly upgrade their technological strength by focused in-house R&D activities.

The consequences of liberalisation and globalisation have made Indian automobile firms alert of competition and quality and acquire a totally global mindset. The period from early 2000 till date could be termed as a phase of globalization of the Indian automotive industry. Globalization has intensified interdependence and competition between the firms in the Indian automobile market. Since 2000 significant trade and investment restrictions were removed to speed up the momentum of liberalisation of the automotive industry. It gave important role to the market forces for organising economic activities and also adopted a more liberal stance towards foreign trade and investment. Accordingly, the functioning of the automotive industry also got liberalised, which significantly altered its development trajectory. The policy decisions led to a second wave of restructuring of the industry and resulted in a fiercely competitive domestic market, both in terms of price and quality (Singh 2004).

A new policy was released to promote an automotive industry globally competitive. The automobile policy 2002 permitted automatic approval of foreign equity investment up to 100 per cent in manufacturing of automobiles and components. Besides permitting 100 per cent automatic foreign ownership the Auto Policy 2002 proposed to undertake a number of measures to promote a globally competitive automotive industry that possesses global scale, adequate technology, productivity and quality requirements. Since 2000, FDI reforms have been contributory for creating India a FDI friendly hub in the world. The progressive reforms have brought higher in FDI inflows and number of foreign collaborations in the manufacturing sector and its various industries in India. FDI's developed rapidly after the liberalisation and globalisation and many multinationals entered the market, intensified

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<sup>3</sup>Graeme P. Maxton and John Wormald (2004), "Time for a Model Change: Re-engineering the Global Automotive Industry", Cambridge University Press, New York.

interdependence and competition between the firms in the Indian automobile market, resulting in transfer of latest technological configurations to produce/assemble vehicles involving technological up-gradation, made questions about sustainability of growth in the already established firms. In order to examine the impact of entry and transfer of new technology, the analysis of determinants of growth in this paper is carried out separately for the two different policy regimes (Liberalisation 1991-92 to 1999-00 and globalisation (2000-01 to 2010-2011)).

The main motivation for the analysis of growth of automobile industry is provided by major developments during the last decade. (a) Also, the acquisition of foreign technology was liberalised. (b) The progressive reforms have brought higher in FDI inflows and number of foreign collaborations into Indian automobile industry. (c) The liberal policy on foreign participation through technical and financial collaboration led to substantial product upgradation and introduction of new models.

This paper starts with a discussion (in section II) about the theoretical background used to develop the hypotheses. Section III enlists hypotheses concerning the determinants of growth. While section IV discusses the methodology of analysis, the empirical results are presented in section V. Section VI summarises the major findings of this paper.

## **II. Review of literature: Theoretical Basis and Hypothesis**

Growth is a necessary condition for the long run survival of the firm in an uncertain and constantly changing environment. Therefore, this study follows the Marris framework and introduces certain important modifications in the Marris (1964) model to analyse the impact of liberalisation and globalisation, introduced by the government since 1991, on the growth of Indian automobile firms. In particular, using the Marris framework, this study argues that policy changes introduced since 1991, would result in a change in the environment in which the firms functioned. Growth of firm is subjected to various dynamic and strategic processes. Thus theories of firm came into force to study the behaviour of the firms such as Marris Managerial Theory (Marris 1964), Schumpeterian Theory (Schumpeterian 1943), Capability theories (Richardson 1972, Chandler 1992) Transaction cost theories (Coase 1937, Williamson 1975, Williamson 1985), Resource based theory (Penrose 1959, Penrose 1995) and Evolutionary Theory (Nelson and Winter 1982). Solow (1971) also introduced time dimension in the theory of firm and pointed out the role of environment. According to Solow, dynamic equilibrium of profits and growth of firms is determined not only by the environment in the present period but environment in all future periods within the firm's time-horizon.

Siddharthan et al (1994) finds that foreign equity participation and technology import through the market had a significant (positive) influence on profit margins, they did not turn out to be significant in explaining growth in terms of the performance of the large 385 public limited (privately owned) Indian companies for the period for the period 1981-84. Lal (2003) analysed the impact of liberalisation measures on the growth of Indian corporate firms. The results of their study show that during the initial years of liberalisation, firm size, MNE affiliation, capital intensity and vertical integration and import of capital goods has a negative impact on growth. However, in recent years the impact of these variables has turned positive and significant, indicating the important changes brought about by the liberalisation policy measures. Basant (1997) found that foreign equity participation led to high technological dynamism in firms belonging to Indian Chemical industry, in the deregulation period. As Narayanan (2004) also finds that in case of Indian Automobile sector, it was the differences in the technological strategies adopted that determined the differences in the growth of the firms. The firms with foreign equity participation grew faster during the period of strict controls as well as after liberalization, though during the deregulation period import of capital goods turned out to be important. In a liberal regime, growth is positively influenced by the intra-firm technology transfer. However, Siddharthan and Safarian (1997) found that foreign affiliates, taking advantage of deregulation, imported capital goods and undertook modernization expenditures mainly in the electrical and electronic goods, and automobile industries but not in the chemicals and pharmaceuticals industries.

Thus an understanding of the factors generating more effective policies for growth of firms is important. This study thus analyses specifically the impact of liberalisation and globalisation on growth of firms in a developing country, India, which adopted a set of openness measures integrating it with other economies of the globe. Based on both the theoretical and empirical literature, we shall now discuss the factors determining growth of automobile firms. We shall specifically explore empirically, the main hypothesis of the study that liberalisation and globalization has a significant impact on growth of automobile firms.

## **III. Determinants of Growth: Hypothesis**

The development of a theory of the growth of the firm requires the creation of a conceptual framework within which the nature of the constraints on growth can be analysed. The questions concerning determinants of growth in Indian automobile industry have gained importance in recent years due to the fast changing policy framework. This study also defines growth in terms of rate of change in the annual sales turnover

and examines the role of firm size, age, profits and technological factors in determining the growth, but it also postulates changing nature of the role of these explanatory variables in determining growth. Specifically, this study tries to investigate, in a liberal economic policy regime and globalization era, how and what combination of technological strategy a firm deploys in order to stay put in competition. While changes in the role of size, age and profits are largely governed by the policy regime in which the firms operate, differences in the nature and direction of the technology variables are guided by changes in the technological regime.

### **Technology Acquisition and Growth**

The expansion of multinational companies from emerging markets represents a new and very dynamic dimension of the world economy. Since the liberalisation process started in the 1990s, a growing number of firms have been able to acquire technologies from Western Manufacturers and alliances. It examines the impact of emergence of multinational in the automotive sector –including the manufacturing of passenger and commercial vehicles in relation to FDI and the acquisition of technology.

In general, liberalisation and the accompanying entry of foreign firms have raised the technological competence level of India's automotive industry. Therefore, it explains the relationship between technology acquisition and growth of firms. The role of technology in explaining growth of firms is well defined in Morris mode, interpreted technological efforts of a firm as a route through which it can change its 'super environment. With change in policies, technology has acquired a stronger focus. Restrictions on technology imports and foreign equity participation are being relaxed. At present, foreign participation is allowed in almost all sectors (not reserved for the government). This study also hypothesizes an important role of technology acquisition (imports and domestic efforts in determining growth of firms across the two different policy regimes. The acquisition of technological capabilities by a firm could be brought through imports (technology transfer from abroad and in-house R&D efforts). The variables capturing technological efforts consist of imports of embodied technology (in the form of import of capital goods through supply of machinery and equipment), import of disembodied technology (from the market through lump sum payments, royalties, and technical fees), intra-firm transfer of technology through FDI (foreign equity participation) and in-house research and development efforts. R&D is used to locate capital goods imports. Import of capital goods captures investment in physical capital, may determine growth positively. These are considered all very vital in accumulating technological capabilities during liberalisation regime. After liberalisation, Indian

firms were forced to review forced to review their strategy and choose a different, more appropriate, and feasible one that would aid in improvising on their existing technological knowledgebase so that they can at least survive in the market.

The changed economic environment also became conducive for the advent of globalization in India. Globalisation as a consequence of openness has many dimensions: transfer of technology, flow of foreign direct investment and export liberalisation through expansion of market opportunities. These aspects of globalisation may have distinct effects on growth of firms. The openness measures in terms of elimination of import restrictions on imported technology either disembodied or embodied in intermediate and capital goods, reduction in tariffs has led to greater access to improved technology, machinery and inputs. As discussed earlier, with the advent of globalization, a recent trend in India has been the presence of MNCs in various industries, especially in manufacturing sector. With the entry of world leaders in the Indian automobile industry, foreign equity and in-house research and development may assume greater prominence. Several studies, such as Evenson (1995) and Keller (1997), have found that technology play an important role in growth of firms. It is hypothesized that technology acquisition has a positive impact on growth of firms.

### **Firm Size and Growth of Firm**

Singh and Whittington (1975) finds there is no systematic relationship between firm size and growth. Larger firms, at least those above a minimum size, experience less variability of growth rates than do smaller firms. However, there may also be tendency for the very largest firms to grow faster than the rest. Some studies have found a positive relationship between size and growth (Baumol, 1962). Some other studies have found an inverse relationship between firm size and growth (Rowthorn and Hymer (1971), Singh and Whittington (1975) and Siddharthan and Lall (1982).

### **Profitability and Growth of Firms**

Profit is an important indicator of the financial performance of an industry. On the basis of the Downie-Penrose-Marriss approach one would expect there to exist a dual relationship between growth and profitability. In the Morris (1964) framework, there is a direct relationship between profitability and growth because profitability determines a firm's ability and willingness to grow. This is because, higher the level of profits, better would be the position of the firm to grow and also higher the level of current profitability, better would be the position of the firm to raise external funds on favourable terms. Kumar (1984) found a positive and significant relationship between growth and profitability. On the one hand, profits are necessary for growth and hence the more

profitable the firm the more rapid the maximum possible rate of growth. On the other hand growth eats into profits and hence the faster the rate of growth the less profitable the firm. Growth above a certain rate adversely affects profitability.

### Vertical Integration and Growth

We examine the evidence that relates to circumstances under which firms choose to integrate vertically. This in turn requires that we define precisely what we mean by vertical integration and market transaction. Vertical integration occurs when a firm does something for itself that it could otherwise procure on the market. For example, a manufacturer that opens its own stores is said to be vertically integrated into distribution. The production can be seen as a material flow from raw materials to the final product. Following Siddharthan et al (1994) and Morris (1964) it could be argued that vertical integration does not enable a firm to diversify into other sectors, and this in turn would curb the possible avenues for growth. At the same time, procurement of intermediate products through subcontracting or ancillarisation gives benefits of economies of scale arising out of their large scale of production. Hence, vertical integration is likely to have a negative effect with growth. Therefore, vertical integration is expected to have a positive relationship with growth of firms.

### Capital Intensity and Growth

Capital intensity is expected to be positively related to growth of firm (Hay and Morris 1991) on the ground that higher capital intensity facilitates better machinery and thus will be more competitive. Also firms with higher capital intensity are likely to have better product quality than firms with lower capital intensity. Siddharthan et al 1994 found a positive coefficient for capital intensity in analyzing the growth of firms. Thus it is hypothesized that capital intensity has a positive effect on growth of firms. On the other hand, efficient utilisation of capital stock, with a corresponding reduction in the marginal cost of its output, is likely to influence growth rate favourably. In a given industry, firms, which are better in utilising their capital stock, are likely to have an advantage over the others to grow. Capital intensity, as a result, is likely to be inversely related to growth of firms.

### Age of the Firm and Growth

Age of the firm, measured in terms of the age of the plant and machinery, is considered as a proxy variable for learning. Age of the firm might have deterrent effect on growth mainly due to the inefficiencies of small firms. However, the firm has already spent for prolong in the same line of business, it would be more difficult for the firm to grow. Liberalisation and Globalisation have provided the firms opportunities to import capital goods which embody new technology

considered to be efficient. The product quality of firms with new machinery is likely to be better than the product quality of firms with older machinery. Hence, growth of firms with new machinery is expected to be more compared with firms with older machinery. Therefore this variable may also poses a positive or negative relationship with growth of firm.

### IV. Sample, Data and Methodology of Analysis

The analysis explained in this paper is based on secondary data. The study includes data on production and sales have been taken by the two automotive associations, namely Society of Indian Automobile Manufacturers (SIAM) and Automotive Component Manufacturers Association (ACMA). The data relate to firms assembling or producing cars and other four wheeled drives, light commercial vehicles, and the heavy commercial vehicles. In addition, we also use data from CMIE Prowess, which is based on annual reports of companies. This dataset consists of firm level data for ten automobile manufacturing companies for the period 1990–1991 to 2008–2009.

Based on both the theoretical and empirical literature, and developments in the Indian economy in the era of liberalisation and globalisation, the model which we have formulated for analyzing impact of both on growth of firms is specified below. The study analyses the determinants of the growth of firms in the Indian automobile industry during two policy regimes, namely, liberalisation policy (1990-91 to 2000-2001) and the 'auto policy-2002' (2001-02 to 2008-2009). According to literature, growth of firm measured by growth of sale (G) normally depends on size (S), Import of capital goods (IMCAP), Import of disembodied technology (IMTECH), Foreign Equity (FE), Research and development expenditure (R&D), price cost margin (PCM), Capital intensity (CI), vertical integration and age of the firm. The model is

$$\text{Growth} = f(S, \text{IMCAP}, \text{IMTECH}, \text{RD}, \text{FE}, \text{PCM}, \text{VI}, \text{CI}, \text{AGE}) \quad (4.1)$$

**S:** size of the firm measured by the log value of annual sales turnover.

**IMCAP:** embodied technology imports measured by value of imports of capital goods as a proportion of sales.

**IMTECH:** disembodied technology imports measured by lumps um and royalty payments as a proportion of sales turnover.

**RD:** R&D intensity measured by research and development expenditure as a proportion of sales; **FE:** foreign equity participation measured by percentage of foreign equity shares to the total paid up capital of the firm.

**PCM:** price-cost margin is defined by gross profits as a proportion of sales turnover.

**VI:** degree of vertical integration defined by value added as a proportion of annual sales turnover; **CI-**

capital intensity is defined by book value of plant and machinery as a proportion of sales turnover.

**AGE:** age of the firm measured by depreciation as a ratio of gross block.

To analyse the determinants of growth, in this study, we estimate the fixed effect model with the pooled data for Indian automobile industry. Fixed effect estimation depends on the assumptions that the intercept and slope coefficients are constant across time and space and the error term captures over time and individuals. The study attempts to examine the following functional form: The empirical analysis follows the observations are pooled. The study uses fixed effect estimations to analyse the determinants of growth of firms during these policy regimes. The empirical results of fixed effect estimates of the slope parameters are presented in table 4.6.1.

## V. Empirical Results

The fixed effect estimates of slope parameters on determinants of growth by policy regime are presented in table 5.

**Table-5**  
**Fixed Effects Estimation of Determinants of Growth by Policy Regimes**  
**(Dependent Variable: Sales Growth)**

Liberalisation phase (1990-91 to 2000-01)		Globalisation phase (2001-02 to 2008-09)	
Variable	Coefficient	Variables	Coefficient
Constant (C)	88.31(1.75)* *8	Constant (C)	61.91 (0.86)
Firm Size	1.45 (0.09)	Firm Size (S)	-9.42 (0.46)
D(CI)	- 0.05(1.90)** *	CI (-1)	-0.11 (1.75)***
AGE(-1)	-4.15 (1.95)**	AGE	-1.83(3.61)*
IMCAP (-1)	4.61(5.91)*	IMCAP (-1)	4.13 (1.72)***
IMTECH H	-6.22 (0.66)	IMTECH	-12.95 (2.16)**
PCM	4.03 (5.01)*	PCM	2.86 (4.91)*
D(VI)	-4.62 (3.58)*	D(VI)	0.23 (0.25)
RD	-57.09 (6.09)*	RD	-8.131 (1.92)**
D(FE)	1.98 (0.014)	D(FE)	0.96 (2.17)
R SQR	0.74	R SQR	0.82
ADJ. RQR	0.68	ADJ. RQR	0.72
F	11.62	F	3.38
NOBS	88	NOBS	56
No of Firms	8	No of Firms	7

**Notes:** Figures in the parentheses indicates the *t*-values which represent significant levels. \*: Significant at 1 %, \*\*: Significant at 5 % and \*\*\*: significant at 10 %. D indicates the first difference level respectively.

The results broadly indicate that technological factors play an important role in determining the growth of firms in this industry. During the liberalisation regime, import of capital goods (IMCAP) emerged important determinant which is highly significant with a positive coefficient. It might be due to the relaxation of imports of capital goods and technology. Consequently the share of machinery in fixed investment has risen constantly during the liberalisation reform period. The coefficient of disembodied technology (IMTECH) is negatively significant. R&D emerged significant with a negative coefficient. The R&D intensity is negatively significant during both the period. The Indian automotive sector under the under pervasive regulation and protection (Kathuria, 1996) mostly emerged as a virtual sellers market, with little incentive for R&D and technology upgradation. Therefore, the relationship between technology licensing and in-house R&D may be substituting type or complementary, depending upon these two opposite effects. Apart from technology licensing, firms may purchase capital goods and equipments incorporating new process technologies. Such knowledge resources embodied in capital goods can also impart competitive advantage to firms. It can be seen that in early 1990s, majority of automotive firms in India might hardly had any significant in-house spending on R&D activities. The heightened competition from inward FDI and imports and stringent requirements from global buyers by mid-1990s have forced a significant proportion of them into R&D investment. For Indian –owned automobile companies, since the mid-1990s the R&D efforts got a major push may be due to the imposition of stringent euro norms requiring a quick up gradation of engine, and the intense market competition. Most companies spend a part of their sales, less than 1%, on R&D. R&D intensities for these firms are lower during liberalisation period. The coefficient of FE (Foreign equity) emerged insignificant with a positive sign. The policy liberalisation might not so been effective in translating into increased FDI inflows to India either in the initial period of liberalisation (1991-98) or with subsequent period with greater degree of liberalisation pursued between 1998-99 to 2002-03. Restrictions on foreign equity investment and selective permission allocate a limited role for intra-firm transfer of technology.

The coefficient of firm size is positive and is not statistically significant. Firm size appears to be positively influencing growth during the liberalisation policy regime. One possible explanation for this inverse relationship is that the large firms may have grown

beyond the optimum, and so would be growing slower compared to their smaller counterparts, which are moving towards the optimum. Capital intensity has also turned out to be significant with negative coefficient in liberalisation regimes. It influences growth negatively. This implies that efficient utilisation of capital stock, with a corresponding reduction in the marginal cost of production, does enable a firm to grow at a higher rate than the others. Efficient utilisation of capital appears to be very important, especially with delicensing, for firms drawn from a particular industry. Similarly, the age of the firm emerged significant with a negative coefficient during liberalisation period indicating that new firms are growing at a faster rate than their older counterparts. However, the longer the time the firm has already spent in the same line of business, more difficult it would be for the firm to grow. Ability of the new firms to facilitate technological paradigm shifts speedily and access to foreign capital and technology could both be possible explanations for this inverse relationship.

The relationship between growth and vertical integration (VI) is negative and significant during the liberalisation policy regime. This inverse relationship between VI and growth could largely be due to the limits that VI imposes on the firms to diversify into other sectors within the automobile industry. The results also confirm a positive relationship between profits and growth, the coefficient of profits emerged significant with a positive coefficient. Kumar (1994)<sup>4</sup> also reported a positive relationship between profits and growth for U.K. firms. This could be because, higher the level of profits, firms may find themselves in a better position to raise funds needed for investment and diversification from external sources and that too at favourable terms. Following Marris, it could be stated that profits determine the ability and willingness of the firms to grow.

During globalisation period, the Auto policy-2002, however, seems to have changed the role played by these technological factors. FE is the technological variable that emerged positive and significant. This implies that even during 'auto policy' regime, firms with foreign equity participation tend to grow faster than the others due to ownership and/ or resource advantages that these firms enjoy. The coefficient of Import of capital goods (IMCAP) is positively significant. Import of capital goods (IMPACP) influences growth positively. The import of disembodied technology is negative and statistically significant. It influences growth negatively. R and D did take a negative sign, but its coefficient is significant. During auto policy period, most firms have

increased R&D expenses compared to liberalisation period. Although the R and D activity of some of these firms have also gone up during this period, it may still not be adequate enough to result in improving the growth prospects. However, Indian automobile companies still spend very low amount on R&D as a percentage of sales. Therefore, the effect of R&D expenditures on firm growth varies with firm size.

Firm size appears to be positively influencing growth during the auto policy period. In this period, however, the coefficient of CI emerged positively significant. This implies that efficient utilization of capital stock, with a corresponding reduction in the marginal cost of production, does not enable a firm to grow at a higher rate than the others. Efficient utilisation of capital appears to be very important, especially with delicensing, for firms drawn from a particular industry. Age of the firm emerged significant with a negative sign. The relationship between growth and vertical integration is positive and significant during this policy regime. The results also confirm a positive relationship between profits and growth, the coefficient of profits emerged significant in all the periods with positive sign. Moreover, since firms in this industry made heavy investment during these two periods, profits may actually have been used to fund these investments. In both these regimes, technological factors play an important role in determining the growth of firms in this industry. Thus growth is mainly technology driven. The level of technology change in the motor vehicle industry has been high but the rate of change in technology has been medium. Overall, liberalisation and globalisation in economic policies, however, seems to have changed the role played by these technological factors. Growth theory of the firm suggests that profits and growth of the firm are interrelated. The company plans to earn a certain amount of profit determined by the amount of investment that it intends to undertake. Profits in turn provide internal funds and incentive for investment and growth. A fundamental assumption of this theory is that the goal of the firm is to cause its sales to grow as rapidly as possible subject to the constraints imposed by the growth of demand, growth of capacity and the availability of finance for investment.

## VI. Summary

The automobile industry, in India, which showed fantastic growth after the liberalisation and globalisation struck India. This study examines the effects of liberalisation and globalisation on growth performance of firms in Indian automobile industry, particularly since the introduction of new economic policy in 1991. It has attempted to analyse the determinants of growth of firms in Indian automobile industry during two different policy regimes, namely, liberalisation, 1991-92 to 1999-2000 and globalisation 2001-2002 to 2011-12. In this study, the relationship

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<sup>4</sup>Nagesh Kumar and N.S. Siddharthan (1994), "Technology, Firm Size, and Export Behavior in Developing Countries: the Case of Indian Enterprise," *Journal of Development Studies*, Vol. 31, No. 2, pp. 289-309.

between the policy changes and its impact on technology acquisition along with the determinants such as firm size, age profitability, capital intensity, vertical integration, and growth of firms in Indian automobile industry has been analysed. The study used fixed effect model to analyse the determinants of growth of firms in Indian automobile industry.

The results of fixed effect model support the view that the changing nature of the role of technology variables in influencing growth of firms. During the period of liberalisation, the result showed that the import of capital goods is technology related variables which makes possible the firm to achieve the higher growth. The import of embodied technology is considered an important variable in determining growth of firms and may help a firm in producing higher quality product that are recognized at international standards. In liberal economic policy period, firms, which mostly depended on intra-firm transfer of technology through foreign equity participation, grew faster than others. The policy liberalisation might not so been effective in translating into increased FDI inflows to India either in the initial period of liberalisation (1991-98) or with subsequent period with greater degree of liberalisation pursued between 1998-99 to 2002-03. Restrictions on foreign equity investment and selective permission allocate a limited role for intra-firm transfer of technology. Disembodied technology (IMTECH) and R&D emerged significant with a negative coefficient during both the period. The Indian automotive sector under the under pervasive regulation and protection (Kathuria, 1996) mostly emerged as a virtual sellers market, with little incentive for R&D and technology upgradation. Therefore, the relationship between technology licensing and in-house R&D may be substituting type or complementary, depending upon these two opposite effects. Apart from technology licensing, firms may purchase capital goods and equipments incorporating new process technologies. Such knowledge resources embodied in capital goods can also impart competitive advantage to firms.

Further, the positive relationship between firm size and growth confirms the existence of certain scale advantages in achieving high rates of growth. Firm size, had remained a catch-all variable for most of the studies and if one accounts for the role of technology, vertical integration, capital intensity and the age of the firm, size of the firm does provide a firm with positive advantages to grow. The results support the hypothesis of the Morris model that profitability determines a firm's ability and willingness to grow. Profitability has a positive and significant role in generating growth of firms. Apart from technology, capital intensity age, degree of vertical integration and R&D also emerged as significant with negative signs) in determining the growth of Indian automobile firms.

During the period of globalisation, a new policy i.e. Auto Policy-2002 was released 'to promote

an automotive industry globally competitive' (Government of India, 2002). Globalization in India has a favorable impact on the overall growth of this sector. It is important discuss the impact of globalisation of technology on Indian automobile industry and its implication for their development strategies and policies. During the period of globalisation, Equity participation by foreign promoters has a positive effect on growth of firms. The imported capital goods also considered to be the main source of technology transfer has a positive and significant role in generating growth of firms. R&D efforts, supported by import of high-technology goods from abroad, are helpful in enhancing the competitiveness and growth. The import of technology of all capital goods, including machines is already encouraged by the government through lower tariffs. R&D intensity is negatively significant impact on growth during globalisation period.

Firm size has been assigned an important role in the studies of growth of firms in Indian automobile industry. Capital intensity is also positively related with growth of firm during this period. Profit is an incentive for expanding the scale of production and also it provides resources for implementing production plans. Profitability gives an opportunity to firms to raise funds, which are needed for expansion of firms. Globalisation has provided the firms opportunities to import capital goods which embody new technology considered to be efficient. The product quality of firms with new machinery is likely to be better than the product quality of firms with older machinery. Hence, growth of firms with new machinery is expected to be more compared with firms with older machinery. Capital intensity is positively related to growth of firm (Hay and Morris 1991) on the ground that higher capital intensity facilitates better machinery and thus will be more competitive. Also firms with higher capital intensity are likely to have better product quality than firms with lower capital intensity. Siddharthan et al 1994 found a positive coefficient for capital intensity in analyzing the growth of firms. Thus it is hypothesized that capital intensity has a positive effect on growth of firms. Vertical integration will then have a positive relationship with growth of firms. At the same time, procurement of intermediate products through subcontracting or ancillarisation gives benefits of economies of scale arising out of their large scale of production. Hence, vertical integration is likely to have a negative effect with growth. This study finds that the technology is an increasingly important element of globalization and of competitiveness. With the government policy regimes on industry, inward FDI, technology and trade evolving from a restrictive phase in pre-1990s to a facilitative one in the liberalisation process of the 1990s and then to a more strategic one in 2000s, (new competitive scenario) involves strong competition among the Indian

manufacturers results the growth in the automobile market.

Finally, firms can learn a great deal from the experience of the firms in the foreign firms, which reduced substantially the technological gap. Firms become more competitive by both striving to enhance their entrepreneurial and technological capabilities not only by reducing their costs of production, but also by

developing their capability to create new, and more technology-intensive, products or new generations of existing products. The dynamic effects of liberalization and globalisation are thought to enhance learning, technological change and growth of firms in the automobile industry due to favorable industrial, trade, and FDI policies.

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## Extent of Integration of India's Textiles and Clothing Sector

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One of the most vital sectors always held the prime importance in the growth and development of any economy, be it on industrial, commercial and social front, is the textiles and clothing (T&C) sector. The existence and immense value of this sector has not only been acknowledged by the people of the country, but also been given special attention in the literature of development and international economics. With the global modernization, the T&C sector has become capital-intensive and highly specialized, but for developing countries this sector continues to be highly labour-intensive and has lot of potential for generating employment for all types of workers (be it skilled, semi-skilled and unskilled). Sustainable growth in the production and trade of the products of this sector is essential to improve the gross domestic product (GDP) and foreign exchange earnings of the country. Available literature evidently indicates that this sector has the credit of being a significant contributor to the early success of most of the countries' development as well as for taking them up to the higher and more prominent positions in the supply chains. Owing to the rapid processes of liberalization and globalization in several countries (mainly developing countries), especially for the past three decades, the role and significance of global supply chains (GSCs) is getting more and more acknowledgement with respect to the manufacturing sectors. T&C sector can be seen as one of the best examples for this purpose. The process of establishment and development of the textile and apparel value chains, linking various firms located in different parts of the world, along with the importance and benefits of such chains formation, have been extensively studied and worked upon by various researchers (for instance, Gereffi, 1999<sup>1</sup>; Gereffi, Spener, & Bair, 2002<sup>2</sup>; etc.). Further, more intra-industry trade (IIT) is taking place where a country simultaneously exports and imports goods within the same industry or product group. Presence of higher vertical IIT is considered vital for better integration into GSCs, as indicated by many studies.

There exist strong future potentials for developing supply chains in textiles and clothing sector of South Asian countries (Commonwealth Secretariat, 2010<sup>3</sup>), of which India is the most developed nation with huge T&C sector since many

years. India produces and exports across the value chain. It specializes in both the textiles as well as the clothing segments of the sector. Though the literature is not very vast in terms of presence and/or development of supply chains in Indian T&C sector, but there are some studies which have worked upon the trade and competitiveness issues of this sector (for instance, Verma, 2002<sup>4</sup>; Tiwari, 2005<sup>5</sup>; National Manufacturing Competitiveness Council, 2009<sup>6</sup>; etc.). However, there is a need of in-depth study in order to understand whether the Indian T&C sector is a part of any supply chains.

In India, the T&C sector is one of the oldest and largest sectors in the manufacturing segment of the country, be it in terms of generating employment, production of almost all types of fibres to ready-made garments (RMGs), along with the textile designing as well as retailing. The sector presently contributes about 14% to industrial production, 4% to GDP, 17% to country's export earnings as well as provides employment to over 35 million people, including women workers. It is the second largest employment provider after agriculture. Further, India is the major producer of raw jute and jute products as well as second largest producer of silk in the world. Handloom weaving is one of the largest segments and India provides 95% of world's hand woven fabric. However, this is facing tough competition from powerlooms and mills as well as from cheap imported fabrics that are readily available (Ministry of Textiles, 2011-2012).<sup>7</sup> Further, India is also the second largest producer, consumer and exporter of cotton in the world, along with the largest producer of organic cotton, as well as second largest producer of man-made fibres in the world (Ministry of Textiles, 2010)<sup>8</sup>. Moreover, in the global exports of textiles and in the exports of clothing, in 2010, India ranked as the third largest exporter (after EU-27 and China) and sixth largest exporter (after Turkey, Bangladesh, Hong Kong, EU-27 and China), respectively (Ministry of Textiles, 2011-2012).

Following the conceptualization provided by Verma (2002), in the present study, the textiles mean fibres, yarn, fabric and made-ups; while the clothing means ready-made garments (RMGs) (clothing/apparels/garments are being used

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<sup>1</sup> Gereffi, G. (1999). International trade and industrial upgrading in the apparel value chain. *Journal of International Economics*, 48(1), 37-70.

<sup>2</sup> Gereffi, G., Spener, D., & Bair, J. (Eds.). (2002). *Free trade and uneven development: The North American apparel industry after NAFTA*. Philadelphia, US: Temple University Press.

<sup>3</sup> Commonwealth Secretariat. (2010). *Identification of Potential Supply Chains in Textiles and Clothing Sector in South Asia*. Retrieved from <http://wtocentre.iift.ac.in/UNCTAD/07.pdf>

<sup>4</sup> Verma, S. (2002). *Export competitiveness of Indian textile and garment industry* (Working Paper No.94). Retrieved from Indian Council for Research on International Economic Relations website: <http://www.icrier.org/pdf/WP%2094.pdf>

<sup>5</sup> Tiwari, M. (2005). *Post-MFA adjustments in India's textile and apparel industry: Emerging issues and trends* (Working Paper No.167). Retrieved from Indian Council for Research on International Economic Relations website: <http://www.icrier.org/pdf/wp167.pdf>

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<sup>7</sup> Ministry of Textiles, Government of India. (2011-12). *Annual Report 2011-12*. Retrieved from [http://www.texmin.nic.in/annualrep/ar\\_11\\_12\\_english.pdf](http://www.texmin.nic.in/annualrep/ar_11_12_english.pdf)

<sup>8</sup> Ministry of Textiles, Government of India. (2010). *National Fibre Policy 2010-11*. Retrieved from [http://texmin.nic.in/policy/Fibre\\_Policy\\_dir\\_mg\\_d\\_20100608.pdf](http://texmin.nic.in/policy/Fibre_Policy_dir_mg_d_20100608.pdf)

interchangeably). The Harmonised System product classification (HS classification), due to its wide usage and applicability in several international trade researches, is being taken up in the present study for T&C sector as: HS Chapters 50-63; wherein HS 50-60 is taken to account for textiles and HS 61-63 is taken for clothing.

In 2010, the share of Indian T&C sector in total exports to and in total imports from the world is 12.31% and 1.12%, respectively (see Table 1). The trade data has been collected from World Integrated Trade Solutions (WITS) software<sup>9</sup>. The shares of each product category within the HS 50-63 classification are also being highlighted in the table. Here, cotton is having the highest export share of 3.13%, followed by articles of apparel and clothing accessories (HS 61 and HS 62), along with significant exports' shares of man-made filaments and man-made staple fibres. In spite of low import shares, the Indian T&C sector has considerable presence in global markets.

**Table 1:** Shares of Indian T&C sector in Total Exports to and Total Imports from World in 2010

Product Code	Product Description	Exports (Share in %)	Imports (Share in %)
50	Silk	0.15	0.11
51	Wool, fine/coarse animal hair; horsehair yarn and woven fabric	0.06	0.10
52	Cotton	3.13	0.13
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	0.16	0.05
54	Man-made filaments	0.99	0.18
55	Man-made staple fibres	0.74	0.11
56	Wadding, felt and non-wovens; special yarns; twine, cordage, ropes and cables and articles thereof	0.11	0.04
57	Carpets and other textiles floor coverings	0.60	0.02

<sup>9</sup> 'WITS' is software developed by World Bank in close collaboration and consultation with various international organizations, including UN Conference on Trade & Development (UNCTAD), International Trade Centre (ITC), UN Statistical Division (UNSD) and World Trade Organization (WTO). It gives access to major international trade, tariff and non-tariff compilations, such as, UN COMTRADE database maintained by UNSD; the TRAINS by UNCTAD; etc. It is data consultation and extraction software with simulation capabilities.

58	Special woven fabrics; tufted textiles fabrics; lace; tapestries; trimmings; embroidery	0.11	0.03
59	Impregnated, coated, covered/laminated textile fabrics; textile articles of a kind suitable for industrial use	0.07	0.17
60	Knitted or crocheted fabrics	0.07	0.06
61	Articles of apparel and clothing accessories, knitted or crocheted	2.07	0.02
62	Articles of apparel and clothing accessories, not knitted or crocheted	2.74	0.03
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1.32	0.08
<b>HS 50-63</b>	<b>Total</b>	<b>12.31</b>	<b>1.12</b>

*Source:* Own calculations, Data obtained from WITS Software

Thus, the Indian T&C sector has substantial contribution in the total exports, along with the significant additions to GDP and employment statistics. As per the data and the available literature, there exists lot of potentialities in the different segments of the sector to upgrade their positions in the supply chains; however, it is utmost important to first ascertain the present situation so that appropriate policies could be made thereafter. Therefore, the aim objective of this paper is to find out the extent of integration of India's T&C sector into GSCs.

The steps that are being used for this purpose are: (i) understanding the Input-Output structure of Indian T&C sector; (ii) assessing the value of intra-industry trade (IIT) in the sector; and (iii) assessing the existence of vertical intra-industry trade (VIIT) and horizontal intra-industry trade (HIIT). Accordingly, the paper has three broad sections followed by the conclusion. The first section discusses about input-output structure; the second section measures IIT through Grubel-Lloyd Index (GLI); and the third section measures the types of trade using decomposition type threshold method.

## 1. Input-Output Structure

For finding out the extent of integration of the Indian T&C sector in GSCs, the “Input-Output database” constructed under UNCTAD-India Project (Project on Strategies and Preparedness for Trade and Globalization in India) has been used to get the data on inputs of the sector (database is developed with FISME and FICCI). Using this software, the input-output information is extracted from the available database of textiles and chemicals sectors, as per the requirements of this study. Outputs are selected only at 6 digit and 8 digit levels on the basis of HS classification. International Trade Classification (ITC) provides common product classification for all countries up to 6-digit level; however, 8-digit level product classification, which is more disaggregated level of classification, is individually decided by each country. Accordingly, for India, the Indian Trade Classification (HS) for 8-digit level is taken from Ministry of Commerce and industry, Government of India.<sup>10</sup> As per the existing database, the selected outputs at 6/8 digit product levels [ITC(HS)] have matching with SION (Standard Input Output Norm) output code. This helps to identify the inputs used in the production of each output. As a result, the inputs are obtained at all digit levels (2-8 digit levels) for the selected 6/8 digit level outputs (Stage I).

All this is based on the common logic that each output has certain number of inputs and each input is output for other industry, which again has some inputs/ raw materials/ intermediate goods by using which it is produced. Accordingly, from the inputs obtained in the Stage I, only those products have been selected as outputs for Stage II which are in nature of 6 or 8 digits as well as have readily available information on the inputs in the existing database. Thus, the next step is to identify the raw materials or inputs that have led to the production of these selected Stage-II outputs (The tables showing extracted data of these two stages can be made available on request).

These extracted database clearly certify the existence of significant and complete supply chains in Indian textiles and clothing, that is, from production of raw materials to the production of fibres and yarn, and then production of fabrics, which are further processed to produce RMGs. Moreover, the major inputs that have been used are not only from within the T&C sector, but also from other sectors such as chemicals, metals, etc. (for instance, inputs obtained in Stages I and II belong to the following HS chapters: HS 25, HS 26, HS 27, HS 28, HS 29, HS 32, HS 34, HS 38, HS 39, HS 69, HS 70 and HS 76).<sup>11</sup>

<sup>10</sup> Source: [http://www.dgciskol.nic.in/ITC\(HS\).htm](http://www.dgciskol.nic.in/ITC(HS).htm) (Directorate General of Commercial Intelligence and Statistics (DGCI&S) under the Ministry of Commerce and Industry, Government of India). For Ch-XI (HS 50-63), see <http://www.dgciskol.nic.in/sec11.htm> (As Input-Output database is constructed on the basis of HS 2002, thus the ITC (HS) with effect from April 2003 is taken).

<sup>11</sup> HS Chapters 25-27: Mineral Products; HS 28-38: Products of the Chemical or Allied Industries; HS 39-40: Plastics & articles thereof, Rubber & articles thereof; HS 68-70: Articles of Stone,

In the Stage I, apart from using yarn, fibres and fabrics from the T&C sector, other major inputs used are acid dyes, acrylic dyes, and other kinds of dyes, furnace oil, bleaching powder, bronze powder, beads, sequins, hydrogen peroxide, lining material, lubricating agents, and so on (some of the outputs at stage I are also the inputs of this stage only, and thus they are outputs for stage II). In the Stage II, other than HS 50-63, the inputs used from other sectors include caustic soda, activated carbon, aluminium, coke, hydrated lime, furnace oil, ethyl acetate, Dimethyl formamide, linseed alkyd resin, methanol, polyester films, soda ash, phenol, petroleum hydro carbon solvent, solvent dyes, sodium chloride, pigment (AAA yellow 12), etc. This validates the extensive use of chemicals as inputs in Indian T&C sector and these are mainly produced and exported by India in huge quantities to large number of countries.

After identifying the inputs, their exports’ and imports’ data has been collected from WITS software. Since WITS has information only upto 6 digit level, so the import and export mapping is considered upto this level only. This is being done to find out the extent of integration of the sector. Here, HS 2002 classification is being used because the input-output database is constructed on the basis of HS 2002 (as per the available information).

Firstly, for all the 6 digit level inputs that have been obtained from above mentioned two stages, it is checked whether there are any exports or imports of these inputs to and from the World as well as various countries of the world. The total number of inputs obtained at 6-digit level is 15 inputs. Accordingly, for each input product category, the trade data is taken for all the available countries in the WITS software, that is, 275 countries (including World, Unspecified, etc.). However, it has been observed that exports and/or imports of these inputs are present only for 161 countries (thus, the total number of countries for analysis purpose is taken to be 161 countries). For assessing the extent of integration of the sector into GSCs, it is necessary to check some important points: out of these 161 countries, which all countries are there with which India is trading, that is, involved in exporting and importing of these selected 15 inputs; and secondly, if there is presence of export of any input from India, then that input becomes part of supply chains at global level. If majority of the inputs have been exported to large number of countries, then the Indian T&C sector can said to have greater participation into GSCs. Table 2 provides the information on the presence of trade of inputs at 6-digit level. Each input has two consecutive columns: the first one shows India’s export of that particular input to various countries and the second column shows India’s import of that particular input from various countries.

Plaster, Cement, Asbestos, Mica or similar materials; Ceramic products; Glass & Glassware; HS 72-83: Base Metals and Articles of Base Metal

**Table 2:** Presence of Trade for Selected 15 Inputs (A-O) at 6-digit level [*Names of inputs A-O are given at the end of the table*]

	<b>Countries</b>	<b>A</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>E</b>	<b>E</b>	<b>F</b>	<b>F</b>	<b>G</b>	<b>G</b>	<b>H</b>	<b>H</b>	<b>I</b>	<b>I</b>	<b>J</b>	<b>J</b>	<b>K</b>	<b>K</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>M</b>	<b>N</b>	<b>N</b>	<b>O</b>	<b>O</b>		
1	Afghanistan			■								■		■																			
2	Angola											■																					
3	Netherlands Antilles			■									■	■																			
4	United Arab Emirates	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5	Argentina					■				■		■		■				■		■				■		■		■		■		■	
6	Armenia					■								■																			
7	Australia			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
8	Austria		■		■	■						■	■	■				■		■							■						
9	Azerbaijan			■										■	■																		
10	Burundi	■																															
11	Belgium	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
12	Benin			■																			■										
13	Burkina Faso																							■									
14	Bangladesh	■		■		■		■		■		■	■	■		■		■		■			■	■	■	■	■	■	■	■	■	■	
15	Bulgaria					■				■		■		■												■							
16	Bahrain	■				■						■	■	■									■		■		■					■	
17	Belarus					■				■																							
18	Bolivia					■								■															■				
19	Brazil	■		■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
20	Brunei	■																					■										
21	Bhutan					■				■				■																			
22	Botswana							■																■									
23	Central African Republic					■				■																							
24	Canada	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	Switzerland	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
26	Chile					■				■		■		■		■		■		■				■		■		■		■		■	
27	China	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
28	Cote d'Ivoire					■				■		■		■										■		■		■		■		■	
29	Cameroon	■		■				■		■		■		■										■									













If input-wise data is observed, out of these selected 161 countries (including World), India is exporting these 15 inputs to the world and to most of the countries, indicating considerable presence of these inputs in GSCs. The products (inputs) which have been exported to more than 50% of total number of countries are: HS 281511, HS 320411, HS 320412, HS 320416, HS 320417, HS 320419 and HS 520511 (that is, different types of dyes and cotton yarn). Among these, product codes HS 320412 (acid dyes) and HS 320419 (sulphur dyes) have been exported to more than 110 countries. Their imports by India are comparatively less. This highlights India's rising presence in GSCs as well as its huge potentialities to enhance its position therein for these inputs. There also exist some inputs which have quite significant exports and can soon become the potential supply chains: HS 320415, HS 320710, HS 350510, HS 540220 and HS 560500 (that is, vat dyes, pigments, starches, synthetic filament yarn and metallised yarn). All the remaining inputs, out of these 15 inputs, have been exported to lesser number of countries, say, below 40 countries (in fact, most of them being exported to around 20 countries). Imports are also very less in comparison to the exports.

India is exporting and importing all these inputs to the and from the world as well as United States. It is exporting all these 15 products to United Kingdom and Italy; while importing about 13 and 14 products from them, respectively. India is exporting 14 inputs to China except HS 520100 (raw cotton) as well as it is importing 14 inputs from China except HS 560500 (metallic yarn). Therefore, there exist simultaneous exports and imports for most of the inputs used in India's T&C sector, thereby making the case for the existence of two-way trade in the sector. The list of some of the prominent countries to which India is exporting these inputs is as follows:

- 1) Exporting all 15 inputs – United States (US); United Arab Emirates (UAE); France; United Kingdom (UK); Italy; Malaysia; Nepal; Turkey
- 2) Exporting 14 inputs out of total 15 inputs - China; Hongkong, China; Indonesia; Sri Lanka
- 3) Exporting 13 inputs out of total 15 inputs - Germany; Egypt, Arab Rep.; Japan, Oman, Saudi Arabia, Singapore, Thailand, South Africa
- 4) Exporting 12 inputs out of total 15 inputs - Bangladesh; Spain; Korea, Rep.; Mauritius; Vietnam
- 5) Exporting 11 inputs out of total 15 inputs - Australia; Belgium; Brazil; Canada; Colombia; Iran, Islamic Rep.; Israel; Kenya; Kuwait; Mexico; Tanzania
- 6) Exporting 10 inputs out of total 15 inputs - Argentina; Nigeria; Netherland; Pakistan; Portugal; Tunisia; Uganda; Yemen; Unspecified; Other Asia, nes

Other important countries for exports are Bahrain, Ecuador, Jordan, Iraq, Morocco, Philippines, Sudan, New Zealand, Switzerland, Chile, Denmark, Greece, Romania, Ukraine, Venezuela, Guatemala, etc. Over the years, India's trade relations with these countries are getting better for T&C.

The major importing countries are: US, China, Italy, Japan, Thailand, Germany, UK, Hongkong, Indonesia and Korea. Other important ones are: UAE, Spain, Malaysia, Singapore, Australia, Belgium, France, Turkey, Netherlands, Other Asia, nes, etc.

Thus, India is largely exporting these 6-digit level inputs to the majority of the countries, indicating India's enough potential to produce most of these inputs, which are in demand from other countries.

All the above data and its analysis pertain to 6-digit level inputs which have shown impressive performance of Indian T&C sector in GSCs. Now, for the inputs obtained at 2 and 4 digit levels, 197 countries are taken as total number of countries for conducting analysis (trade of these inputs are present for 197 countries). Due to space constraint, the export-import mapping table for these products is not being provided in this paper; however, it can be made available on request. The brief findings from the table are:

1. At 2-digit level, HS 32, HS 52, HS 55 and HS 60 are being used as inputs. Out of 197 countries, they have been exported by India to most of the countries; especially products HS 32 (tanning/dyeing extract, dyes, pigments, etc.) and HS 52 (cotton) which are being exported to more than 165 countries (though India has also imported them, but in a comparatively very less proportion), thus clearly confirming the status of Indian textiles as predominantly cotton-based as well as justifying the production of large number of chemicals in India. Product code HS 60 (knitted or crocheted fabrics) has been exported to 100 countries, while it has been imported from 58 countries. HS 55 (man-made staple fibres) has also been both exported and imported, but lesser in comparison to other three products; however, this product has more imports than exports.
2. At 4-digit level, there are 26 inputs that have been identified from both the stages mentioned above. Only very few products have been exported to more than 100 countries out of 197 countries: HS 3204, HS 3926, HS 5007, HS 5205, HS 5208, HS 5402 and HS 5509 [HS 3926 (other plastic articles like buckles) and HS 5208 (woven fabrics of cotton) have been exported to more than 150 countries], but these do not have very high imports and that too taking place from less number of countries. These inputs also include synthetic organic coloring matter (pigments, reactive dyes), woven fabrics of silk, cotton yarn, synthetic filament yarn (SFY) and yarn of synthetic staple fibres. Hence, these inputs are more integrated into GSCs owing to their exports to large number of countries. Other products which have huge potential with considerable exports and imports are HS 3212, HS 6006 and HS 6310 (that is, pigment [AAA yellow 12]; knitted fabrics of relevant polyester/cotton blend; and used or new rags,

scraps, twine, cordages, cables, etc.), as well as HS 5107, HS 5403, HS 5406, HS 5514 and HS 6001 (yarn of combed wool; artificial filament yarn; man-made filament yarn; woven fabrics of synthetic staple fibres; and relevant processed man-made fabrics/ pile fabrics; respectively), to some extent, mainly because of their rising exports. While all other remaining 4-digit level inputs have comparatively lower exports and imports, but with proper policies and schemes in action, they can be a potential part of GSCs.

Thus, it is not misleading to say that certain segments of India's T&C sector have significant presence in GSCs, but there is a need to make lot of improvements and take lot many steps in this direction. To further validate and test the results gathered in this section, the IIT is being measured in the next two sections.

## 2. Intra-Industry Trade (IIT)

For calculation of IIT in Indian T&C sector (HS 50-63), the Grubel-Lloyd Index (GLI)<sup>12</sup> has been used. Here, the index is not only being calculated for entire T&C sector, but also separately for textiles and clothing segments; GLI is also calculated product category-wise (2-digit level) within HS 50-63 (Table 3). The years have been carefully selected for calculation of GLI: 1988, 1997, 2001, 2006 and 2010. These have been selected to show the presence and increase/decrease of IIT in the sector at regular intervals over the selected time-period of study (1988-2010). Attempts have been made to select these years carefully so as to capture impacts of liberalization of trade and investment regime, joining of WTO, impact of recession, etc. as well as to understand the effects of various policies/schemes launched by Government of India from time to time for Indian T&C sector, such as National Textile Policies, abolition of Multi-fibre arrangement, recent zero duty EPCG scheme for textiles, apparel and chemicals, etc.

**Table 3:** Values of GLI<sub>i</sub> for HS 50-63

Product Code/ Years	1988	1997	2001	2006	2010
50	58	61	71	96	93
51	23	74	52	49	68
52	24	5	34	23	9

<sup>12</sup> GL Index is one of the standard tool which measures IIT as a percentage of a country's total trade (exports plus imports) which is assumed to be balanced, that is exports equal imports. The value of index lies between 0 (no IIT – trade is one-way) and 100 (complete IIT – trade is balanced). For an individual product group or industry *i*, GL Index is calculated by using formula:  $GLI_i = \frac{[(X_i + M_i) - |X_i - M_i|] \cdot 100}{(X_i + M_i)}$ , where  $X_i$ = exports of industry *i*; and  $M_i$ = imports of industry *i* (India's T&C industry/sector). Formula  $GLI_j = \frac{[(\sum (X_i + M_i)) - \sum |X_i - M_i|] \cdot 100}{\sum (X_i + M_i)}$  is used to obtain the average level of intra-industry trade for a country *j*, where *i* is the *i*th of *n* industries (For India's average IIT:  $GLI_{India}$ ).

53	17	28	37	89	55
54	96	38	63	63	37
55	75	61	33	34	31
56	63	96	86	97	61
57	0	1	4	7	8
58	44	27	22	70	52
59	92	51	47	33	47
60	70	39	88	83	86
61	0	0	0	1	3
62	0	0	0	2	3
63	24	10	24	9	14
<b>GLI<sub>India</sub></b>	<b>19</b>	<b>13</b>	<b>31</b>	<b>20</b>	<b>17</b>
<b>GLI (Textiles) 50-60</b>	<b>32</b>	<b>23</b>	<b>39</b>	<b>40</b>	<b>27</b>
<b>GLI (Clothing) 61-63</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>5</b>

*Source:* Own Calculations, Data Obtained from WITS Software

From Table 3, the GLI results show that IIT has been quite low for Indian T&C sector which accounted for 19% in 1988, reached the higher level (as per the given data of selected years) in 2001 at 31%; however, it has now again fallen down to 17% in 2010. In other words, the data indicates a fall of 2% in GLI from 1988 to 2010 which cannot be considered a good sign, thereby making the case of very less participation of this sector into GSCs. On observing the index values of each product code within HS 50-63 classification, it is found that the IIT in product code HS 50 has increased tremendously over the years from 58% in 1988 to 96% in 2006 and 93% in 2010. Similarly, product code HS 51 has witnessed remarkable increase in IIT from 23% in 1988 to 68% in 2010; HS 53 has witnessed tremendous rise in IIT from 17% in 1988 to 89% in 2006 (it fell down to 55% in 2010, although it is still higher than 1988 level). That is, IIT in products like silk; wool, fine/coarse animal hair; and other vegetable textile fibres and paper yarn has been very high. For HS 57 (carpets and textiles floor coverings), the IIT has increased from 1% in 1997 to 8% in 2010. HS 58 and HS 60 (that is, special woven fabrics and knitted or crocheted fabrics) observed some improvements in IIT from year 1988 to year 2010 of 8% and 16%, respectively. HS 61 and HS 62 (both being articles of apparel and clothing accessories, whether or not knitted or crocheted) with 0% IIT in 1988 has witnessed slight increase in IIT to 3% in 2010. However, in other products, there has been some downfall: HS 52 has observed decline in IIT from 24% in 1988 to 9% in 2010. HS 54 has witnessed major fall in IIT from 96% to 37% over the

same period. Similarly, the GLI for HS 55 and HS 59 has experienced decline in IIT of 44% and 45%, respectively. In other words, IIT has majorly fallen down for cotton, man-made filaments, man-made staple fibres, and impregnated/coated textile fabrics and articles for industrial use. HS 63 (other made up textile articles, worn clothing) has witnessed a fall of 10%; while there has been a minor fall of 2% in the product HS 56 (wadding of textile articles, special yarns, twine, etc.) from 1988 to 2010 (however, its IIT has increased considerably from 1988 to 2006 from 63% to 97%). Thus, these GLI results also gives the same impression that was obtained in the previous sections indicating that there are certain segments of Indian textiles and clothing which are highly integrated, in spite of overall low participation of the sector.

Further, if only exports and imports data obtained from WITS software is scanned through, then the following results could be summarized: In 1988, there has been mostly trade surplus (exports being higher than imports by significant amount), except for product codes HS 51, HS 54, HS 56 and HS 59. In 1997, the exports increased noticeably with most of the products having trade surplus; especially for HS 54 the trade deficit in 1988 had turned into surplus in 1997 with tremendous increase in exports. Product codes HS 51 and HS 59 continue to have trade deficit in 1997 which has been the case even in 2001 (moreover, both exports and imports for HS 51 has fallen down significantly). HS 60 has observed the trade deficit in 2001, which had good trade surplus in earlier years, owing to higher increase in its imports. Till 2010, the exports continue to increase rapidly with trade surplus in all the products, except HS 51, HS 59 and HS 60 (however, some improvements took place in exports of HS 51 in recent year). In case of clothing (HS 61-63), there is continuous and remarkable trade surplus over the time period 1988-2010. Values of exports have been much higher than the value of imports; although, in recent years, the imports have also started to rise.

If textiles and clothing segments are treated separately for calculation of GLI, it is found that the textiles have much higher IIT than average IIT calculated for the entire T&C sector, as well as its IIT is very high when compared to IIT in clothing (as observed from Table 3). GLI for textiles has increased from 32% in 1988 to 40% in 2006, but fell down to 27% in 2010. The fall in IIT in recent year 2010 could be attributed to the global economic recession that took place in 2008-09, thereby affecting more the developed countries like US and EU (major importing nations). For clothing, there has been increase of just 1% from 1988 to 2010 and increase of only 2% from 2001 to 2010, which is extremely low. Thus, it is right to say that Indian textiles are better integrated into GSCs than Indian clothing.

### 3. Types of IIT

In this section of the chapter, the ‘Decomposition Type Threshold Method<sup>13</sup>’ is being used to decompose the total trade into one-way trade, horizontal IIT (HIIT) and vertical IIT (VIIT). However, the types of trade are being calculated separately for textiles (HS 50-60) and separately for clothing (HS 61-63), with respect to India (as given below in Table 4 and Table 5). Data related to the values and the quantities of exports and imports is again collected from WITS software, but for more disaggregated level of product classification, that is, for HS six-digit level product classification. The threshold-based index for each type of trade is calculated for four years (1988, 1997, 2001 and 2010).

**Table 4:** Decomposition Type Threshold Index (Textiles)

Textiles (50-60)	Type of Trade			
	One- Way Trade	Intra-Industry Trade (IIT)		
		Horizontal IIT (HIIT)	Vertical IIT (VIIT)	Not Classified IIT
Years				
1988	86%	9%	5%	0%
1997	89%	5%	7%	0%
2001	85%	4%	11%	0%
2010	81%	10%	7%	2%

*Source:* Own Calculations, Data Obtained from WITS Software

**Table 5:** Decomposition Type Threshold Index (Clothing)

Clothing (61-63)	Type of Trade			
	One- Way Trade	Intra-Industry Trade (IIT)		
		Horizontal IIT (HIIT)	Vertical IIT (VIIT)	Not Classified IIT
Years				
1988	98%	1%	1%	0%
1997	100%	0%	0%	0%
2001	98%	0%	1%	0%
2010	97%	0%	2%	1%

*Source:* Own Calculations, Data Obtained from WITS Software

Table 4 clearly shows that the trade in Indian textiles (HS 50-60) is largely one-way trade, which was 86% in 1988 and increased to 89% in 1997. Thereafter, this started falling down slightly and reached to 81% in 2010. However, it is not misleading to state that one-way trade is around 80%, that is, around 20% or lower than that is the intra-

<sup>13</sup> For detailed description of this method, see Ando (2006):  
Ando, M. (2006). Fragmentation and vertical intra-industry trade in East Asia. *North American Journal of Economics and Finance*, 17, 257-281.

industry trade (IIT). For textiles sector, in 1988, HIIT was 9%, while the VIIT of 5% was lower than that of HIIT. Similarly, in 2010, the HIIT is still greater than the VIIT by 3%. There is a category of non-classified IIT of 2% in 2010, due to non-reporting of data on quantity, thereby affecting the result to some extent. However, in 1997 and 2001, the VIIT surpassed the HIIT by 2% and 7%, respectively, indicated rising trade in similar products at different processing levels during this time-period. In spite of this, both of the HIIT and the VIIT continue to be very low in comparison to one-way trade and thus marking the lesser presence of Indian textiles in GSCs.

For Clothing sector (see Table 5), the results of decomposition method are very striking for Indian clothing: almost the entire trade is one-way trade which was 98% in 1997 and 97% in 2010, and was highest in 1997 with 100%. There is very negligible IIT of around 1-2% or even below this level. However, though very marginally, VIIT is slightly higher than HIIT.

Thus, the decomposition type threshold method shows very low integration of Indian textiles and clothing sector into GSCs, owing to the presence of mainly one-way trade. There has been some improvement in textiles in terms of increasing IIT; but in clothing, there has been a very bad scenario with hardly any IIT. VIIT is very low in both of these segments.

Although the results of GLI (obtained in previous section) show higher percentage of IIT as compared to decomposition method, but the difference is due to the fact that in former, all the products have been taken into account; while in latter, only 6-digit level products have been considered. So, there cannot be any conflict between the two methods: GLI is a standard tool to measure the overall IIT in the sector, while decomposition type threshold method decomposes IIT into VIIT and HIIT and put forward the one-way trade as well.

#### **4. Conclusion**

The Indian T&C sector is gradually occupying its distinct niche on the world level, especially in the

exports market, as well as providing greater platform for rising integration in GSCs. In spite of low level of integration of this sector, there exists considerable amount of exports of its inputs/raw materials to the various countries of the world. There is presence of significant trade for majority of the inputs of this sector and many of them have rising IIT. These mostly include textile products (HS 50-60), especially of the categories like silk, cotton, man-made fibres and filaments, knitted or crocheted fabrics, etc. IIT in textiles is much higher than IIT in clothing. There are certain specific products relating to this sector such as, different types of dyes (vat dyes, sulphur dyes and so on), cotton yarn, synthetic filament yarn, woven fabrics of silk, etc., which have tremendous presence in GSCs.

Moreover, though there is more one-way trade for textiles and mainly for clothing segments, along with miniscule amount of vertical IIT, but there still exists lot of scope for enhancing their role in value chains. Accordingly, there is a need to critically analyse the existing policies/ schemes of Government of India relating to this sector's trade and investment regime. Improved and good transportation as well as power connection is the need of the hour. By making tax structure uniform for all types of raw materials, fibres and yarn, this sector can achieve higher growth in the coming years. Efforts should be made to bring more and more inputs/raw materials of this sector on the global platform so as to increase the level of integration of the sector into GSCs.

## Study of Non-Performing Assets in Indian Banking

Sarneet Broca<sup>1</sup> and Neeraj Agarwal<sup>2</sup>

### Introduction

Banking has become the backbone of growing economies. In the Indian scenario, the various financial sector reforms and entry of private sector banks, the progress of the economy can be directly related to the development of the banking sector. So much so, banking has become the foundation of modern economic progress. Hence, the stability of the banking sector is a prerequisite for the smooth progress of the nation and resistance to a financial crisis.

Commercial banks play an important role in underdeveloped economy via mobilization of resources and their better allocation. Banks provide a common ground for savers and investors as well as serve social purposes through schemes of priority sector lending. One of the major roadblocks to the functioning of banks is that of non-performing assets (NPAs), which are basically loans that are in jeopardy of default. If a borrower fails to pay interest or principal for 90 days, the loan is considered to be a non performing asset. NPAs put a detrimental impact on the profitability, capital adequacy ratio and credibility of banks.

The problem of non-performing asset (NPA's) in the Indian banking system is one of the foremost and the most formidable problems that have shaken the entire banking industry. NPA is a double-edged weapon. On the one side bank cannot recognize interest on NPAs accounts and on the other, it is a drain of the bank's profitability due to high funding cost. Higher NPAs ratio shakes the confidence of investors, depositors, lenders etc. It also causes poor recycling of funds, which in turn will have deleterious effect on the deployment of credit. The non-recovery of loans effects not only further availability of credit but also financial soundness of the credit of organisation.

This paper highlights the trends in Gross and Percentage NPA in the last decade across various banking sectors, focusing upon the reason and its impact on the economy. Loan allocation amounts across specific sectors and specific corporates have been targeted to find them a major reason for the default. Further, an analysis of the conditions and subsequent remedies taken up by a few nations was used to arrive at suggestive measures in the Indian scenario.

The measures suggested are spread across different timelines, i.e. pre-sanction period (preventive measures) and post-sanction period (curative measures). While the pre-sanction period stress on risk management and judicial loan

allocation, curative measures are spread across various verticals like early asset quality detection, legal procedures, adaptive cash recovery systems, asset reconstruction companies, securitisation and development of capital markets.

### Understanding NPA

Non-performing assets is a classification used by financial institutions to refer to those loans which are in jeopardy of default. A loan is considered to be a non-performing asset if the borrower fails to pay interest or principal for 90 days.

With effect from March 31, 2004, a non-performing asset shall be a loan or an advance where:

- Interest and/or instalment of principal remain overdue for a period of more than 90 days in respect of a term loan,
- The account remains 'out of order' for a period of more than 90 days, in respect of an Overdraft/Cash Credit (OD/CC),
- The bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted,
- Interest and/or instalment of principal remains overdue for two harvest seasons but for a period not exceeding two half years in the case of an advance granted for agricultural purposes, and
- Any amount to be received remains overdue for a period of more than 90 days in respect of other accounts.

Banks are required to classify non-performing assets further into the following three categories based on the period for which the asset has remained non-performing and the reliability of the dues:

1. Sub-standard Assets: are those cases in which account holders do not pay 2 instalments continuously after 90 days and up to 1 year. Banks set aside 10% of their reserves to meet losses generated by such NPA
2. Doubtful Assets: those for which instalments have not been paid for quite a number of years. Banks have to set aside different proportion of their reserves for different periods over which interest/instalment has not been paid.
3. Loss Assets: those whereby 100% provision is made by the bank from its reserves. Such accounts are written off by banks and assets are handed over to recovery agents for sale.

### Causes and Impact of NPA

The potential reasons for creation of Non-Performing assets are spread across various perceptions and maybe different for different kinds of loans. The concrete reality behind these is the present day approach towards lending which is more quantitative and target-oriented rather than qualitative in its nature. The lack of judicious lenders prevents an apt assessment on project feasibility and the borrower's capacity to pay at the decided rates.

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Besides this, wilful default on the part of borrowers to get waived off loans is a major hindrance to payment culture. Weak monitoring and absence of effective supervision on the part of lenders also contributes to this behaviour. Also, in many cases banks fail to get authentic information about borrowers, their credit worthiness and past record. Deliberately slow disposal of loans as Non-Performing assets is also a major factor. In many cases banks do not have much discretion in granting loans to priority sectors due to fixed targets in spite of inadequate recovery potential.

Non-performing assets are a clear measure of the credit risk management ability of banks. They potentially act as a poison to a banks growth and expansion by dictating banker's sentiments and hindering credit expansion by the bank. The bank's machinery would be pre-occupied with recovery procedures rather than concentrating on expanding business as suggested by Batra, S (2003).

Yadav, MS (2011) was of the view that higher NPA would lead to banking staff occupied in filing cases for recovery of loans rather than putting efforts on mobilizing funds. Besides, various provisions have to be provided by banks for accounting for NPAs and finally as loss assets. All the accounts of a borrower are treated as NPA even if one account is an NPA. Higher NPAs force banks to invest in risk-free investing options thus directly affecting loan availability for growth and expansion. Also, financial institutions having a big stake in loans and their shareholders indirectly are quite adversely affected when loans turn bad and eventually become loss assets.

In a nutshell NPAs lead to reducing profitability of banks and further misallocation of resources by them thus leading to a perpetuating banking failure.

### **Data Analysis**

The following analysis is aimed at understanding the trends in Non-performing assets across various banks categories like Public sector banks, private sector banks, foreign banks and scheduled commercial banks. The reasons behind the occurrence of these trends have also been effectively predicted.

### **Gross and Percent NPAs across Various Banking Sectors:**

Gross NPA shows the quality of asset portfolio of banks whereby a higher Gross NPA indicates lower asset quality. Gross NPA is composed of substandard assets, doubtful asset and loss assets. The Percentage NPA during a particular financial year is calculated as percentage of the bank's total assets during that particular financial year.

The Gross and percent NPAs for various bank categories over the years 2001-2011 have been tabulated in Table 1 (Appendix) (Source: Statistical Tables relating to banks in India, Reserve Bank Of India, 2010-11). Figures 1 & 2(Appendix) are plotted to analyze the trends in percentage and gross NPAs across various bank categories.

There is a significant decrease in the percentage NPA in the past decade (2001-2011) across public sector, scheduled commercial and private sector banks. Foreign banks show a sharp increase in percent NPA around 2007-2008. This can be attributed to the great economic crisis during the same period of time.

The Gross NPA levels for the Public sector and scheduled commercial banks assumed a declining trajectory during the earlier half on the decade i.e. 2001-2006 while the level of gross NPAs in private sector and foreign banks remained almost constant.( Fig2, Appendix) This may be due to the effect of various banking sector reforms especially Narasimham committee recommendations. However, after the Global economic crisis around 2007-2008, the gross NPAs especially in the Public Sector and scheduled commercial banks have been picking rapidly. This can be attributed to various reasons like wilful default to slow economic growth deliberate attempts by banks to misrepresent loan data and many others.

### **Loan allocation in different sectors (2011-12):**

The allocation of loans across different sectors is of vital importance in judging the reasons behind loans turning to Non-Performing assets. The allocation has been shown clearly in the following graph: (Source: Statistical Tables Relating to Banks in India, report by Reserve Bank of India, 2010-11)

As seen in this Figure 3 (Appendix), Power and Metals are major sectors for allocation of large loans. Slow global and local progress in these sectors impacts the ability of these sectors to pay back the instalments/ interests. The power sector has especially been facing difficulties in gaining access to fuel. Thus, slow infrastructural and economic growth if it persists could lead to a large chunk of these loans turning to NPA and later lost assets.

### **Loan Allocation to the same Corporations:**

The following analysis (Source: Credit Suisse via The economic Times, Sunday Magazine) is done to examine the loan allocation to 10 big companies by most of the banks. Figure 4 (Appendix) shows the loan allocation to the same group of companies during financial years 2006-07 and 2010-11.

According to Figure 4 (Appendix), most of the banks have high debts given to the same group of companies. Moreover, this lending has increased drastically after recession period of 2006-07. These group of companies relate to the same set of risky sectors like metal and power. The majority of future projects in these sectors are pending accounting to low investment growth and hence defaulting by borrowers. So credit risk management by banks in this aspect has clearly come to a failure. The banks ought to make it a prerequisite to check growth prospects of sectors before a possible lending venture to maintain asset quality and and reduce credit risk.

### **Global Analysis**



Problem of NPAs have been ravaging some of the advanced economies like Japan, so below we have discussed the causes of NPA in 4 countries and the measures taken to improve the situation pertaining to the increase in the NPAs. The first part explains the causes and the later part discusses the measures taken by the government for the increase in the NPAs.

### **China**

Causes: Ample government support towards the SOE's (State owned enterprise) gave them an opportunity to take high risks, shifting their aims from profitability as well as decreasing the operational efficiencies. SOE's have a political and social implication, hence forcing the government to support it. Law of Bankruptcy favoured the borrower decreasing reliability of the banks.

Measures: Strengthening of banks by risk reduction, and decreasing the debt level of SOE as well as changing the reforms for the same. Incentives such as tax breaks, exemption from administrative fees and clear asset evaluation norms were introduced. Different laws related to creation of asset management, and foreign equity participation in securitisation was passed.

### **Japan**

Causes: Formation of the property bubble initially, and finally its burst was the main reason for default. Time consuming and expensive legal mechanism to dispose the bad loans; the doctrine of no-bankruptcy was a moral hazard in the economy. Assessment of loan performance outside a bank in Japan is difficult due to inadequate accounting system and information flow problems.

Measures: The government supported the banking sector with public funds to help them cope up with the problem. A private standard setting vehicle to set Japanese accounting standards in line with the international standards was established by the major companies. The foreign exchange control law was amended, and the threat of suspension of banking business in case of failure to satisfy the capital adequacy ratio was prescribed.

### **Thailand**

Causes: The steep rise in the interest rates turned many loans into NPAs; and inability to assess the credit risk correctly. Increase in the price of properties which was caused due to projection of high growth in demand of properties. Risk of capital flight & exchange rate risks were not considered accurately during external borrowing.

Measures: Set up of the Corporate Debt restructuring advisory commission to take care of restructuring and takeover of banks. Discussion upon the Privatization of govt. entities took place, which faced strong political opposition due to fear of a social backlash. International standards were adopted for loan classification, provisioning and NPA exit ways. Administrative decisions such as amending the Bankruptcy act, removal of caps on foreign equity ownership in financial institutions & financial sector

restructuring plan focusing on the capital support facilities for bank recapitalisation and setting up of Asset management companies were considered.

### **Korea**

Causes: The economy faced a lot of stress when the 'compressed growth' policy via aggressive, leveraged expansion backfired, decreasing the ROI by slowing the demand and raising the input costs. Little attention was being paid to profitability; rather focus was on increasing the market share and pursuing diversification. Evaluation criteria followed by the banks to provide loans was flawed, which depended upon guarantees and collaterals rather than on earnings performance and cash flows.

Measures: Injection of large public funds for bank recapitalization, and handling the systemic risk and domestic crunch quickly were critical steps taken to normalize the system. Korea Asset Management Corporation (KAMCO) and an NPA fund were formed to finance the purchase of NPAs. Bad loans were taken care of by corporate restructuring vehicles and debt/equity swaps. Asset backed securitization and outright sales were used to recover KAMCO's securitization, international investors also participated in the process. Loans started to be classified based upon future cash flows to avoid defaulting.

### **Management of NPA**

The loan portfolio, constituting of all the loans that have been made or bought and are currently being held for repayment, is the major asset of a bank. The loan portfolio depends not only on the interest rates but also on the asset quality and the probability of repayment. Poor loan quality can potentially strain liquidity and reduce profitability of banks. Also, the spread of the market knowledge that a particular bank is experiencing problems with asset quality and associated financial problems can harm the reputation of the bank and lead to cash outflow in huge amounts.

According to studies, the elimination of NPA in a country like India with a high growth rate and enormously spread banking system is a far-fetched option. Hence, management rather than elimination of NPA is the valid need of the hour. As stated by Borbora (2007), the performance of a bank is inextricably related to management of asset quality. The essential components of sound NPA management are a) quick identification of NPAs, b) their containment at a minimum level and, c) ensuring minimum impact of NPA on the financials. Banks need to follow certain practices to ensure that NPAs are prevented, detected very early and their impact is reduced. These measures maybe preventive i.e. at the pre-sanction stage or may aim to reduce NPA impact i.e. at the post-sanction stage.

### **Preventive Measures**

Some of the necessary preventive measures to be adopted by banks are as listed below:

- Banks need to have a better understanding of the risks involved in lending to a particular sector
- Bankers should effectively judge the economic feasibility of the project for which the sanction is being made. This feasibility assessment ought to be in terms of the background linkages-availability of raw materials at competitive prices as well as forward linkages in terms of market for the final finished good/service. The character and financial status of the project promoters should also be taken into consideration.
- The repayment schedule of the loan and the amount per instalment must be in accordance with the gestation period of the project and the returns expected from it. This is essential to prevent loans from shaping into non-performing assets.
- Cash credit account: bankers get 90 days to ensure that the irregularity in the account is rectified.
- Direct agricultural loans: Loans get classified as NPA only after 2 harvesting seasons in case of a short term loan or 1 harvesting season in case of a long term loan.

Thus, the cash recovery system must adapt to give priority recovery status to these loans and thus reduce the threat to profitability of the bank.

#### **Impact Reduction Measures:**

Some of the measures to be taken in the post-sanction period to prevent loans from becoming NPAs are:

- **Off-site surveillance/on-site inspection:** Bankers can indulge into these practices for early warnings if the project is likely to become an NPA instead of waiting for the mandatory period of 18 months. The banker may also use the following sources to determine if quick assistance is needed to administered:
  - **Statements:** Bankers can scrutinize statements submitted by borrower to look for decline in sales of products/services and rising level of inventories of finished goods which indicate potential to become an NPA.
  - **Accounts and ledger cards:** The accounts of borrowers can be checked for irregularity in interest payments or frequent return of cheques.
  - **External sources:** Bankers can look for falling Market demand, recession in the market, complaints by raw material suppliers and unfavourable government policies (2) to get an early alarm against NPA.
- **‘Potential NPA’ Category:** The loans which have shown potential to become NPAs on the basis of surveillance can be placed in ‘Potential NPA’ or ‘Special Mention’ category. These accounts can be helped with account restructuring, credit relaxation and further loans in case of temporary liquidity problems on the basis of previous merits records. Also, banks should aim to have an on-going classification (2) instead of quarterly/annually, to decide on quick and effective provisioning.
- **Adaptive Cash Recovery System:** Bankers must aim to recover on first priority basis, loans that threatening to be a great burden on the provisioning system in case of classification as non-performing assets. As stated by Borbora (2), the bankers is given different recovery periods to prevent unpaid loans falling under NPA:
  - Term loans: the banker gets 90 days to persuade the borrower to pay the interest or instalment whichever maybe due.
- **Legal Recovery Mechanisms:** Legal suits must be filed promptly against wilful defaulters as provision amounts increase progressively with increase in time. Banks can develop a deadline in their internal recovery mechanism under which after the expiry of the deadline the loan recovery must be sought by the bank in a court of law. The effort to hide NPA by banks in the attempt to coax false performance and leading to a major threat to financial stability of the nation in the long term should be dealt with Law Courts. Also, in this regard banks must ensure strict internal surveillance to ensure tracking of malicious authorising officers that may grant loans to wilful defaulters.
- **Restructuring of Markets:** According to Toshiki et al. a well-developed capital market is critical as it brings liquidity and a mechanism for write-off of loans. In its absence, banks tend to postpone NPA problems and resort of evergreening tactics. Bondholders could monitor banks as they have no motive for allowing persistence of uneconomic activities. Building adequate liquidity and volumes in the Indian market should the prime objective.
- **Compromise Settlements:** In case of severe NPAs threatening to turn into bad assets, banks can enter into compromise settlements with borrowers thereby reducing further provisioning burdens.
- **Popularising Asset Reconstruction Companies:** ARCs are institutions that acquire, manage and recover NPAs or the value that can be derived from them using an institutional platform. However, there is a need for participation of private players in the ARC process of recovery. Besides, there is an avid need to build investor confidence for the active use of ARCs.
- **Securitisation:** This attracts investors due to lesser risks involved. India has a burgeoning potential for securitisation based investment.

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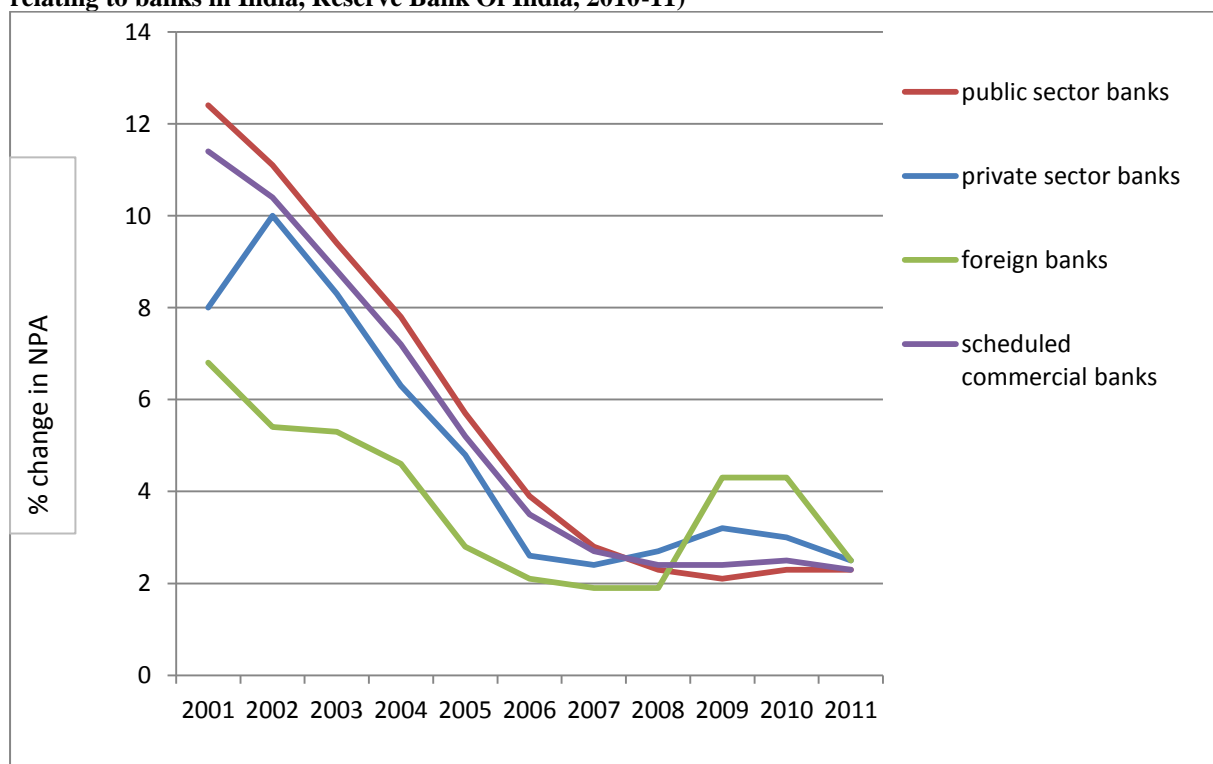
### Appendix

**Table 1: Gross and percent NPAs across various banking categories (2001-2011) (Source: Statistical Tables relating to banks in India, Reserve Bank Of India, 2010-11)**

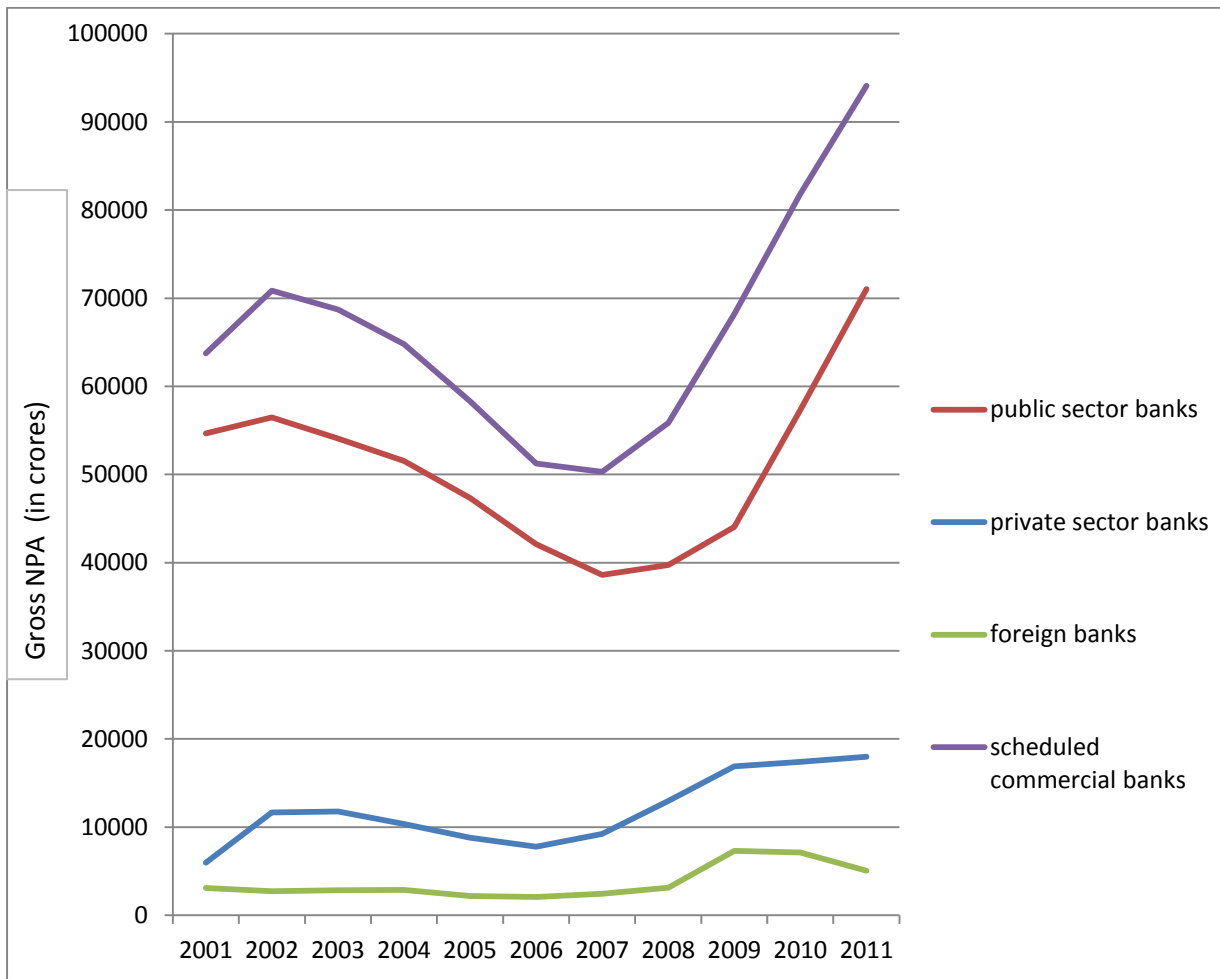
\*in crores

year	public sector banks		private sector banks		foreign banks		scheduled commercial banks	
	Gross NPAs amount*	percent share	Gross NPAs amount*	percent share	Gross NPAs amount*	percent share	Gross NPAs amount*	percent share
2001	54672	12.4	5963	8	3106	6.8	63741	11.4
2002	56473	11.1	11662	10	2726	5.4	70861	10.4
2003	54090	9.4	11782	8.3	2845	5.3	68717	8.8
2004	51538	7.8	10354	6.3	2894	4.6	64785	7.2
2005	47325	5.7	8782	4.8	2192	2.8	58300	5.2
2006	42106	3.9	7774	2.6	2090	2.1	51242	3.5
2007	38602	2.8	9239	2.4	2452	1.9	50293	2.7
2008	39749	2.3	12976	2.7	3118	1.9	55842	2.4
2009	44039	2.1	16888	3.2	7294	4.3	68220	2.4
2010	57301	2.3	17384	3	7128	4.3	81813	2.5
2011	71047	2.3	17972	2.5	5065	2.5	94084	2.3

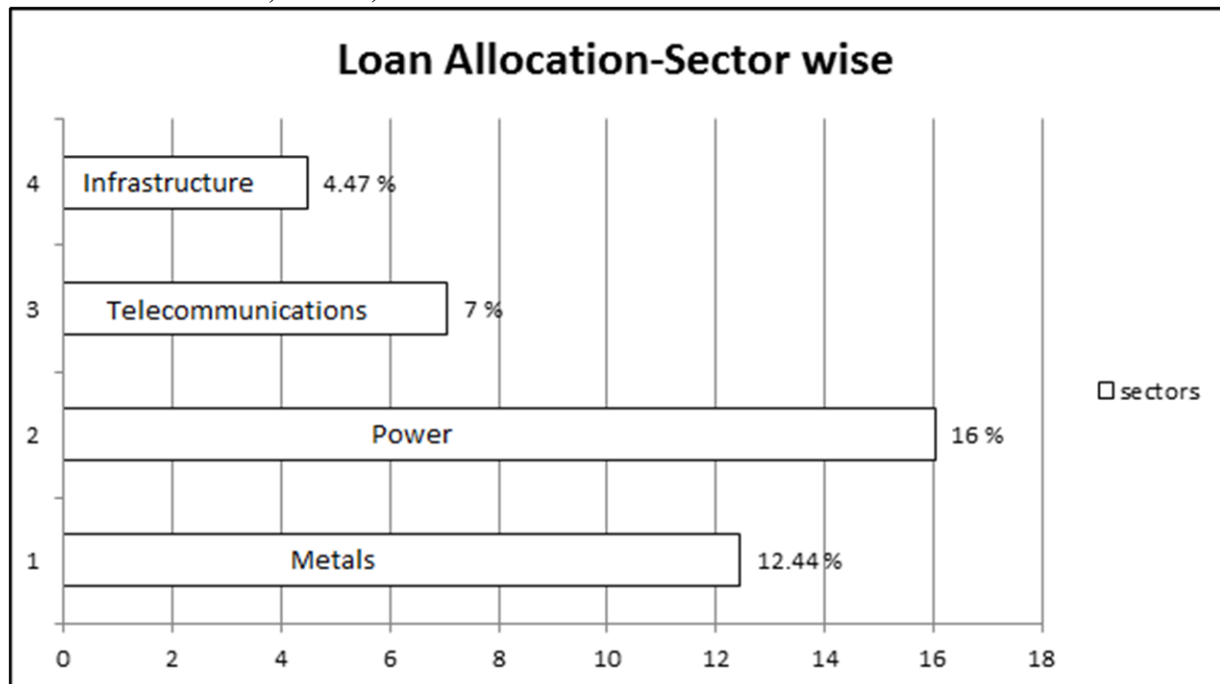
**Figure 1: Percentage change in NPA during the last decade(2001-2011) (Source: Statistical Tables relating to banks in India, Reserve Bank Of India, 2010-11)**



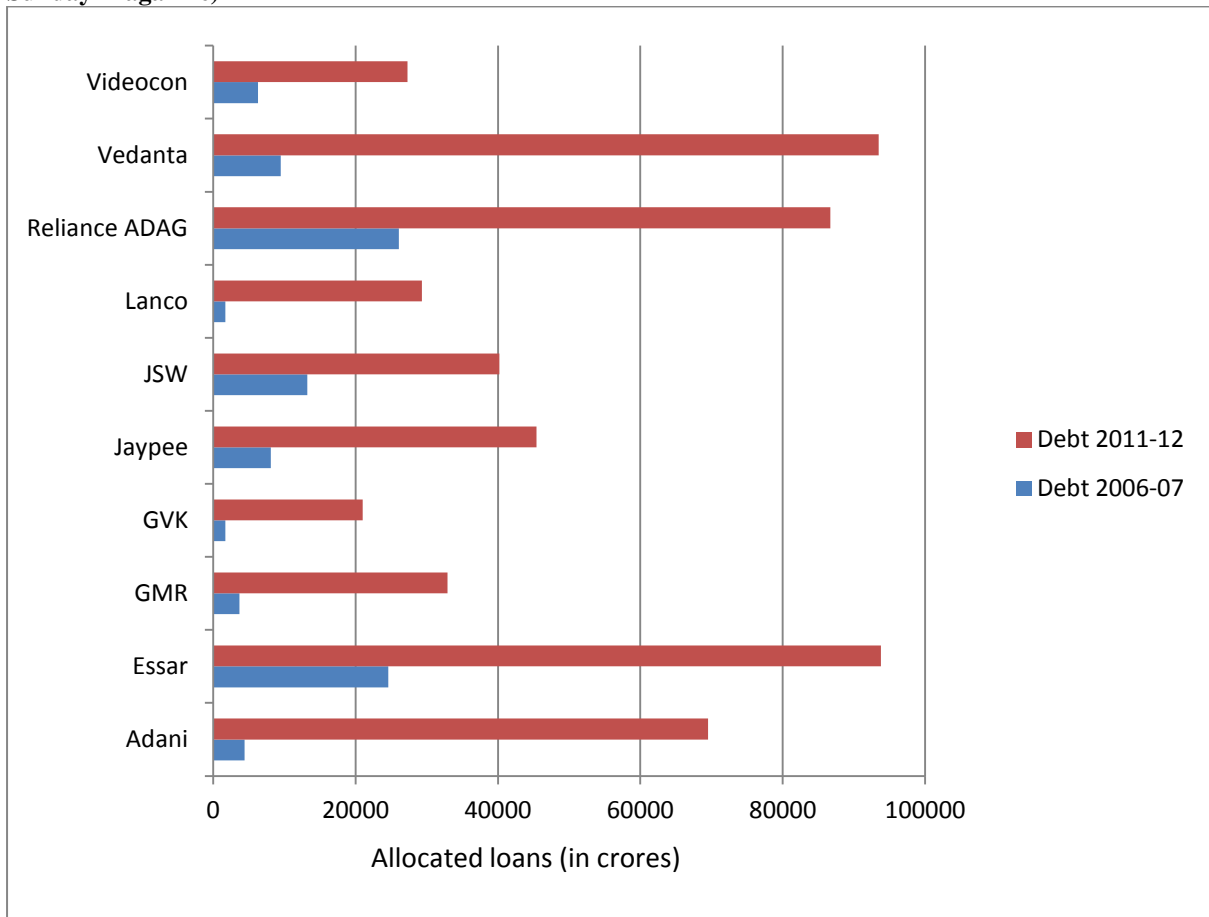
**Figure 2: Gross NPA change in the past decade (2001-2011) (Source: Statistical Tables relating to banks in India, Reserve Bank Of India, 2010-11)**



**Figure 3: Sector wise allocation of loans during 2011 (Source: Statistical Tables relating to banks in India, Reserve Bank Of India, 2010-11)**



**Figure 4: Loan allocation to same 10 corporations( Source: Credit Sussie via The Economic Times Sunday Magazine)**



## A Test of Investment Function in India during Liberalization

Manoj Kumar Mishra<sup>1</sup>

### Introduction

Investment is the engine of economic growth of any economy. The level of output, employment, national income and standard of living, is determined by the extent of investment. Moreover investment decisions should be very rational in the sense of overall growth of economy. The quantity and quality of investment both should be optimized in such way so that national welfare and profit maximization objectives should be fulfilled. The analysis of factors influencing the extent of investment plays the crucial role for generating investment in any destination. The common factors of investment determination are cost of capital, marginal efficiency of capital, interest rate, etc. but after 1991 power generation, law and order, infrastructure and social security have become comparatively dominant.

Economic reform of the Indian economy in 1991 included, among other measures, the withdrawal of state control over the private sector and the abrogation of the Industrial Licensing Act which offered investors freedom to choose their investment location within the country. Previously, the Industrial Licensing Act required individual investors to petition the central government with regard to their investment proposal and New Delhi reserved the final say on the location of the investment in an effort to maintain equitable regional distribution of industries.

With investors at liberty to choose their preferred investment destination amongst the various states in the Indian union, there arose an intense competition across states to obtain a share of the upcoming investment projects. This resulted in most state governments striving to better the investment climate prevailing in their respective states to make them conducive to inflows of domestic and foreign investment. Establishment of an investment project in a state has the potential to generate state income and output in addition to providing employment opportunities to local residents. Ahluwalia (2002) identifies private investments as the primary determinant of economic growth across states. Dollar, Iarossi and Mengistae (2002) also expect a good investment climate to facilitate a higher volume of investment inflows, especially in the high productivity manufacturing and services sectors, leading to job creation, income growth and, ultimately, poverty reduction. Ferro, Rosenblatt and Stern (2004) identify a good investment climate to be a key factor driving agricultural productivity and non-farm growth, especially through small-scale and medium-scale

enterprises. The above-mentioned authors recognize an investment climate conducive to growth acceleration to be one of the pillars of poverty alleviation. An additional benefit emanating from investment inflows is an upsurge in tax revenues. Most Indian states remain heavily indebted with high borrowings transfers through rising individual incomes within states) have the potential to improve the fiscal positions of individual states. Previous studies across Indian states have mostly focused on factors affecting economic growth or poverty reduction. Two cross-sectional studies, Giuseppe, Iarossi and Mengistae (2002) and Veeramani and Goldar (2004) discuss the effects of investment climate on total factor productivity in the manufacturing sector. Both these studies select a number of variables which together constitute the investment climate of a state and test their effect on total factor productivity using firm level data.

This paper covers a period of twenty years between 1991 and 2010, attempts to identify the critical factors which determine investment inflows across Indian states.

### A Theoretical Discussion of Factors Affecting Investments

Investment in this work refers autonomous and induced investment. Autonomous investment tends to social welfare maximization whereas induced investment tends to profit maximization. Investment in manufactured goods and services in the work has the sole objective of profiting from the investment. In this respect, an investor's desire lies in maximizing his profit.

Profit ( $\pi$ ) can be expressed as:

$$\pi = TR - TC$$

$$\text{or } \pi = (P \cdot Q) - (AC \cdot Q)$$

Where TR is total revenue, TC is total cost, P is the price at which the item is sold, Q is the number of items which are produced, and AC is the cost of production for each unit. The booming private sector in India means that competition exists within all sectors so it would be safe to assume that all the firms involved in the model are price-takers. Though all barriers to interstate flow of goods in India have not yet been removed, the implementation of the value added tax (VAT) by all states has been a step forward towards integrating the Indian economy as a single market. Even with existing barriers, there is significant transportation of goods and services across the country which makes it safe to assume that investors in the model have access to the entire Indian market. In this respect, a firm essentially has to produce its revenue-maximizing quantity of products at minimum cost to maximize its profits. From the perspective of the study, the question of interest is how inherent factors within a state can affect a firm's ability to minimize its costs of production. The central assumption in the study is that a state unable to offer a suitable investment climate

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facilitating cost minimization would be a net loser in terms of investments received.

In light of this, the study believes that states with a relatively skilled labour force, due to high levels of human capital development, can be expected to have higher labour productivity contributing to more efficient production at a lower cost. An Empirical Analysis of Investment Determinants in Indian States, the Labour productivity is positively affected by labour quality, which is typically expressed as a function of the educational qualifications and physical health of workers. With the world moving towards a global economy, workers with a relatively high level of educational attainment would be better equipped to work in the high productivity sectors of the economy such as the manufacturing, agriculture and service sectors. Rates of absenteeism due to physical ailments would also be reduced in the presence of a healthy labour force. Consequently, states possessing a work force with a high degree of labour quality can expect to receive a higher inflow of investments. In addition to labour quality, labour productivity within states can also be affected by political factors. Labour militancy and unionism can affect the production process through frequent work stoppages and affect labour productivity. Similarly, strikes, political unrest, and an insecure work environment can also have negative effects on labour productivity (and depreciation of physical capital if there are damages to firm equipment) through temporary cessations of work. These factors also determine the 'risk' associated with the investment. From this perspective, states with a stable political environment and a cooperative labour force should receive higher investment inflows. The study reveals that socio-political environment in Bihar has not been favourable in comparison to other states.

Most, if not all, investment projects under consideration in this study are dependent on electric power. A state which can offer reliable power supply at a low cost to industrial and commercial consumers will provide investors with a lower cost of production and be preferred as an investment destination. The same analogy can be drawn regarding other physical infrastructure, like roads. States possessing a network of quality roads within its borders and well connected with the rest of India facilitate producers through smooth market access and lower transportation costs. Production costs are also reduced through timely arrival of goods to markets and a reduction of the probability of losses during transportation of products from factory to market, especially with regard to perishable goods like food products. Contemporary India has a booming service sector which makes virtual connectivity as important as physical connectivity since many modern firms rely primarily on the telephone and the internet to maintain their operations. States which possess sound telecommunication facilities will be able to attract these investors. It needs to be mentioned that most

investments depending on telecommunications are generally associated with a high level of technological efficiency and consequently have higher rates of productivity and growth. Such firms are also able to offer its employees higher wages. Finally, bureaucratic inefficiencies and delays add to transaction costs. This is especially true of firms which have international operations and firms which are in the 'knowledge economy' or sectors such as the IT sector or pharmaceutical sector and hinder the starting of the production process. Red-tape often causes holdups in obtaining various clearances and permits, essential to the establishment of the plant. Many states have attempted to streamline this process through the creation of single window agencies from which all approvals can be obtained. Nonetheless, poor economic governance due to bureaucratic inefficiencies and cumbersome regulations creates additional fixed costs for investments and particularly hamper firms in the small-scale and medium-scale sectors which typically do not possess the political contacts required to circumvent bureaucratic hassles. In this respect, states successful in reducing red-tape and maintaining a supportive bureaucracy for investors reduce fixed and other transaction costs for firms and are more conducive to investment inflows. Before the study embark on empirical analysis, it must be noted that there are significant data limitations involved in measuring each of the factors mentioned in the above section which affect the costs of production. Data on physical and social infrastructure such as roads, tele-connectivity, and educational profile of labour force, hospital beds or doctors per capita are not easily available on a time series basis across states. This forces the study to include a large number of proxies to substitute for these variables. Variables measuring governmental efficiency, such as bureaucratic sluggishness (typically measured by number of days required to obtain a clearance or start a business and the number of monthly visits undertaken by government inspectors to factories), are also not available over time.

#### **Variables and Data:**

##### **Dependent Variable**

The dependent variable for the OLS, random effects, and fixed effect models is 'investment proposals per capita' (*Investment*) in a state for a given year. The variable is measured in Rupees. 'Investment' in our model covers over forty industries including agriculture, manufacturing, textiles, heavy industries, petroleum and other industries in the service sector. The data is reported by the Secretariat for Industrial Assistance, Ministry of Commerce and Industries.

##### **Independent Variables**

There are seven key independent variables in the model.

### **Social Sector Expenditure (Social)**

Social sector expenditure covers government expenditure in the public health and education sectors. The variable is expressed as a percentage of total disbursement of the state government and the data is reported by the Reserve Bank of India. Even after significant increases in privatization of health care and education over the past 20 years, most privatized schools and health units are located in large cities, while rural areas and smaller cities remain dependent on public health care and education. In higher education, many private schools, colleges, and universities also receive government grants which make the role of public funds quite significant in determining the quality of health and education available in a state. In this respect, government expenditure in these sectors is used as a proxy for the quality of health and education in the state. A high quality of health and education in a state would make it attractive for investment in two ways: firstly, skill-level of employees is better with a high quality of education and health care, which raises labour quality and productivity within the state. Veeramani and Goldar (2004) find a positive correlation between the percentage of workers in the manufacturing sector with secondary education in a state and the state's investment climate as perceived by business managers. Post economic reforms, the service sector have been India's engine for growth with significant contributions from the knowledge economy (IT industries, pharmaceuticals etc.). Sachs, Bajpai and Ramiah (2002) note that establishment of such industries require strong linkages with educational institutions for a highly skilled labour force.

### **Gross Fiscal Deficit (Fiscal Deficit)**

The data for fiscal deficit is reported by the Reserve Bank of India on an annual basis and expressed as a percentage of state domestic product (SDP). Many states until 2003 ran fiscal deficits as high as 6-7% of SDP. In 2004, the federal government passed the Fiscal Responsibility and Budget Management Act (FRBM) which called upon the central government to restrict its fiscal deficit to 4% of GDP. Soon after, many states followed suit and the combined fiscal deficit of states fell from 6.6% of SDP in 2003 to 4.4% of SDP in 2006. Notable success stories have been Orissa and Gujarat, which ran fiscal deficits between 8 and 10% of SDP in 2001 and 2002 and had successfully, truncated them to 1-3% of SDP by 2006. Fiscal deficit in our model is an indicator of the depth of economic reforms undertaken in the state. A most integral yet contentious component of the reforms package was fiscal restraint. Fiscal deficits in most states emanate from politically motivated agricultural subsidies in addition to severe under pricing in the power and transport sectors. Cross subsidization in state-run power and surface transport companies resulted in a subsidization of services for

domestic consumers at the expense of industrial users who had to pay higher electricity bills and freight charges. This policy has led to an over-consumption of electricity by households and losses to state electricity boards, in addition to high input costs for commercial users. From this perspective, a reduction in fiscal deficit has multiple implications. First and foremost, it signifies fiscal responsibility, a willingness to implement tough fiscal and economic reforms, and a restraint from wasteful public expenditures. The funds recovered from ill-directed subsidies can be directed towards socioeconomic development, capital expenditures, and human capital formation which could potentially raise labour productivity in the state.

### **Man-Days Lost in Industrial Dispute (Disputes)**

This variable is included in the model as a proxy to measure industrial relations within a state. The data is obtained from the annual publication, Pocketbook of Labour Statistics, from the Labour Ministry. Industrial dispute is defined as the stoppage of work either due to a strike or a lockout. A state with a high number of man-day losses will typically have low labour productivity, which will adversely affect the state's investment climate. Sachs, Bajpai and Ramiah (2002), for example, attribute the relatively low level of private investment in Kerala, notwithstanding Kerala's outstanding credentials in human capital formation, to the existence of a militant labour force. Subsequently, a negative relationship is expected between this variable and proposed per capita investment. To negate the possibility of heteroskedasticity, this variable is normalized for each state as a percentage of total man-days lost in India.

### **Incidence of Crime (Crime)**

Incidence of Crime in a state measures the number of criminal activities occurring in a state in a given year from the filing of First Information Reports. Crimes include theft, robbery, murder, kidnapping, arson, rape, and riots. The data is reported on an annual basis by the National Crime Bureau. To address heteroskedasticity, this variable is expressed as a per capita figure. The variable serves as an indicator of political stability in the state and provides a picture of the safety and security of public life and property within the state. A high incidence of crime would result in a threat to both life and property, and few investors can be expected to have confidence in a state where the physical well-being of employees and industrial property cannot be adequately safeguarded. Incidents such as rioting or an unsafe work environment can negatively affect labour productivity through closure of work. Thus, a negative relationship is expected between the incidence of crime and the dependent variable.



### **Installed Power Generation Capacity (Power)**

This variable measures the total electric power generating capacity (in megawatts) installed within states. The data is reported annually by the Statistical Handbook of India. Veeramani and Goldar (2004) indicate that a constant supply of power is one of the factors viewed favourably by investors while evaluating a state's investment climate. A similar sentiment is evoked by Dollar, Iarossi and Mengistae (2002), who report that irregular power supply leading to stoppage of work or damage of electrical equipment has forced many firms to purchase generators, placing an added burden on their input. Power capacity also serves as a proxy for physical infrastructure in the model, with the absence of data on roads at the state level. A high level of physical infrastructure coupled with reliable power supply betters investment prospects in the state by facilitating connectivity with markets and lowering input costs. Therefore, the study expects a positive relationship between the power generation capacity in a state and the per capita investment proposals received. The variable is expressed in per capita terms to counter heteroskedasticity.

### **Investment Projects Implemented (Investment Stock)**

A high stock of per capita investments implemented indicates that the state has sound socio-economic fundamentals and an efficient and investor friendly bureaucracy capable of swiftly implementing investment proposals. If investors base their investment decisions solely on the state's previous record, a large amount of investments implemented in the past speaks highly of the state's investment climate. In this light, a positive correlation is expected with the dependent variable. However, if  $\beta$ -convergence holds, we would expect contemporary investment flows to decrease in a state which has received a high amount of investment in the past. This is feasible especially if the state has surpassed its capacity to absorb additional investment inflows without running into infrastructural bottlenecks. In such circumstances, a negative sign is expected with the dependent variable. In this respect, there is ambiguity regarding the direction of association of this variable with per capita investment proposals.

### **Time**

The time variable controls for all the other factors in the state which are not accounted for in the model. This variable varies between 1 and 9 for all. Across the period 1998-2002, there exists a moderate positive correlation (about .26) between installed generating capacity in the state and length of roads in a state which leads to use installed generating capacity as a proxy for the level of infrastructure prevailing in the state. As the total stock of investment proposals received by states increases over time, this variable is allowed to increase annually. A possible economic interpretation of this

variable could be efficiency gains or increases in factor productivity through technological advancements or enhanced management skills. These factors typically grow over time and can be expected to have a positive correlation with investment inflows.

## **Discussion and Analysis**

### **Empirical Models:**

#### **Model 1: Testing with All states, OLS and Random Effects Estimation**

The work is based on empirical testing of all the states in our dataset with the implicit assumption that there lies no fundamental difference in the socio-economic fundamentals across the states. The summary statistics for this model are presented in Table 1.

$$\text{Investment} = \beta_0 + \beta_1(\text{Power}) + \beta_2(\text{Fiscal Deficit}) + \beta_3(\text{Investment Stockt-2}) + \beta_4(\text{Crime}) + \beta_5(\text{Disputes}) + \beta_6(\text{Social}) + \beta_7(\text{Time}) + \varepsilon \quad (1)$$

$\varepsilon$  is a stochastic error term in the model. From the results, fiscal deficit, incidence of crime, accumulated stock of investment projects and power generation capacity emerge as the key variables influencing investment proposals for a given state. The positive sign on the stock of per capita investments implemented indicates that the variable is a proxy for the image of the state as an investment destination. The positive coefficient for the variable indicates that all states in the sample have not collectively overshot their capacity to absorb investment inflows (i.e. collectively for these states,  $\beta$ -convergence has not started as yet). Since our variables are measured in different units, they are not strictly comparable. In order to contrast the relative magnitude of their effects, the OLS estimates are standardized and expressed as the effect upon the dependent variable in terms of standard deviations away from the mean. As standardization of coefficients entails only a scalar operation, the statistical significance of the estimates remains unchanged.

#### **Model 2: Interaction Dummies**

As a first step to determine whether the seven states selected are significantly different from the others, we run an OLS regression with interaction dummies for each independent variable in the equation. The 'state dummy' variable has a score of '0' for 'high performing states' and '1' for 'low performing states' and is multiplied with each of the independent variables as an interaction term.

$$\text{Investment} = \beta_0 + \beta_1(\text{Power}) + \beta_2(\text{Fiscal Deficit}) + \beta_3(\text{Investment Stockt-2}) + \beta_4(\text{Crime}) + \beta_5(\text{Disputes}) + \beta_6(\text{Social}) + \beta_7(\text{Time}) + \beta_8(\text{State Dummy} * \text{Power}) + \beta_9(\text{State Dummy} * \text{Fiscal Deficit}) + \beta_{10}(\text{State Dummy} * \text{Investment Stockt-2}) + \beta_{11}(\text{State Dummy} * \text{Crime}) + \beta_{12}(\text{State Dummy} * \text{Disputes}) + \beta_{13}(\text{State Dummy} * \text{Social}) + \beta_{14}(\text{State Dummy} * \text{Time}) + \varepsilon$$

$$\text{Dummy*Social}) + \beta_{14}(\text{State Dummy*Time}) + \beta_{15}(\text{State Dummy}) + \epsilon \quad \dots \dots \dots (2)$$

State Dummy= ‘0’ for ‘high performing states’ and ‘1’ for ‘low performing states’. ‘State Dummy’ is an intercept dummy measuring the difference in investment proposals arising from the fact that an individual state belongs to the ‘low performing’ bracket. The explanatory power of the model after the inclusion of the interaction dummies experiences a twofold increase over the previous models to nearly 50%. The joint hypothesis test with the null hypothesis  $\beta_8 = \beta_9 = \beta_{10} = \dots \beta_{15} = 0$  is comfortably rejected, indicating that there does exist a significant difference between the two groups of states. Barring power generation capacity, all the other explanatory variables for the high performing states are significantly different from zero. Power generation capacity also displays an unexpected negative sign. Social sector expenditure and industrial disputes have a significant effect on investment proposals in high performing states. State dummy measuring the difference in per capita investment proposals in low performing states relative to high performing states is not statistically significant but displays the expected negative sign. Except for industrial disputes, all other interaction dummies are significantly different from the estimated coefficients for high performing states. The interaction dummies indicate that social sector expenditure in low performing states is comparatively lesser than the high performing states, even though the net effect of social sector expenditure on investment proposals is unexpectedly negative for low performing states. Low performing states have also been less successful in implementing investment projects relative to high performing states and thereby have a poorer image as potential investment destinations.

**Model 3: High Performing States**

The estimated equation is the same in equation and is estimated using OLS. The estimated coefficients are very similar in terms of statistical significance and magnitude to those estimated for high performing states in the previous model. Power generation capacity still has the negative sign associated with it but is no longer significant and the rest of the variables remain statistically significant and display the expected signs. To compare the relative effects of the different variables, the study standardize the coefficients. (Table 2)

**Model 4: Low Performing States**

The investment determinants for low performing states are also determined using equation 6, first with OLS and then random and fixed effects. The Hausman test fails to reject the null hypothesis that the random and fixed effect coefficients are not significantly different from each other. The application of the random effects model with robust standard errors causes the variables

fiscal deficit and industrial disputes to be statistically significant, in addition to incidence of crime. Social sector expenditure maintains its negative sign but is no longer significant, and the rest of the variables display the expected sign (stock of investments implemented in the state remains positive) but are not significant. When using standardized coefficients, the detrimental effect upon per capita investment proposals is approximately Rs. 300 more from a standard deviation increase in fiscal deficit than a standard deviation increase in the incidence of crime. ‘Industrial disputes’ has the least effect on the dependent variable. A one standard deviation increase in industrial disputes results in a reduction in per capita investment proposals of Rs. 148. It is worth noting that the explanatory power of both the OLS and random effects model for low performing states is much lower in comparison to those for high performing states. Discussion of Empirical Results

Drawing from the four models, fiscal deficit and incidence of crime stand out as the two decisive factors determining investment proposals. From a policy perspective, the work can infer that economic reforms, policy reforms, and fiscal prudence, in addition to political stability and protection of public life and property, are the two factors which investors consider the most while selecting their investment locations. Fiscal deficit’s vitality in the model is accentuated due to the large number of factors it quantifies in terms of quality of government expenditures, quality of governance, and the availability and quality of physical and social infrastructure.

Nonetheless, the critical importance of social sector expenditure in stimulating investment inflows is underlined in the model with the interaction dummies and the model for high performing states. In both these models, social sector expenditure displays a positive and significant relationship with proposed per capita investment. In fact, for the high performing states, social sector expenditure has the largest effect upon the dependent variable. One can infer from this that investments in human capital development yields rich dividends to states in terms of investment inflows only after they attain a threshold level of political stability and are able to implement sound economic and fiscal policies. (Table 3)

**Concluding Remarks**

Since the economic reforms of 1991, India’s economy has witnessed spectacular growth averaging over 6.8% between 1991 and 2010. This growth has mostly been driven by the private sector, and a principal factor contributing to this has been a significant improvement in India’s investment climate, which has raised the productivity of existing investments and the expected return from investments over the short and medium term. The strong positive relationship between private investment and economic growth in the Indian

economy has already been documented in the introduction of this paper. Further evidence of the relationship between investment and growth can be observed from India's low Incremental Capital Output Ratio (ICOR), which has hovered around the level of 4 in the post-reforms period. This figure indicates an approximate average rate of return of 25% from investments made in the economy. The low ICOR makes the rate of return from investments in the Indian economy one of the highest in the world, rivaled only by China.

Within our model, high performing states, which attracted larger volumes of investment, also grew faster in the period 1999-2006; the average per capita growth rate for this group of states is 6.2%, and the corresponding figure for low performing states is 4.15%. This provides further empirical evidence linking economic growth to the prevailing levels of investment in states. In this respect, a high level of productive investments is a must if India is to sustain its impressive growth record through the 21<sup>st</sup> century. Given this critical relationship between levels of investment and growth prospects of Indian states, we conclude our study with a set of policy recommendations which should go a long way in improving the investment climates of these states and make them more conducive to future investment inflows.

Drawing from the empirical results, we advocate that policy makers should strive to increase political stability and enhance public safety within their respective states, in addition to deepening fiscal and economic reforms. With respect to fiscal reforms, inefficient subsidies, mostly offered as political sops in the agricultural sector or through severe under-pricing of public services, especially in the transport and power sectors, should be weeded out at the earliest stage. The funds recovered from terminating such subsidies should be directed towards human capital formation, well-targeted income redistribution schemes, and development of physical infrastructure. Concurrently, a prudent selection of sectors chosen for expenditure cuts is also required. Rao (2004) demonstrates that haphazard attempts at controlling fiscal deficits in the 1990's led to a crowding out of capital expenditures across Indian states, which exacerbated infrastructure bottlenecks and hampered the efficient delivery of public services. In this respect, it is important to note the areas within government expenditures targeted for achieving fiscal restraint.

The interaction dummy model (Model 2) suggests three key areas in which low performing states lag with respect to high performing states: higher political instability and higher incidence of crime, higher fiscal deficits, and poor human capital formation. Since human capital formation is the primary driver of investment inflows in high performing states, augmentation of health and

education levels to increase labour productivity in low performing states is essential to match their performance with high performing states. To ensure this, well-directed social programs focused on enhancing the health and educational enhancement of the labour force, especially in rural areas, are required to ensure that social expenditure does not go to waste and have no significant impact on the state's development.

As incidence of crime has the largest negative effect on investment inflows in low performing states, a potential policy framework for low performing states should prioritize maintaining law, order, and political stability. Second on the list of priorities for low performing states should be a reduction of fiscal deficits. Along with the maintenance of political stability and implementation of fiscal reforms, policy makers in low performing states should also retain focus on expediting human capital formation within their respective states. This would allow the low performing states to benefit immediately from private investment inflows once they achieve the necessary pre-requisites in terms of political stability and enacting of reforms to build their images as stable and conducive investment destinations. It must be highlighted that fiscal reforms, in addition to signaling a state's willingness to undertake economic reforms, also have significant positive externalities associated with them, especially in terms of recovery of public funds which can be devoted towards social development, capital expenditures, and better delivery of public services. Reduction of fiscal deficits will also result in the freeing of private and public savings which could subsequently be diverted to fund productive investments. A decline in fiscal deficits stemming from trimming the bureaucracy also has the potential to reduce hassles from prevalent red-tape and corruption. Finally, the empirical results indicate that investment inflows are boosted by the previous record of the states in implementing investment projects (or their past image as investment destinations) only amongst the high performing states. However, the impact of this variable on the dependent variable is much smaller than incidence of crime, level of fiscal deficit, or quality of health and education.

Two inferences can be drawn from this. Firstly, high performing states are yet to attain their investment potential and are capable of receiving further investments without overheating their economies. Secondly, past record (though it does impact current inflows once a state has successfully built its investment image and maintained it through sound socio-economic policies) does not supersede socio-economic fundamentals within the state as in the study as well as the two groups of states, a simple linear regression between 'investment proposals' and 'stock of investment projects implemented' yields a positive coefficient on the independent variable which

is statistically significant. This implies that investors pay more attention to socio-economic fundamentals within a state than its past image as an investment destination and are prepared to reward good governance with investments and punish poor governance by moving with their feet to other states. In light of this, low performing states have sufficient opportunity and incentive to catch up with their high performing counterparts in terms of attracting private investments through a concerted effort at betterment of their political and socio-economic credentials.

Once the low performing states succeed in bettering their investment climates over the short or medium term, they can expect to receive a higher

volume of investment inflows and attain faster rates of growth. This would increase the number of states in India with good investment climates and offer entrepreneurs investing in India with a larger number of investment destinations to choose from. Though this might result in some of the contemporary high performing states losing a few investment projects, the net result should be positive as it would reduce the prevailing inequity in growth across states and further increase competition between them in the race to attract investments. Added competition between states could potentially lead to an enhancement of India's aggregate investment climate and, consequently, higher rates of growth and development across the nation.

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## Annexure

**Table 1: Summary Statistics for all 18 states**

Variable	Observation	Mean	Std. Dev.	Min.	Max.
Stock of investment per capita (Rs.)	162	1571.23	1435.3	1.60	5759.84
Time	162	5	2.59	1	9
Social Sector Expenditure as a percentage of State Domestic Product (%)	162	33.75	5.85	17.2	48.3
Installed Electricity Generation Capacity (Kilowatts per 1000 persons)	162	76.95	44.83	6.63	186.31
Crime per 1000 persons	162	2	1.1	.54	11.12
Gross Fiscal Deficit as a percentage of State Domestic Product (%)	162	5.76	3	-.85	17.48
Industrial Disputes as a percentage of all-India disputes (%)	162	5.23	12.54	0	73.60
Proposed investment per capita (Rs.)	162	2040.97	3337.84	-2407.83	25302.66

**Table 2: Summary Statistics for High Performing States**

Variable	Observation	Mean	Std. Dev.	Min.	Max.
Stock of investment per capita (Rs.)	63	2087.51	1472.98	364.23	5759.84
Time	63	5	2.60	1	9
Social Sector Expenditure as a percentage of State Domestic Product (%)	63	34.23	4.22	23.4	48.3
Installed Electricity Generation Capacity (Kilowatts per 1000 persons)	63	99.73	32.21	47.69	147.44
Crime per 1000 persons	63	1.79	.55	.72	2.66
Gross Fiscal Deficit as a percentage of State Domestic Product (%)	63	5.39	2.34	.50	10.92
Industrial Disputes as a percentage of all-India disputes (%)	63	10.94	18.50	.09	73.60
Proposed investment per capita (Rs.)	63	3551.43	4574.69	99.47	25302.66

**Table 3: Summary Statistics Low Performing States**

Variable	Observation	Mean	Std. Dev.	Min.	Max.
Stock of investment per capita (Rs.)	99	1242.68	1315.82	1.60	4911.01
Time	99	5	2.60	1	9
Social Sector Expenditure as a percentage of State Domestic Product (%)	99	33.44	6.68	17.2	45.4
Installed Electricity Generation Capacity (Kilowatts per 1000 persons)	99	62.45	45.83	6.63	186.31
Crime per 1000 persons	99	2.14	1.32	.54	11.12
Gross Fiscal Deficit as a percentage of State Domestic Product (%)	99	6.00	3.34	-85	17.48
Industrial Disputes as a percentage of all-India disputes (%)	99	1.60	2.76	0	19.20
Proposed investment per capita (Rs.)	99	1079.76	1631.97	-2407.83	7149.20

## **THEME IV**

### **WATERSHED MANAGEMENT PROGRAMME IN INDIA: METHODOLOGICAL ISSUES, IMPACT ASSESSMENT AND GOVERNANCE**

## Managing Rural Resources under Watershed Intervention in India: An Overview

SSP Sharma<sup>1</sup> and Rewa Sharma<sup>2</sup>

### Introduction

The existence or the absence of favourable natural resources can facilitate or retard the process of economic development. Natural resources determine the course of development and constitute the challenge which may not be accepted by the human mind (Lewis, W A, 1954). India's rainfed areas (65% of arable land) is characterised by low productivity, high risk and uncertainty, low level of technological change and vulnerability to degradation of natural resources. The region is abode of sizeable number of unemployed, poverty ridden and under nourished population. After Independence, with the advent of the First Five Year Plan in the country the major challenge was to ensure food availability to the teeming million populations. To meet the food demand as well as to contribute effectively the economic growth of the country the role of agriculture was necessitated subsequently the watershed as an effective approach to meet the challenge as the majority (about 70%) population is dependent on agriculture. Agriculture in India is still under subsistence and prone to weather and market uncertainties. The available land resource in the country is of not much effectively utilised due to certain limitations.

Negative trends in resource degradation are a challenge that must be tackled to meet poverty alleviation goals and ensure ecosystem resilience. Throughout the world, poor farmers tend to be associated with marginal lands and low yields (Rockstrom et al., 2003). Land degradation and water scarcity are generally agreed to be key factors limiting food production and wealth generation for poor people, and further degradation and scarcity are projected. Opportunities to begin to slower reverse land and water degradation do exist. Intensification of agricultural systems in a way that is sustainable and compatible with the dual needs of nature and society, including food production, clean water, biodiversity, and carbon sequestration is possible and demonstrated in numerous successful 'bright spots'.

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A recent assessment of bright spots that studied 286 recent cases from 57 countries covering 36.9 M ha showed increased average productivity of 83.4% across 12.6M farms. The bright spots also sequestered 11.38 Mt C yr<sup>-1</sup>, with an average gain of 0.35 t C ha<sup>-1</sup> yr<sup>-1</sup> (Pretty and Hine, 2004). Water productivity was improved by approximately 16 and 30% in irrigated rice and cotton systems respectively and 70 to 110% in rainfed systems growing cereals

and legumes. Similar results were also obtained from 204 bright spots in southern India and Punjab.

Table 1 shows the land utilisation pattern in India for the year, 1999-2000. The total geographical area of India is about 329 million hectares, but statistical information regarding land classification is available for only about 306 million hectares; this information is based partly on village papers and partly on estimates.

Barren land, 42 million hectares or 14 per cent of the total reporting area in India are classified as : barren land, such as mountains, deserts, etc. which cannot be brought under cultivation, and area under non-agricultural uses, that is, lands occupied by buildings, roads and railways, rivers and canals, and other lands put to uses other than agricultural.

Presently, 14 per cent of the total reporting area is not available for cultivation. With rapid increase in population and growing urbanisation, this percentage would increase over the years.

Area under forests: Table 1 shows that 69 million hectares of land or 23 per cent of the total land area is under forests. Area under forests includes all land classified as forests by law or administered as forests, whether state-owned or private, and whether wooded or maintained as potential forest land.

Pastures and grazing land: Permanent pastures and other grazing lands include all grazing lands such as permanent pastures and meadows and village common grazing land. Table 1 shows that 11 million hectares-or 3 per cent of the total land area are classified as permanent pastures.

Culturable waste lands, etc.: Table 1 refers to culturable waste lands, viz., lands available for cultivation but not cultivated during the previous 5 or more years. They include land under miscellaneous tree crops such as casuarina trees, thatching grasses, bamboo bushes and other groves for fuel, etc. These lands may either be fallow or covered with shrubs and jungles which are not put to any use. Such lands are called culturable waste lands; they account for 18 million hectares or 6 per cent of the total land area (Table 2).

Fallow lands: These are cultivable but remain uncultivated or remain fallow during a given year or for some period. Fallow lands are further classified into current fallows and other fallow lands. Current fallows represent cropped areas which are kept fallow during the current year, as, for example, the seeding area may not be cropped in the same year. Other fallow lands include all lands which are taken up for cultivation but are temporarily out of cultivation for a period not less than one year and not more than five years. The reasons for keeping such lands fallow may be due to: nonremunerative nature of farming, poverty of the cultivators, inadequate supply of water, silting of canals and rivers, etc. Table 2 shows that fallow lands account for 25 million hectares or 8 per cent of the total reporting area in this country.

Agricultural Land: Now, out of the total reported area of 306 million hectares, net area sown is only 140.3 million hectares or 46 per cent of the

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total land area. Net area sown includes the total area sown with crops and orchards, counting area sown more than once in the same year, only once.

Area sown more than once represents the area on which crops are cultivated more than once during the agricultural year. Total cropped area represents total area covered with crops and it is the sum total of all the land covered by all the individual crops; area sown with crops more than once during the year being counted as separate areas for each crop. Table 2 shows that the total cropped area in India in 1990-2000 was 193.7 million hectares (It was 185 million hectares in 1990-91). Whereas the table 3 portrays the picture of the land development done under various departments of the Government of India. The watershed management history in India is started way back in 1880 with the famine commission and then with the Royal Commission of agriculture in 1928. The first large-scale government supported watershed programme was launched in 1962-63 to check siltation in the multipurpose reservoirs as "Soil Conservation Works in Catchments of River Valley Projects". This was followed by another mega project on Drought Prone Area Programme (DPAP), Desert Development Programme (DDP) and the Integrated Wasteland Development Programme (IWDP).

Table 1: Land Utilization Pattern, 2006-07

	Particulars	Area (million hectares)	Per cent
i.	Total geographical area	329	--
ii.	Total reporting area	306	100
iii.	Barren land, not available for cultivation	42	14
iv.	Area under forests	69	23
v.	Permanent pastures and grazing land	11	4
vi.	Cultivable waste lands, etc.	18	6
vii.	Fallow lands	25	8
viii.	Net area sown	140.3	46
ix.	Area sown more than once	53.4	19
x.	<b>Total cropped area (viii + ix)</b>	<b>193.7</b>	<b>66</b>

Source: Statistical Abstract, India 2002 (Central Statistical Organization)

The watershed programmes in the country were undertaken with multiple objectives ranging from the rehabilitation of degraded areas to conservation of resource base and improvement of productivity in agriculture. In recent years, the watershed programmes has increasingly become more poverty focused. There has been a shift from assessing the impact of watershed management on regeneration of natural resource base, health of the

environment and agriculture productivity to enhance to overall impacts on poverty and livelihood security in a sustainable manner.

Integrated watershed development is an approach that combines Soil and Water Conservation (SWC) works with social and institutional development in addition to pursuing a broad range of activities such as rural access to drinking water and income generating activities across many sectors to meet the needs of communities. A watershed can be sustainable through decentralized project planning, implementation and management by the local communities at the village level.

The experiences of stakeholders in the watershed development projects have been quite varied. While, the land owning families experienced high level of income which created fissiparous tendencies in the community, the sections left out have very little stake in maintaining the watershed structures or adhering to the strict conventions that WC imposed on itself in initial years of the project for natural regeneration of grasslands or forests within the watersheds (Anonymous, 2011).

The World Bank (Thomas et al 2011) emphasized that externalities such as lack of secure property rights (even lack of secure tenure) hamper the management of watersheds. Also, externalities were associated with common lands, management of which as of now is not on sound lines. WHSs have not received enough attention to site-specific factors influencing water resource supply and demand (eg. more groundwater pumping; climate anomalies).

Table 2: Degraded Lands Developed Under Various Watershed Development Programmes, Since Inception upto Tenth Plan and During First Three Years of XI Plan

Sl. No.	Name of the Ministry/Scheme and year of start	Progress since inception upto X Plan		Progress in first three years of XI Plan (2007-2010)	
		Area	Exp.	Area	Exp.
(Area in Lakh ha. And Expenditure in Rs. Crore)					
<b>A. Ministry of Agriculture</b>					
1.	NWDPPRA (1990-91)	93.92	3034.66	9.46	785.89
2.	RVP & FPR (1961-62)	65.28	2263.07	8.06	749.08
3.	WDPSCA (1974-75)	3.93	294.17	1.20	118.92
4.	RADAS (1986-86)	7.21	117.13	0.85	31.18
5.	WDF (1999-00)	0.59	26.02	0.00	0.00
6.	EAPs	18.15	3778.22	0.00	0.00
	Sub Total	189.08	9513.27	19.57	1685.07
<b>B. Ministry of Rural Development</b>					
1.	DPAP (1973-74)	137.27	4842.50	3076*	1236.26
2.	DDP (1977-78)	78.73	1949.88	2270*	965.56
3.	IWDP (1988-89)	99.56	2438.15	495*	1653.52
4.	EAPs	5.00	292.67	0.00	0.00
5.	IWMP	DPAP, DDP and IWDP have been merged under IWMP from 2009-10		1326*	501.49
	Sub Total	320.56	9523.20	7167*	4356.83
	<b>Total (A+B)</b>	<b>509.64</b>	<b>19036.47</b>		<b>6041.90</b>

\* Number of Projects

Source: Ministry of Agriculture (MoA) and Ministry of Rural Development (MoRD)



The World Bank (Thomas *et al* 2011) emphasized that externalities such as lack of secure property rights (even lack of secure tenure) hamper the management of watersheds. Also, externalities were associated with common lands, management of which as of now is not on sound lines. WHSs have not received enough attention to site-specific factors influencing water resource supply and demand (eg. more groundwater pumping; climate anomalies).

They further suggested that fiscal decentralization and community empowerment need to be strengthened along with local institutional framework. Also there was emphasis on the training of PRIs to create proper awareness.

They have reservations about, long term management of NRs and also pointed out that the effects of SWC works, often, stands exaggerated. They observed that the issues of hydrology are not adequately considered in the common guidelines. Issues such as excess groundwater pumping are countering the increase in water table of groundwater. In fact, there was an explosion in community based projects on 'rainwater harvesting' schemes in India. About Rs.7,200 million/year were being spent on such schemes. In the process there has been an increase in the storage of water concurrent with increase in its usage. However, the World Bank estimated that the The World Bank (Thomas et al 2011) emphasized that externalities such as lack of secure property rights (even lack of secure tenure) hamper the management of watersheds. Also, externalities were associated with common lands, management of which as of now is not on sound lines. WHSs have not received enough attention to site-specific factors influencing water resource supply and demand (eg. more groundwater pumping; climate anomalies).

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#### ***Important features of the selected districts:***

One hundred Twenty one districts covering the DPAP, DDP and IWDP projects were identified for

the study. Some districts had more than one batch of watersheds. In each batch, five watersheds were selected by the Nodal agency in consultation with the concerned district administration. The features cover rainfall, NCA, NIA productivity category, present cropping intensity (C.I.) alongwith the potential C.I., the area under fruits and vegetables, cultivable wastelands, MPCE, rural poor and drought years. The data on potential C.I. was from Venketeswarlu (2004), data on MPCE and rural poor was from NSSO 2006-07, the figures on rainfall and drought years was from IMD and the data on cultivable wastelands was from DoLR, GoI. The rest of the parameters were from Ramesh Chand et al (2009).

The productivity category is the summation of all crops including fruits and vegetables. In areas with higher rainfall and/or more area under horticulture, the productivity category was very high. Otherwise the classification varies from low to very low or at best average. Largely the C.I. was low in the selected districts except in areas where the rainfall was bimodal where two crops become possible (a short pulse followed by cereal or cash crop). The area under fruits and vegetables was more than 10% of net cultivated area (NCA) only in 28 districts. The cultivable wastelands varied from district to district, from as low as 519 hectares (Neemuch in Madhya Pradesh) to as high as 29, 08, 225 hectares (Jaisalmer in Rajasthan). MPCE in rural areas was lower than the national average of Rs.695 in as many as 89 districts. The rural poverty was lower than the national average of 27.1% only in 32 districts. Droughts occur more with decrease in rainfall which was proved by the points given in data. Thus these districts are ecologically as well as economically disadvantaged.

#### **Achievements**

In the present study, the impact of WDPs on land, water and vegetation was discussed in comprehensive manner followed by discussion on production system, economic and social indicators.

#### ***Impact of WDPs on Land, Water and Vegetation:***

Concisely it appeared that the impact was good in 16 districts, average in 82 districts and poor in 31 districts of the 129 districts under analysis. The number of 129 against the 121 reported elsewhere is due to the fact that the 8 districts had either both IWDP and DPAP or DDP and 4 districts had more than 10 watersheds. In any case WDP had visible impact on various indicators. Overall performance was found good in Gujarat and Karnataka while Uttar Pradesh, Himachal Pradesh and Jammu & Kashmir were poor (Table-3). Amongst the programmes, the IWDP impact was more (51.6%) followed by DPAP (47.1%). Taking individual indicators, the impact were as follows. The results indicate that WDP lead to better land use. The quality of WHSs, in general, was good. However, the silting up was common and needs correction for sustaining WHSs. Stream/spring flow which stands at an increase of 10% can be enhanced with better vegetative cover of the

catchment areas. Groundwater which increased upto 1.9 m only needs to be used in participatory way. Vegetation would play a major role in reducing runoff as well as erosion leading to improved surface water storage. A much bigger effort is needed to bring cultivable wastelands to farming from the present average of 20 % increase. Vegetative cover (present increase being upto 20%) that plays a major role in NRM needs greater attention.

**Table: 3 Impacts of WDPs on Land, Water and Vegetation**

Indicator	Impact (No. of Districts)		
	Poor	Average	Good
Changes in Land Use	11	43	75
Quality of WHSs	21	38	60
Status of WHSs	32	64	33
Increase in stream/spring flow periods	39	72	18
Groundwater increase	28	75	26
Surface water increase	46	67	16
Runoff reduction	46	71	22
Soil erosion reduction	42	63	24
Decrease in Wastelands	62	62	5
Vegetative cover increase	30	59	40

Source: Primary Survey

#### Production Systems

The WDP also led to enhance the cropping intensity (C.I.) by 24% (i.e. 124%), range being 2 to 50% (i. e. 102 -150%). Thus from the present one crop/year, there was an increase by 24% in the WDP areas, which indicated C.I. at 124. There is, however, still a great scope to enhance the cropping intensity by improved intercropping in low to medium rainfall areas and through double cropping in medium to high rainfall areas (Annexure-V). The yield of the crops also increased to some extent. As the farmers were happy to see the overall improvement of their resource base, they could use more external inputs and the related improvements in the production system. All these resulted in enhancing cereal yields by 49% (range 0.0 to 85%) and that of cash crops by 28% (range 7 to 49%). It also appeared that milk yields increased by 45% (range 19-65%) with improved vegetative cover and better availability of fodder from the haulms and stalks of the cereal and pulse crops. There was a surge in horticulture which needs further extended support. As many as 28 districts of the 121 districts in the study already have more than 10% area under fruits and vegetables. Growing fruit and vegetables leads to healthier families (more chances of consumption at home) besides enabling the families to earn daily income.

#### Employment

One of the aims of WDP is to enhance the rural employment on a perpetual basis. This is besides the labour needed for retrieval of natural resources, which is one time event. With better production systems the labour-days increased by 43 per annum per head, ranging from 25-68 days.

#### Debt Reduction

With increased incomes from production systems and/or wages, the debt burden is reported to have to come down in the WDP areas. The result indicated a debt reduction from 12 to 60%, averaging to 37%.

#### CBOs (Community Based Organisation)

The WDP remains more successful through the effective presence of PIAs, formation of CBOs like SHGs, UGs, WC, and WA. In many instances these CBOs ceased to exist with the closure of project. However, with the improvements resulting out of the project implementation, quite a few of CBOs continued to exist and found active. The study showed that 48% CBOs (partly) were still active with a range from 15 to 69%. Community based management alone can lead to sustainable development and inclusive growth. Even though the result is not quite encouraging, detailed studies in success areas may provide proper solutions to have active CBOs for sustainable development. The data in the table (Annexure-VIII) was further examined with reference to rainfall in the states. The following picture emerges (Table-4).

**Table: 4 Component-wise Analysis of Low and High Rainfall Areas**

Sl. No.	Component	Medium to high rainfall areas	Low to medium rainfall areas
1.	Soil erosion reduction(%)	30	49
2.	Runoff reduction(%)	37	44
3.	Wasteland reduction(%)	20	25
4.	Increase in vegetative cover(%)	15	20
5.	Increase in groundwater(m)	1.8	1.9
6.	Adequacy in drinking water(%)	71	69
7.	Increase in irrigated area(%)	31	29
8.	Increase in cropping intensity(%)	123	127
9.	Increase in yields(%)		
	Cereals	47	49
	Cash crops	33	24
10.	Increase in milk production(%)	36	48
11.	Increase in employment(days/annum/person)	34	52
12.	Debt reduction(%)	45	34
13.	Functional CBOs(%)	40	43

Source: Primary Survey

A perusal of the above data suggests the following trends.

- Medium to high rainfall areas, having better vegetation as well as better soils compared to low to medium rainfall areas, have less soil erosion as well as runoff.
- Many of the components show similar trends as in wasteland reduction, increase in groundwater, adequacy of drinking water, increase in irrigated area as well as yield of cereals besides functional CBOs and WDF collection.
- But the differences between the two ecosystems show up in vegetative cover, cropping intensity, yield of cash crops, milk production, employment and debt reduction. Probable reasons for lower vegetative cover could be the already existing vegetative cover in the high rainfall areas where the need for additional biomass is rarely felt.
- There is a small increase in cropping intensity in drier areas through intercropping in rainfed areas or two crops in irrigated areas. The wetter rainfed regions already have the practice of such systems.
- Cash crops are energy rich crops need better environments and more investments besides risk bearing capabilities, which are evidently lacking in the disadvantaged areas. Hence the difference is found visible.
- Since the poorly endowed areas have to diversify for sustainable livelihood, the farmers as well as landless earn additionally either through other enterprises like dairying or through wage employment. These facts are reflected in the results.
- Finally even in debt reduction, the poorer area dwellers have less income in spite of diversification and so are able to only partly reduce their debt burden. This becomes further confounded with more possible drought years in relatively low rainfall areas.

**Table 5: Aggregate Average Performance of Different Programmes**

Programme/Indicator	Change in land use pattern (%)	Quality of WHS (%)	Status of WHS (%)	Increase in stream / spring flow period (%)	Groundwater increase (%)	Surface water increase (%)	Runoff reduction (%)	Soil erosion reduction (%)	Decrease in wastelands (%)	Vegetative cover (%)	Avg. Score (%)
DDP	34.95	76.00	41.64	42.43	43.86	32.71	42.14	36.14	34.34	63.33	44.76
DPAP	61.23	57.86	44.40	46.66	47.39	44.70	40.55	43.34	33.53	50.86	47.14
IWDP	62.68	68.55	60.03	44.39	48.99	43.70	52.38	50.18	34.26	51.89	51.50

Source: Primary Survey

Aggregated average performance of the programmes shows that IWDP was better performance (51.5 %) followed by DPAP (47.1) (Table-5 above). The top

performance of the indicators was observed under the programme was as follows.

Indicator	Better Performance
Change in land use	IWDP/DPAP
Quality of WHSs	DDP
Status of the WHSs	IWDP
Increase in stream/spring flow periods	DPAP
Groundwater increase	IWDP
Surface water increase	DPAP/IWDP
Runoff reduction	IWDP
Soil erosion reduction	IWDP
Decrease in Wastelands	All alive
Increase in Vegetative Cover	DDP

**Table 6: Impacts on Production System**

State	Impact on Production systems (%)
Andhra Pradesh	39.45
Gujarat	33.35
Himachal Pradesh	21.94
Jammu and Kashmir	21.60
Madhya Pradesh	31.24
Karnataka	44.27
Tamil Nadu	35.16
Uttar Pradesh	14.77
Rajasthan	35.00
<b>Average</b>	<b>33.36</b>

Source: Primary Survey

The state wise analysis is given above (Table-6). It is observed that the states with lesser irrigation showed up better results as in Karnataka and parts of Madhya Pradesh and Tamil Nadu. The arid Rajasthan also could not show up beyond the overall average performance. But concern is with Uttar Pradesh where there is hardly any attention given to production systems in the rainfed areas. It could be due to high rainfall with attendant better groundwater availability in other regions. In any case, this sector that deals with production systems is

abysmally poor in the show and needs considerable improvement.

**Table 7: Economic Impacts of Watersheds in the Sample States**

State	Economic impact (%)
Andhra Pradesh	58.88
Gujarat	53.94
Himachal Pradesh	31.21
Jammu and Kashmir	28.00
Madhya Pradesh	54.54
Karnataka	43.00
Tamil Nadu	50.38
Uttar Pradesh	31.61
Rajasthan	35.00
<b>Average</b>	<b>47.00</b>

Source: Primary Survey

The overall performance in the states on economic impact indicates less attention paid to the hilly terrains of Jammu & Kashmir and Himachal Pradesh and a poor show in Uttar Pradesh. Conclusion is that the economic impact is better than the biological impact and to sustain the economic impact, production systems must improve and the physical assets generated in the programme be functionally maintained.

#### **Social Impacts of Watersheds**

The indicators included the following:

1. Debt position reduction (%)
2. Reduction in workload (Hrs/day)
5. Benefit sharing mechanism
6. Maintenance of CPR
3. Functional CBOs (%)
4. Social audit

Overall rating (marks) obtained were 40.2, varying from – 13.3 (Mahoba, Uttar Pradesh) to as high as 88.0 (Bangalore, rural).

A perusal of the data shows that the debt reduction was 50% and more, so in coastal Andhra Pradesh, Uttar Pradesh and western parts of Madhya Pradesh. But on an average, the social impact which is showing up can be better by improving the functional

CBOs beyond the present level of 42%. The state wise Social Impact Analysis is appearing in Table-8.

**Table 8: Social Impacts of Watersheds**

State	Social impact (%)
Andhra Pradesh	51.97
Gujarat	50.25
Himachal Pradesh	35.61
Jammu and Kashmir	6.70
Madhya Pradesh	34.83
Karnataka	62.20
Tamil Nadu	40.27
Uttar Pradesh	7.67
Rajasthan	57.00
<b>Average</b>	<b>42.17</b>

Source: Primary Survey

Poor performances in this sector include Uttar Pradesh, the hilly states and Madhya Pradesh. There is also a need for some improvement in Tamil Nadu. Karnataka performance was well above all the rest. This could be due to the fact that the state initiated the watershed development and rainfed farming much earlier than other states and also because of the commitment of the Government of Karnataka in addressing these disadvantaged areas. Andhra Pradesh with APRLP and the thrust given by GoAP is next in order followed by the entrepreneurial Gujarat. In Rajasthan, the stressed environment brought the people together for community based development. But the poor show in social sector by Madhya Pradesh (particularly in east Madhya Pradesh) calls for a focused attention by GoMP on this sector along with NRM taken up in a large way by that Government.

#### **Effectiveness of Watersheds on Common Property Resources (CPR)**

Common property resources (CPRs) provide income to the poor HHs through NTFPs. Present estimates suggest a contribution upto 12-15% from this source to the household income. That CPRs are suffering from a 'free riding' problem is well known. That is leading to their degradation. One of the aims of the WDP had been to retrieve the degrading CPRs. The HHs surveys have addressed this issue. While the



overall maintenance level of CPRs was 29.00% of the potential, Tamil Nadu(10.58%) and Uttar Pradesh (12.45%) were very low in attending to CPRs followed by Andhra Pradesh and Gujarat with 23.49% and 25.79% levels of maintenance. Only 46% of the 129districts were above average.

**Table 9: Performance of Watershed on Maintenance of CPRs**

State	Maintenance of CPRs (%)
Andhra Pradesh	23.49
Gujarat	25.79
Himachal Pradesh	35.58
Jammu & Kashmir	59.81
Karnataka	43.38
Madhya Pradesh	39.65
Rajasthan	40.97
Tamil Nadu	10.58
Uttar Pradesh	12.45
<b>Overall Average</b>	<b>29.00</b>

Source: Primary Survey

In the arid Rajasthan, upto 40% of the stakeholders felt the need for maintenance of the CPRs. Evidently the poor and landless who make a living partly on the CPRs are more concerned. Also as the aridity increases, there will be increasing dependence on livestock as a source of income to the HH. Thus, in arid region the importance of CPR becomes prominent.

1. In the high rainfall region of Andhra Pradesh, there was a negative response on the maintenance of CPRs. Evidently the result indicated that the CPRs either were taken over by the mighty persons of the village or the Government itself had allowed much of such land to the landless under various schemes.
2. Fodder from CPRs (as in Tamil Nadu) was less than adequate in many areas. This needs our attention. Participatory approach involving women as equal partners is one potential way of achieving better fodder, fuel and manure from CPRs. In any case, the problem of 'free-riding' must be addressed to on priority basis.
3. Benefits from CPRs to the households (HHs) were not assured. In Gujarat, it was reported that only a few of HHs were benefited from CPRs. As many as 97% had little benefit from CPRs. This was true even in DDP areas. Even in Karnataka, the maintenance of CPRs was poor.

Thus the position leaves much to be desired and so calls for concerted efforts to improve the situation.

4. In the Study in Uttar Pradesh, the common lands hardly benefit the stakeholders (not beyond 15% had some benefit). But the other important point emerging out of the study is the lack of attention to inland fisheries in the community water bodies.
5. Among the farmers SMF were more concerned (24%) as compared to LMF (13%) in the maintenance of CPRs.

It is important to realize that maintenance of CPRs is one of the critical components that are to benefit the smallholders and the poor including landless and shepherds. Focused attention is needed to rejuvenate the CPRs so that the estimated income from CPRs in the HH income of the poor will increase from the present 12-15% to 20-25%. In this context, it is strongly suggested to include the peripheral (fringe) forest areas and the areas under shrubs in the programme besides improving the community grazing areas by introducing improved silvipastures systems (to ensure top-feed in lean periods). It is reiterated that WDP and the related CPR development should not jeopardise the existing rights of shepherds and those that earn part of their HH income from such areas.

#### Conclusion

Overall performance was in good in Gujarat and Karnataka while Uttar Pradesh, Himachal Pradesh and Jammu & Kashmir were poor. Amongst the programmes, the impact was more in IWDP (51.6%) followed by DPAP (47.1%). The results indicate that WDP lead to better use. The quality of WHSs, in general, was good. However, the silting up was common land and needs correction for sustaining WHSs. Stream/spring flow which stand at an increase of 10% can be enhanced with better vegetative cover of the catchment areas. Groundwater which increased upto 1.9 m only needs to be used participatory approaches. Vegetation would play a major role in reducing run off as well as erosion leading to improved surface water storage. A much bigger effort is needed to bring cultivable wastelands to farming from the present average of 20 % increase. Vegetative cover (present increase being upto 20%) that plays a major role in NRM needs greater attention.

In NRM, Karnataka and Gujarat performed well with 62.18% and 61.56% respectively, overall achievements followed by Andhra Pradesh (56.08%) and Tamil Nadu (53.57%). Good achievements were observed in better land use by Gujarat, Andhra Pradesh, Karnataka and Tamil Nadu. The quality of WHSs was superior in Rajasthan, Gujarat, Karnataka, Andhra Pradesh and Tamil Nadu. But they were all silting up due to lack of post project care and maintenance. Runoff reduction and soil erosion control was good with Gujarat followed by Karnataka. Groundwater table rise was significant in

Gujarat followed by Karnataka and Andhra Pradesh. The overall impact on production systems was only 33.36% which is much less than desired. It is only in Karnataka that the Impact was upto 44.27%, most probably due to the focused efforts on watershed and rainfed farming by GoK. But what the most alarming is the poor result from Uttar Pradesh, strangely at 14.77%. It is time that GoI along with the states make a concerted effort to tap the unexploited potential in the rainfed areas of the country that stand at 58% of NCA as on time.

Unlike the Impact on production systems, the economic impact was better in all the states, averaging to 47%; the best being in Andhra Pradesh (58.9%) followed by Madhya Pradesh (54.5%) and Gujarat (53.5%). The APRLP in Andhra Pradesh and the Rajiv Gandhi Mission for Watershed Management in Madhya Pradesh did address the economic issues in the watershed plus activities which reflected in the performance of the watersheds of these states. Gujarat is known for its enterprising nature. Efforts must continue to benefit the poorer section of the rural poor in the watershed areas either

completed or in progress. It is to be recalled several of these districts, HH spend much less per capita compared to the National average of Rs.695 of MPCE. This is another composite factor that performed better than impact on production systems, the average performance in percentage term being 42.17%. Karnataka stood first with 62.20% followed by Rajasthan (57.0%), Andhra Pradesh (52.0%) and closely by Gujarat (50.3%). The possible reasons have been discussed earlier (vide supra). But concern is the poor performance of Jammu & Kashmir and Uttar Pradesh with only 6.70 and 7.67% marks, respectively. Hilly states need improvement. It is noteworthy to observe the social impact was superior in the Rajasthan (57%) and even in the arid region it was upto 47%. Thus stress situation appears to bring people together. Karnataka set the lead for overall improvement in social parameters, being above average in creating labour-days, debt reduction and functional CBOs. Such a holistic approach is possible only through improved training and capacity building.

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**Watershed Development Economics Part-I:  
Expanded Base for  
Larger and Varied Economic Activities**

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**1. Introduction**

**1.1. Over View of Watershed Development in India**

**1.1.1 Evolution of Concerns:** Soil erosion, land degradation and forest denudation, besides visitation of floods and droughts, have been the risks that the society have lived through millennium and with reasonable success. New dimensions emerged like watershed degradation that included hydrologic distortion, loss of biodiversity, land quality due to over exhaustion and generation of staggering volumes of societal wastes(solid and liquid), which have been polluting and contaminating land, soil and. Water. Even the quality of air, which for many centuries have been taken for guaranteed has become a very serious threat due to emission of many undesirable gases and imbalances in flow dynamics between land and air specially of carbon (AFC, 2002).

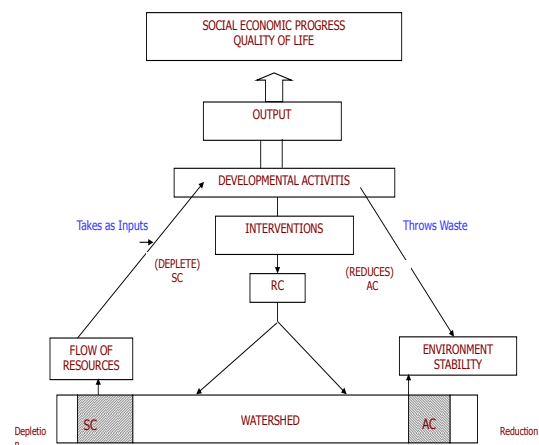
**1.1.2 Evolution of Human Efforts:** For survival human societies evolved strategy and action plans to contain, counter or minimize these variously Sequentially these human efforts emerged as under

- -WCS, -World Conservation Strategy (ICUN/UNESCO, 1980 quoted from Das, 2007) that gave strategy and action plans for combining development planning with the conservation planning. Though not mentioned now it continues to be the corner stone. World Soil Charter & World Soil Policy FAO, 1984 and UNESCO, 1984 quoted from Das, 2007) - Provided possible option to ensure quality of land and for meeting increasing demands for goods and services from the society. These documents emphasized on the urgency of taking care of land resource – the integrator of all other natural resources.
- Carrying Capacity/Population Supporting Capacity: Carrying capacity (CC), an ecological perception that indicates the ability of the ecosystem to take the load of eco communities living in it. With this is linked up the concept of population equilibrium which primarily based on food chain.(ICUN,1980). Population supporting Capacity (PSC) on the other hand is specific to human societies or the countries they live in. It simply asks (Higgins *et al*, 1982 and Das, 2007) the question whether natural resources base, as they are,

can support present population at desired life style -if not how we can enhance PSC. It is quite a reasonable poser to the societies because unlike other eco communities

The concept recognizes a limiting potential or PPSC for an area or a country. But it also emphasized that a society or country can restore the damaged PPSC and to a great extent increase the PPSC and thus counters the dooms day’s prediction of inevitable failure to support country’s population. An integrated package of 12 categories of interventions and at three intensity level of application or three increasing investment level showed the possibilities that the country can support its growing population with expanding aspirations(Fig.1). The planned action to regenerate to restore and enhance two processes of PSC, namely supporting capacity (SC) and Assimilating capacity (AC) play the key role.

**Fig-1 Population Supporting Capacity**



In India, Soil and Water conservation division of MOA did an exercise for India (Bhan and Das, 1985, quoted from Das, 2008) and found that at the then level of investment on a package of about 6 to 7 intervention types India could support the then population of 1066 million population. It further showed that over a study period of 20 years PSC of rainfed area increased by 48% as against 10 % for irrigated areas. ICRISAT had reported that a dry land farming system could increase PSC over a period of 33years by 437% (William, 2007 quoted from Das 2008). But this was based on equivalent energy requirement of 667 gm/person per day of food and allied items. If biomass based total energy of food and other essentials and utility goods derived from biomass that would be required by a person by 2050, is considered it would be 4110gm/person /day or 1.5t/person per year This shows that computation of PSC has to be more inclusive of all

biomass production systems as well as all biomass based materials used as food and other purposes. In other words, for a minimum desired quality of life for all biomass from food and allied items is about 20 % 80 % goes to meet the needs of shelter, education, services sectors and other social utilities.

- Agenda -21: SRD by SAD & SAED: Acknowledging the fact overwhelming majority of the billions of world population live in rural area, sustainable rural development has been set as the goal. But to achieve this sustainable agriculture is the prerequisite while SAD to be sustainable ecological support base headed by forest or perennial vegetation in a sustained ecology. (Quoted from Das 2007)
- Sustainable Development JPOI(2002) and Climate Change Action Plan (CCAP) Commission of Sustainable Development (CSD,2008) had considered the above development as a necessary condition but found the beneficiaries namely human communities are to be at centre stage. In endorsed the JOPI specially stressing on land and water cycle interaction; greening for social and environmental needs and tackling societal wastes as development resource for releasing locked up water and nutrients for reuse to create wealth. India has shared and used these in evolving Strategy & Action Plans through successive Five year Plans and keeping continuity India's own perception growth of research and development within the country sometime over coming geo-politico-economics.

**1.1.3. Watershed Management/ Watershed Development:** As a vehicle for planning and implementation the strategy of watershed management came up as early as in late 30's. It took some time before it was put in use in USA. The strategy was also worked on in Northern Rhodesia (Zimbabwe) and Australia following developments in USA. It then started gaining foot hold in other countries.

In India watershed management or watershed development was taken up in late forties in Damodar – Barakar Catchment after the model of Tennessee Valley Authority of USA for creation of hydro power, irrigation potential and control of flood and sedimentation. Due to socio economic compulsions of vast rural population in the catchment area, agricultural production and productivity, dairy, and generation of employment for large rural work force were also at the center stage. Till 1980 the Centrally Sponsored Schemes for River Valley Project and then Flood Prone River catchments were extended to 31 catchments in 15 states and two Union Territories. In mid seventies the approach was adopted for regeneration of drought prone areas and desert, rather semi arid and some arid areas as well as for areas under shifting cultivation. In late eighties it was adopted for areas where dry land farming was in vogue. With formation of Ministry of Environment and forests the approach was extended to

integrated eco- development and for restoration of wastelands to higher level of utilization (Das, 1998).

Besides, ORP watersheds of ICAR institutes, the experiences of many bilateral projects supported by ICEF-IPL (EIRA in 30 districts each in Maharashtra and Madhya Pradesh); NORAD- Sadguru Water and Development Foundation(SWDF,1999) In Gujarat and Madhya Pradesh); Aga khan Foundation (many NGOs specially in Gujarat and Rajasthan); EC supported Watershed Management projects in UttaraKhand, IGBWMP through DVC (Jharkhand), MYRADA (Tamil Nadu, Karnataka ), Forest Department( Mussori in Uttarakhand) and a few more places(GTZ,2000) had brought out many additional dimensions. So was the case with World Bank supported large projects, namely IWDP (Hills) and IWDP (Plains) in some states (CES, 2005). The progress recorded in report of the Working Group on natural resources for 11<sup>th</sup> Five Year Plan (2007-12) is shown that a total area of about 50 million ha was treated by 2007 at an investment of 19,129.48 crores (**Table -1**) Out of it the share of externally aided projects was 23.15 lakh ha or 4.5 % of total area treated and at a cost of 4,260.02 crore or 22.3% of total expenditure (Planning Commission, 2007).

**Table 1: Degraded Lands Developed under Various Watershed Development Programmes, since Inception up to the Tenth Five Year Plan**

S. No	Ministry/Scheme and year of start	Progress since inception up to IX Plan		Progress in X Plan* (2002-07)		Total since inception up to X Plan*	
		Area Lakh ha	Expenditure Rs. crore	Area Lakh ha	Expenditure Rs. crore	Area Lakh ha	Expenditure Rs. crore
<b>(A) Ministry of Agriculture (Department of Agriculture &amp; Cooperation)</b>							
1	NWD PRA (1990-91)	69.79	1877.74	23.3	1147.82	93.09	3025.56
2	RVP & FPR (1962 & 81)	54.88	1516.26	9.98	727.98	64.86	2244.24
3	WDPS CA (1974-75)	2.58	166.27	1.35	129.31	3.93	295.58



4	RAS (1985-86)	5.81	76.39	1.3	45.35	7.11	121.74
5	WDF (1999-00)	0	0	0.59	26.02	0.59	26.02
6	EAPs	13.35	2039.81	4.8	1927.54	18.15	3967.35
<b>Sub Total</b>		<b>14.641</b>	<b>5676.47</b>	<b>41.32</b>	<b>4004.02</b>	<b>187.73</b>	<b>9680.49</b>
<b>(B) Ministry of Rural Development ( Department of Land Resources)</b>							
1	DPAP( 1973-74)	68.95	3284.74	68.32	1557.76	137.27	4842.5
2	DDP(1 977-78)	33.56	797.38	45.17	1152.5	78.73	1949.88
3	IWDP( 1988-89)	37.34	616.51	62.22	1821.64	99.56	2438.15
4	EAPs	1.4	18.39	3.6	274.28	5	292.67
<b>Sub Total</b>		<b>141.25</b>	<b>4717.02</b>	<b>179.31</b>	<b>4806.18</b>	<b>320.56</b>	<b>9523.2</b>
<b>( C ) Ministry of Environment and Forests</b>							
1	NAEP (1989-90)	0.7	47.53	0	0	0.7	47.53
<b>Total (A+B+C)</b>		<b>288.36</b>	<b>10441.02</b>	<b>220.63</b>	<b>8810.2</b>	<b>508.99</b>	<b>19251.22</b>

\* includes tentative achievement of 2006-07.

Abbreviations:

NWDPR – National Watershed Development Project for Rainfed Area

RVP & FPR-River Valley Project & Flood Prone River WDPSCA-Watershed Development Project for Shifting Cultivation Area

RAS -Reclamation of Alkali Soil

WDF -Watershed Development Fund

EAPs -Externally Aided Projects

DPAP -Drought Prone Area Programme

DDP -Desert Development Programme

IWDP -Integrated Wasteland Development Project

NAEP -National Afforestation and Eco-Development Project

## 2. Guidelines

**2.1. Evolution of Guidelines:** As major programmes of watershed development (WSD) and watershed

management (WSM) were sponsored by the Ministries of Agriculture, Rural Development and Environment and Forest besides ICAR institutes, a review was necessary of rich experiences both in research as well as development sector. Diversities in main objectives, input- output and outcome perceptions, main and sub components ,implementation mechanism etc demanded a common approach , where the watershed management and development processes from planning to impact assessment could address to problems of natural resources base, expensive assets created at huge cost, biomass production systems and livelihood for communities living in watershed areas while giving co-active benefits such as reduced vulnerability to drought and flood, erosion and land degradation , under employment and unemployment , low income and poverty, improved quality of life through access to safe drinking water , toilets and clean energy , education and health care. The large canvas and extensive spread out of sites for different treatments and of human settlements in hamlets, small and large villages and emerging peri-urban sites demanded network of organizational mechanism involving large investments. To ease out these problems, avoid duplication, to address to after project operation and maintenance of assets created and sharing of benefits accruing from the assets equitably and in a compatible manner to ecology, social mobilization for participation through different types of community based organizations became a key element of the WSD plans. However, devolution of responsibility with authority and helping to develop their own financial base for continued initiatives and make them effective during and beyond the project periods have been still evolving.

**2.2. Emergence of Common Guidelines:** With acceptance of WSD/WSM by the most, a consultation led to development of Common Guideline (ESDI,2011) Briefly the important objectives are:

- Conserving and developing natural resources for sustainable management for increased availability of water, improved soil fertility etc.
- Enhancement of biomass production keeping crop production and productivity as the core
- Restoring ecological balance by enlarging green area with different planning models and increasing availability of fodder, fuel wood and NTFPs
- Creating more employment opportunity by adoption by house holds a variety of compatible livelihood support systems
- Decentralised planning, implementation and post project management of assets and facilities created by the project
- Improving capability in handling project activities and develop a stake for project interventions.

- Social capital formation and empowerment of CBOs like SHG, UGs etc and making them self driven.
- Capital formation as an aspects of amongst economic ones
- Narrow down the gaps between irrigated and rainfed farming areas.

### 3. Inclusiveness and flexibility of Common Guidelines

The common guidelines thus emerged followed **principle of inclusiveness** and took note of ITKs and time endured social mechanisms and thus had provisions for flexibility within its broad frame work. The success of common guidelines in terms of inclusiveness and flexibility could be seen from region, state and sub area specific modifications made in objectives, strategy and approach that helped to enlarge the basket of outputs and outcomes. To illustrate this aspect some examples are in following paragraphs

#### 3.1. North East:

Entire North East Region, with 8 states, is environmentally fragile *amidst its abundance of natural resources of land, water and perennial vegetation, namely forests*. The share of natural as well as manmade ecological problems is large. While socio-economic governance at village or sub –area level faces tough challenges to blend traditional and cultural knowledge and practices with those evolved with expanding S & T inputs for adaptation to changes in ecological factors including climate. *All NE States have realized that their problem is to handle and, harness and use large volume of rainfall received in monsoon months.*

The states adopted WSD/WSM projects sponsored by various agencies but creating space within the guidelines advocated by sponsoring agency. In all these states plantation crops like, Tea, Areca nut, banana, Jack fruit, passion fruit, lemon grass etc are taking firm root. Again, *NE states have time endured CBOs and group activities through SHG and UGs are formed in good number.*

**3.1.1. Assam and Tripura:** Assam the gate way state to North East has perhaps the toughest challenges in managing natural resources and in compatible manner of governance at village and district level. *In general Assam adopted watershed management (WSM) on higher reaches where human interference is least and watershed development (WSD) at middle and lower reaches for control, regulation and use of water throughout the year especially during December to April.*

While Tripura with topographic ruggedness and rain fall faces severe erosion on hills and siltation in channel systems down below. Besides, drainage system and rainfall distribution are not conducive to adequate

availability of water throughout the year. Further, anthropogenic diversity has led to complexities in land husbandry and inadequate infrastructure like connectivity deters marketability of surplus when generated. *The state has taken to grow tradition fruit crops like banana, jackfruit, and pineapple in a large scale. Micro water water sources development for recharging ground water and repeated replenishment of soil moisture to help take two crops in year both with and without irrigation are its strategy.*

**3.1.2 .Nagaland and Manipur:** Nagaland is dominated by hills with small plain areas and valley land. While Manipur has larger portion as hills while a substantial plain area dominated by unique wetlands of the world, namely Loktak lake. *These two states realized that restoration of ecological balance at village level, ,by making more water available in watershed with reduced erosion ,is a pre requisite to economic development of the village community living in hills, with short valley or plain areas in small patches, through watershed development where community action and improved capability of local technical knowhow will be the key mechanism. While, the land husbandry and livelihood of plain areas of Mainipur depend on the health of Loktak lake.WSD on its contributing area is adopted to ensure larger water inflow with minimum silt load..*

This was considered a viable mode to generate stake at village level in terms of more opportunity for employment and human resource development, and thus help improve the economic condition of the poorer sections of the watershed community, such as marginal and land less farmers. The strategy was considered ensure more equitable distribution of benefit of land and water resources development.

Cultivation of fruit like banana for marketing and tea as house hold plantations are being adopted to get more income.

**3.1.3. Sikkim:** *This state took an in- depth look into watershed development for both ecological and wellbeing of the people in eighties. They formulated a policy concept for Watershed development centering on making every village self sufficient in water throughout the year and through organized efforts of the community.* This is to be achieved through *a multi pattern vegetation and constructing micro water sources* ensuring availability of water in quantity and quality for the families to adopt a combination of livelihood package and with lesser external inputs particularly agro chemicals. The state envisaged that the formulation of such a plan and its implementation would call for convergence of other practices like cropping pattern, animal husbandry and other NRM based production systems. But this has to be compatible to ecological and socio economic aspirations of the people

It was further envisaged that the goal would be achieved through promotion of local initiatives and creativity.

**3.1.4.:Arunachal Pradesh:** *The state with very low population density has over 60 % of its cropped land under shifting cultivation and on hill slopes while plains account for only about 5 % of total geographical area.* The state is deficit in food grains by about 41percent. Rice is dominant crop though many other too grown in jhum land. Due to high to medium annual rainfall, hilly terrain and fragile geological features overland flow is fast and large causing severe erosion and sedimentation problem. Water availability for irrigation, especially in post monsoon months is low and this limits increasing gross cropped area and diversification in cropping pattern. *Thus, the strategy adopted by the state is to enlarge green areas using models that help them hold and use rain water at village level while giving them more fodder, fruits and other useful produces. Besides pigs are most valued assets for meat.*

**3.1.5.Meghalaya and Mizoram:** Mizoram has perhaps the most daunting hill slopes and with small plateaus. Rainfall is relatively lower and bulk runs down and thus water availability in hills is a problem. On the other hand hills of Meghalaya though stiff at places their foot hills are marked with a little longer undulating .Rolling land. However larger part of these strips is marked with stone out crops. Thus large volume of rain water flows down to Bangladesh. **Watershed development is adopted with making areas under cultivation more productive both in khariff as well as rabi, coupled with cultivation of fruits. For proteins, families depend on pigs**

### **3.2 North western Himalayan States: Uttarakhund**

**3.2.1.Uttarakhund** This important state is well endowed with forest and water. There are more than **12,000 glaciers and 8 major rivers** in the state. The state is under constant threat of mass wasting and erosion due to natural factors of steep and rugged terrain, heavy rainfall, avalanches etc. **Heavy population pressure has pushed the settlements to higher and relatively more risk prone areas.** The development factors of the society such as road, agriculture, livestock, and management settlement wastes, deforestation for roads, settlements and service oriented activities have aggravated the risk.

**The state had recognized that development have to be intimately packaged with environmental stability.** Thus watershed management had been the base for planning and implementation for most programmes, particularly which are aimed at sustainable rural development. Lack of livelihood results in seasonal migration, low family income and make it highly

dependent on remittance. ***Due to pre dominance of marginal and small farmers with small holdings in small parcels with poor economic base, adoption of irrigation was at a low key while cultivation with rain water conserved in situ helped them cultivate their total holding both in kharif and rabi.*** Access to irrigation is being given through micro water sources while area under double cropping enlarged substantially under rainfed condition with extensively conserved rain water through large number of many types of Soil & water conservation structures and treatments and net work of micro water sources.. ***Thus holding and promoting more of rain water enter into soil and penetrate to sub-strata has been a key strategy. Diversification in livelihoods and in compatible manner has been the strategy to increase annual employment and income.***

### **3.2.2. Himachal Pradesh**

Like Uttarakhand, Himachal Pradesh also has a large share of ecological risks and high dependence on rainfed double cropping though mini irrigation systems are the main source for irrigation in the state. ***Holding water in channels, surface storages and lifting water from improved channel flows are part of the package to enhance water availability throughout the year. Besides, large net work of SWC &DLT structures are used to enhance secondary entry of water into land mass in addition that infiltrates due to storms. Crop diversification*** or taking up cultivation of vegetables, pulses, oilseed, fruits etc on more areas ***besides ,dairy, poultry and fish farming are amongst the compatible support livelihood systems .***

**Organic farming** is a tradition and some states like Sikkim , Uttarakhand , Himachal Pradesh are zealously preserving , promoting activities that may induce fast improvements in organic farming systems. ***There is however, no documentation of traditional practices while, incentives to adopt and produce rich organic sources of nutrients etc need urgent attention***

**3.2.3 Jammu and Kashmir:** The state has similar problems like H.P and Uttarakhand that can be seen in three parts namely high mountains snow covered & snow fall, middle Himalaya rainfall and snow fall and lower mountains or shivalicks. All three parts are ecologically fragile and very sensitive anthropogenic activities . Watershed management was taken up quite early and the impacts were found fairly good. .

**3.3.Haryana and Punjab of Dowab regions :** A narrow strip bordering HP and J&K called Kandi area forms the lower part of the Shivalicks is ecologically very vital for both states specially for water and small forest areas. This strip is amongst the most fragile areas of India from the point of erosion. Sediment

deposits in rivers and streams, flash floods and profuse ground water recharge...

Agriculture gets high priority in the states. But topography is such that larger parts are exposed to sand dunes and bereft of natural endowments like rivers or streams or tanks or ponds or reasonable amount of rainfall. In Haryana out of 44 lakh hectares of geographical area about 5.4 lakh hectares are degraded and waste land or kept fallow. This forms 12 percent of the geographical area. Out of 5.4 lakh ha erosion accounts for 3 lakh ha followed by 1.9 lakh ha for sodic soils and 0.5 lakh for salinity. The share of Mahendragarh district is about 40 thousand ha out of 3 lakh ha subject to erosion. Whereas, Kaithal district has roughly 20 thousand ha of sodic and saline soils. In Punjab watershed development with World bank Support in Kandi area and Afforestation project with JBIC support all over the state have been the main effort to restore and strengthen the NR base. While, in Haryana in order to alleviate the sufferings of people in the problem areas centrally sponsored programmes like Desert Development Programme (DDP) and Integrated Watershed Development Programme (IWDP) have been initiated. *Strategy followed in some identified districts like Mahendragarh is to control severity of drought and desert conditions through a net work of soil and water conservation structures and of micro water sources to enhance recharge and surface water harvesting .*

*In some districts like Kaithal , the strategy followed is to remove water logging by soil and water conservation measures and bring more areas under crop or other biomass production system where more thrust is on adopting dairy , goat & sheep rearing and poultry. Cultivation in water scarce area though the core , animal based systems contribute handsomely to family income and help come above poverty line .*

### **3.4: Eastern States**

**3.4.1. Jharkhand and Odisha:** These two states confront serious degradation problems and also anthropogenic load on its natural resources base. Flood and drought visit regularly and are two sides of the coin. Mining and Industries are other treats to natural resources base. *Afforestation and planting fruit trees and fodder plants are complemented heavily by net work of micro water sources and DLTs. CBOs of a variety at villages, clustering and federating have been other useful innovations. Inter village AI service centers, better seeds selling units and horticultural nurseries are amongst most important ones. Animal husbandry and fish farming are becoming important system complementing cultivation*

**3.4.2. Bihar and West Bengal:** The states in larger part are regularly affected by floods while a substantial portion suffer from water stress and drought. River

erosion is a threat specially in West Bengal which also has high hills and extended foot hills that create regular floods and erosion problems. Besides arsenic in ground water has afflicted large areas as well as people.

. Thus the strategy of WSD strategically tailored to these conditions. Conservation and micro water source structures with dominate to boost agricultural productivity . While planting with different models has been adopted to reduce land use alienation caused by reduced green area and counter adverse effects of societal wastes.

### **3.5 Western states of. Rajasthan and Gujarat.**

The arid and semiarid areas with very low annual rainfall and uneven distribution are marked with long dry spells. Wind erosion and desertification are additional problems besides water erosion, ravines etc. Dairy, rearing sheep and goat and now poultry are important livelihood for large sections besides cultivation. Traditional water harvesting systems have been complemented by a few more that helps provide some irrigation besides minor irrigation systems by *anicuts* and tube wells. Canal irrigation from small projects from larger projects such as Rajasthan canal and Narmada have helped bring large areas under irrigation. *On large part of the states induced in-situ conservation and recharge structures help carry over small rainfall over days and weeks and trans-shift within watershed to small areas for cultivation in pockets and provide water for livestock. Horticulture combined with water tanks and poly houses are other production systems facilitated watershed development projects. CBOs and grass root level financial institutions play a dominant role.*

### **3.6. Deccan States and Maharashtra**

*The western Ghat , the source mighty perennial and non-snow fed rivers that nourish the prosperous plateaus and plain areas, is also very fragile ecologically and thus sustainable development of these states has been constrained. Thus, traditionally, in larger part mini and small water sources have been the backbone for land husbandry. Besides, large command areas, small surface systems , wells and tube wells and more of large of tanks , percolation tanks are the production infra-structure while, bunding and terracing are on cultivated areas.. Secondary entry of rain water stored in micro water source structures, cover management etc help in increasing recharge volume. Fruit and flower cultivation are a major land husbandry. CBOs and grass root level financial institutions play a dominant role.*

### **3.7. Central States- Uttar Pradesh , Madhya Pradesh and Chhattishgarh**

These states are traditionally cereal dominated with medium to high annual rainfall and some large and medium irrigation systems. They are however, frequently subject to natural problems of flood in plains and drought in Budelkhund, Makhelkhund Vindyachal and plateaus of Chhattishgarh. *The strategy is to have a package where micro to mini water sources created through watershed development projects are important interventions along with soil and moisture conservation measures, planting under various models that recharge the ground water. Cultivation of vegetables and fruits have been improving economics of farming.*

#### 4.0. Economic Space or Space for Economic Activities.

Indian panorama briefly captured above notwithstanding enormous diversity reveals two common features firstly; more activities that would keep adult house hold members engaged or employed and them earn more. But such activities would need some base, assets or capital to work with. In pre project setting the arable land, common properties and forest area and some domesticated animal assets were the economic base & assets while ability to work was the only capital for most of marginal and small households who were by far the overwhelming majority in most cases. Secondly, these small base and few assets were generally meager and in poor state that could not provide enough employment or produce enough to meet even their basic consumption need. These were under constant threat of further loss of their ability to produce due to erosion, decrease in availability of water and other allied inputs. The land, soil, water and green cover needed improvement to yield more (ESDI,2012).

The projects were thus focused on house holds of the socio economic status and thus implemented package of interventions which could improve and preserve their available base and assets by diversification and intensification so that they could offer more production and income and stabilizing the same by supporting interventions to neutralize the threads just mentioned above.

The project also recognized that even after above mentioned efforts, marginal and small farmers would need support for additional opportunities for work and income both in terms of base as well as assets., . Thus the project promoted additional options to homesteads as support livelihood systems. These were adopted either independently or through SHGs.

Again, in most cases due to prevailing degradation forces, terrain, climate, connectivity and availability of various other infrastructures, special efforts were needed to open up more space for additional economic initiatives. These were to be compatible to the existing ones and at the same time will set a base for faster growth in coming years. The corner stone of the strategy for watershed development

adopted is to restore the natural resources base for protection and to improve them for obtaining maximum inputs for livelihoods for the families...The project thus implemented a package of interventions which could promote capital formation for diversified agriculture including animal sector as well as additional support livelihood systems for increased employment and income. The main areas where either space has enlarged or new spaces for economic activities created are illustrated with results obtained from the case evaluation study of three states namely, Himachal Pradesh , Haryana, and Uttarakhand( ESDI,2012)

#### 4.2. Types of Economic Space Created / Added.

##### 4.2.1. Area expanded under Production systems

(1)*Himachal Pradesh* : Project induced activities increased net sown area by 382 ha ; area under fruit trees by 1001ha , that under MPT/ Agro-forestry by 1621.5ha and under fodder trees and plants by 348ha. Total base for biomass production was increased by 0.26ha per family.

(2)*Haryana*: In 8 DDP micro watersheds NSA enlarged by 396 ha or 10 %, planting of perennials was on 467ha (349 ha –green fodder and 118 ha under MPTs. Net irrigated area increased by 69.29ha or by 0.11ha per hh.

In IWDP watershed NSA increased by 4582 ha or by 31percent, planting perennials was on 910.4ha( Fruit trees -57ha, Fodder (silvi-pasture plants-79.8ha and MPTs / Agro- forestry -450.56ha). Net irrigated area increased by 5232ha or by 38percent. And per hh increase was 33percent.

##### (3) *Uttarakhand* :

Total private land was 1085.77 ha and total NSA was 757.13ha with 1807 hhs with an average holding size of 0.419 ha per family. The remaining 328.64ha including 204 ha of fallows could not be brought under cultivation. Total area remained unused was 1982.43 or 54 % of TGA.

.Under project out of it an area of 242.84 ha or 74 % of remaining private land could be planted with legume trees and fodder plants/grass(206.11ha), 35.21ha under fruit plants and another 5.2 ha under bio fuel species. Thus total private land under bio mass production increased to 999.97ha or per family expanded to 0.553 ha or by 32 percent over NSA. Still 85.8ha of private land remained unused.

Another 38.8ha of Community land was planted with agro-forestry species. Total unused land after project was 1700.79 ha as against 1982.43 ha of pre project registering a reduction of 14 percent only.

##### 4.2.2. Production Infrastructures

(1)*Himachal Pradesh*: Project constructed a total of 1557 number of three types small water sources namely village and farm ponds -586 ,Water harvesting structures(WHS)-266 and traditional types (*Bauli*,

,Kuhls etc) -680 and wells and tube wells – 25 number. Average area served each unit was 40.7ha.

(2) **Haryana:** A total of 1509 structures, as production infrastructure for recharge, irrigation and drinking water, were constructed by the project. The break up was as follows i) Percolation tanks - 537, ii) Water harvesting Structures(WHS)- 745, iii) Check Dams - 171 and iv) Other Traditional ones - 56.

Average area served by one unit was 4.4ha. In other words density of these structures was quite high.

In IWDP a large watershed only 19 percolation tanks were constructed.

(3) **Uttarakhand:** A total of 978 structures, as production infrastructure for recharge, rainfed double cropping and drinking water, were constructed by the project. The break up was as follows i) Ponds and dugouts -50 ii) Percolation tanks & recharge pits-863, iii) Water harvesting Structures(WHS) -19; iv) Check Dams )& spring rejuvenation -46 and v) Other diversion irrigation channel 654m long. Average area served by one unit was 3.8ha. In other words density of these structures was quite high.

#### 4.2.3. Productive animal assets –

(1) **Himachal Pradesh:** A total of 13,173 heads were added to 12966 households residing in 5 study watersheds where the productive animal heads of 3250 heads. For milk cows were 1452 heads and buffaloes - 657 heads or a total of 2109 heads or per household average addition was 0.16heads. For meat goats increases were 1625 and sheep too were 1625 making a total of 3250 or per household average addition was 0.25 heads.

Unproductive heads increased by 7814 heads where Cattle (male and female cows) were 6431 heads and buffaloes(male and female ones) 1383 heads. This made average per hh additional load of unproductive bovine was 0.60 heads. This was a serious and formidable challenge for ushering economic growth faster.

(2) **Haryana:** Increase in heads during the project was by 1904heads for 8 DDP mws and 3811heads for the large IWDP watershed. For DDPs the increase in milch animals was by 155(cows-28 and buffaloes-127) or 8 percent only while that for meat was by 1749 (Goat-430, Sheep-1319) or by 92 percent. Per hh increase of milch animal was 0.04heads and of goat & sheep by 0.31heads.

Increase in IWDP of Milch heads was by 2744 (cows-640, Buffaloes-2124) or by 72 percent and for meat it was by 1067 (goat) or by 28 percent. Per hh increase for milch animal was 0.17 head for meat animal it was only 0.07head.

(3) **Uttarakhand;** Additional capital formation in terms productive animal heads was a total of 4011 heads with details of i) Cows and Buffaloes for milk -

32 heads; ii) Goats for meat -124 heads for meat - and iii) Poultry Birds for meat and egg was 3855. Highest portion of addition by head count was 3855 or 96 percent in poultry birds.

#### 4.2.4 .Support Livelihood systems

(1) **Himachal Pradesh:** A total of 337 hhs or 71 % of 475 sample hhs adopted additional Support livelihood systems(SLS). Out of these 296 or 88% families adopted 6 types of biomass production related activities such as Making vermin compost(226 hhs), Green fodder cultivation (43), Bee keeping (10), Mushroom cultivation (8), Resin tapping (7) and NTFPs(2). Whereas, Homestead service related(6 types) new adopters were 41hhs or 12 % such as PCO - 12 hhs, Small Grocery Shops-10 hhs, Tailoring - 6 hhs, Custom hiring - 4 hhs, Repairing centre-3 and Handicraft- 6 hhs. There was a reduction of 5 hhs who were practicing carpentry. Thus effective addition was 36 hhs and the total was 337-7 or 332 hhs or 70 percent of total sample families.

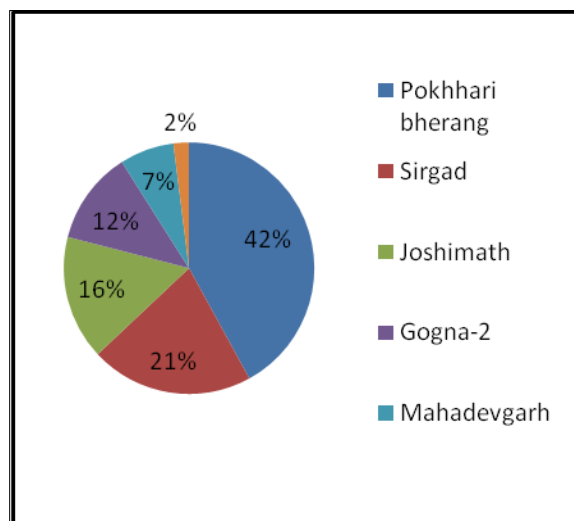
(2) **Haryana:** Before Project there were 561 hhs who were practicing 8 vocations as support livelihood systems. After the project number of adopters rose to 1004 or a rise of 79 percent. SLS types increased from 8 to 12. There were six of them directly related to biomass production, namely green fodder production, vermin composting, beekeeping, poultry, cultivation of medicinal plants and NTFPs. While, 4 for providing services to homestead, namely tailoring, carpentry, charcoal making, cattle trough making, and two such as PCO and Grocery shop relate to both segments.

(3). **Uttarakhand :** A total of 419 families out of 450 or 93 % had adopted one of 14 avenues of support livelihood systems advocated for adoption. Now, 7 avenues adopted were biomass production related such as poultry, beekeeping, vermin composting, cultivation of mushroom and medicinal plants, green fodder production and NTFPs; while 5 for providing services to households such as tailoring, carpentry, charcoal making and cattle trough making and bio-fuel plantings. Whereas, only two such as grocery shop and PCO were related to both sectors.

Poultry was adopted by largest number of families or 192 followed by 87 families to making vermin compost.

In Pokhari Bherang mws 178 families or 42 % of the total-the highest and benefitted 54 % of 330 HHs. Pokhari Bherang also adopted the highest of 7 types followed by Gogna -2 with six.(Fig.-2)

**Fig.-2: Percent distribution of families amongst the six study watersheds adopting Support Livelihood**



### 4.3 Impact of Enlarged Economic Space

There has been large number of problems faced by many in carrying out impact assessment of watershed development /watershed management projects . From the experiences of the mega projected for HP< Punjab and Uttaranchal, as well hopes IGBP watersheds , a methodology was firmied up and published in an international compilation (Das *et al*,2007)

#### 4.3.1. House hold income

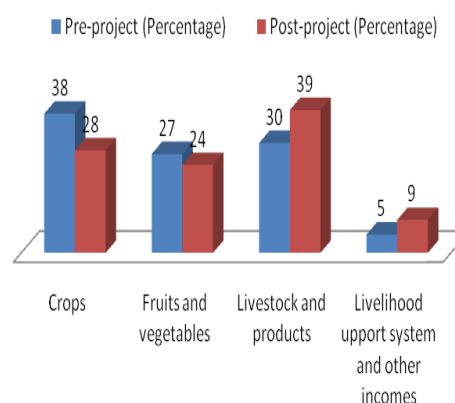
(1) **Himachal Pradesh:** Annual house hold income was the some total of four sources, namely crops ,animals, fruits and vegetable and support livelihood systems. Annual average household net income was Rs 65,207 during 2010-11 as against Rs 44,446 during pre-project conditions, showing a net increase of Rs 20,761(47 %).

Substantial increase was observed in livestock and livestock products taking note of enhanced availability of fodder and drinking water and facilities like milk collection centers and market demand. Though income in absolute terms had increased from all four sources namely, i) crops, ii) fruits and vegetables, iii) livestock and animal products and iv)Support livelihood systems, share in percent of total of crops and vegetable& fruits fell during the project while that for livestock and SLS increased substantially (Fig.-3)

Bringing vegetables from Punjab to Kangra stopped as local production increased substantially. Rather, vegetables produced in Kangra cater to the demands of Dharmashala besides of Kangra. Availability

of cereals , pulses ,oilseeds, vegetables , fruits and milk increased ranging from 62% to22% .

**Fig. 3: Average Percentage house hold Income before and after the project**

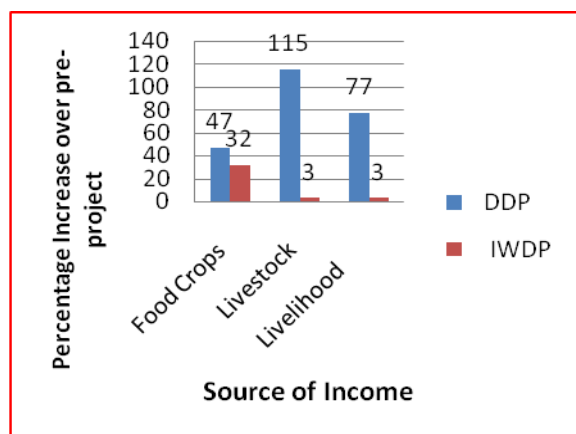


(2)**Haryana:** *In- situ* rain water conservation and surface water storages enriched soil moisture status in both seasons and helped larger infiltration and ground water recharge. While, extensive net work of a variety of micro water sources, constructed by the project, improved water availability for crop cultivation, livestock management etc. Average annual income per household for 8DDPmws from all sources increased from Rs 50,052 to Rs. 81,807marking a rise of R31,755 or 63 percent due to improved yields and prices. The share of income from livestock increased by 6% and that from livelihood rather support livelihood systems increased by 2 % while there was a fall of about7. 5% for food crops (**Fig.-4**).

Average annual income for a hh in IWDP watershed from all sources added up to Rs 1, 41,407 lakh with project situation per household as against Rs 1, 13,547 lakh before the project showing an increase of Rs27,860 or by 25%. The sector wise percent share increased for rice and wheat (4.4%) while that for livestock dropped by 3.5 % and of livelihood by one percent.

Before project average annual hh income for IWDP was higher than that of a DDP by 127 % while after project it was 77% or the gap as narrowed down by 50 percent.

**Fig - 4: Percent increases in source income over pre project for DDP and IWDP Watersheds of Haryana. Due to project implementation**



(3).Uttarakhand:Average annual house hold income came from four sources . Though crop continues to be at the core for food security,it was supplemented at higher rate by milk production and adoption of support livelihood systems. In terms of net income SLS tops followed by crop cultivation.

**Table-2:Average Annual hh Gross and Net Income –Total and source wise, Uttarakhand**

Sl.	Source	Gross Income		Net Income	
		Rs	% of total	Rs	% of total
1	Crops	6401	23	2977.4	29
2	Milk	9906	36	2406	24
3	Meat & Egg	2051	7	1301	13
4.	Support Livelihood System(SLS)	9300	34	3518	34
<b>Total</b>		<b>27,257</b>	<b>100</b>	<b>10,202.5</b>	<b>100</b>
		Milk at Rank-1		SLS at Rank-1	
		SLs at Rank-2		Crops at Rank-2	
		Crops at Rank-3		Milk at Rank-3	

#### 4.3.2. Availability of Food Items at Home

The method for assessing improvement in availability of a food items, used two indicators , namely reduction in the percent households who were deficit in the item and increase in the percent of households generating surplus.

##### (1) Himachal Pradesh :

Summary results for Himachal Pradesh are given in **Table-3**. There had been **large reductions** of deficit households in all cases. But substantial reduction in deficit families was in respect of pulse, vegetables, fruits and milk. Whereas, percent families with

surplus also increased for all cases. But it jumped for milk, fruits, vegetables, cereals and pulse as well.

**Table-3: Scenario of decrease in deficit families and surplus families in Himachal Pradesh ( In %)**

Food Item	Reduction in % of deficit hh having insufficient quantity		Increase % of hh Having surplus	
	From	To	From	To
Cereal	47	6	1	23
Pulse	34	7	0	11
Oilseed	34	11	1	5
Vegetables	43	24	0	45
Fruits	44	6	1	8
Milk	49	1	1	39

Production data got from the households too showed that availability of food items per household in kg/hh/year increased substantially in respect of vegetables, fruits, cereals, oilseed, and pulses. For vegetables and fruits increases were by 62 and 36 % respectively and for others the increase was between 22 and 29 percent.

(2) **Haryana**. There had been very substantial reduction in the number of deficit families in respect of pulse, vegetables, fruits and milk. Whereas, families with surplus jumped in respect of oilseed, milk, cereals and pulse as well(**Table-4**)

Production data reported by the farmers showed that on an average availability in kg/hh/yr increased by 100 % for vegetables, oilseeds by 87 %, milk by 24 % and cereal by 20 percent.

**Table-4: Scenario of decrease in deficit families and surplus families in Haryana ( In %)**

Food Item	Reduction in % of deficit hh having insufficient quantity		Increase % of hh Having surplus	
	From	To	From	To
Cereal	25	2	1	64
Pulse	72	11	0.4	36
Oilseed	14	3	2	80
Vegetables	83	47	0	7
Fruits	85	59	0	1
Milk	21	0.01	3	74



(3) **Uttarakhand:** The scenario obtained from farm production data showed that availability per day per family after project was as under

- i) paddy/maize - 0.90kg,@
- ii) wheat- 1.11kg,@
- iii) pulse & oilseed - 49 gm\*,
- iv) vegetables – 45 gm,\*
- v) milk- 1.94 litre@and
- vi) meat- 32 gm.\*

@ could be taken as just enough for family size of 6

\* indicate extremely low availability.

From household responses it was found that 82 % (all items put together excluding meat) continued to be deficit and had to purchase. But those had enough rose by 12 percent. -Only in case of milk, 2 more deficit HHs moved to the group having enough and making 84 % of households having just enough for home consumption.

#### 4.3.3.Regular Employment Generated

(1) **Himachal Pradesh:** Due to increased and diversified economic space developed, a total 4, 65,250 person days regular or recurrent jobs were created which generated 1551 person years' job, taking 300 days' work as full year employment or person year. This was about 12 % of 12,966 families in these watersheds. The bulk of 53% of total person days' work due to perennial tree/plant based biomass production systems (such as fruits, fodder and fuel wood etc) ; 18 % from livestock sector ; 22 % from increased area cultivated and 7% support livelihood systems (33,200). Percent distribution of regular employment created is shown in **Fig -5**.

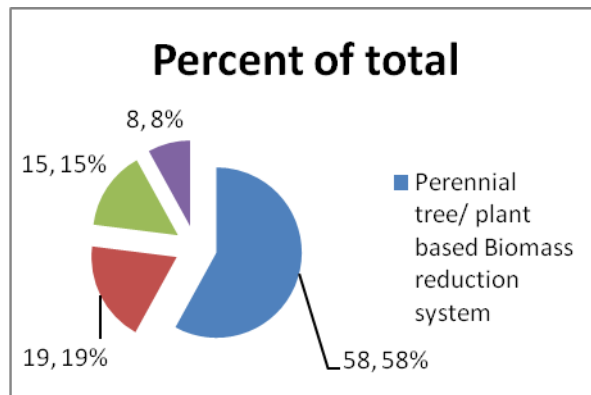
(2) **Haryana:** Capital formation or enlargement of base for economic activities had opened up a number of additional avenues for regular employment. An estimate of person days generated from these project created avenues revealed that a total of 94, 10,380 person days' regular work opportunity was created by the project .Taking 300 days' work for full employment in a year it equivalent to 31,368 person years. In other words 31,368 persons from the total 20,246 families (DDP mws 4234 + IWDP ws 16,012) have got full employment for the entire year due to implementation of this project. Shares of four major avenues were 60% of this total came from cultivation, 23 % from livestock, 9% from support livelihood systems and 8 % came from areras pl;anted with perennial trees and plants.

(3) **Uttarakhand:** Additional avenues for regular employment, which were opened up due to enlargement of base for economic activities, have been identified. The estimate of person days generated by these project created avenues had put it at 1,82,886 person days' regular work opportunity. About 59 % of these person days came from crop cultivation, 23

%from support livelihood systems , 12 % from milk production and 6 % came from areas planted with different trees and plants.

Taking 300 days' work for full employment in a year it was equivalent to 610 person years. In other words 610 persons from 1807 families have got full employment for the entire year due to implementation of this project or 34 % of hhs were provided with one full person years regular employment..

**Fig5: Source wise percent of total regular jobs generated due to enlarged and diversified economic space created by project interventions-H.P**



## 5. Summary and Conclusions

5.1. Akll attempts made so far for meeting the needs of families/human beings had to over come risks due to soil erosion ,land degradation, flood and droughts at reasonable level and it had also been combating new risks such as watershed degradation , hydrologic distortion , loss of biodiversity , unemployment and poverty, falling land quality etc.. All these have been due to over exhaustion of natural resources base and huge quantities of societal wastes polluting and contaminating land, soil and. Water. Latest concern is the quality of air, which can no more be taken for guaranteed because of emissions of undesirable gases and imbalances in flow dynamics between land and air especially of carbon.

Human efforts came up sequentially with the strategy and approaches such as, World Conservation Strategy; World Soil Charter and World Soil Policy; Carrying Capacity and Population Supporting Capacity; Agenda -21, sustainable Development, Johannesburg Plan of Action and the Climate Change Action Plan. India , has been amidst these developments and has shared and evolved Strategy & Action Plans through successive Five Year Plans but keeping continuity with India's own perception , growth of research and development within the country sometime over coming pressure from strong geo-politico-economics.

For planning and implementation the strategy of watershed management came up in late 30's in USA and received attention in Northern Rhodesia

(Zimbabwe) mainly. Watershed management and watershed development has traversed over six decades now since its first adoption in DVC in late forties after the model of Tennessee Valley Authority of USA. It has got acceptance by many development Ministries of the country having different mandates to provide goods and services to households, public and corporate sectors. Till 2007 an area of 50 million ha was treated at an investment of 19,128 crore. In the 11th Plan it got a reasonable step up. It was necessary to make a review of experiences gained from programme implementation in respect of i) objectives, ii) planning process, iii) components and sub components, iv) implementation mechanism and impact assessment. It transpired then that for the highest cost effectiveness, implementation with equity and greater clarity amongst all stake holders, common guidelines became a felt need which could be most inclusive, integrated and holistic while providing space for flexibility to situation specific demands. Besides this was needed to enhance credibility with target households and the community based organizations. Consequently, common guidelines came and got acceptance of all concerned. The corner stone remains providing means to the target communities with means for increasing availability of food, water, employment and some cash flow to take care of education health care and other social liabilities. For this purpose, while improving and enlarging existing production base new livelihood avenues promoted for adoption in harmony with environmental stability of the natural resources base of land, water and perennial vegetation –forestry plus. The ITK and traditional community based organizations and tasks and power of them got serious consideration.

Traversing the major types of watershed based project thrust areas in the states of the zones such as North East, East, North West(hills), Dowab Plains , West, Central and Deccan including Maharashtra , it could be said that with unique ecological and ethnic set ups, the guidelines permitted flexibility in detail objectives , strategy, picking up package of practices, developing implementation mechanism etc in most cases.

Amongst many outputs designed expansion and diversification of base for increased economic activities was an important one. These were achieved by capital formation such as enlarged NSA of 5360ha ; increased area under fruit by 1093.2ha; more area under agro- forestry and enlarged area under fodder grass and plants by 1021.11ha.

Whereas, production infrastructure particularly for in-situ and near site conservation and harvesting and increasing availability of water the critical input, a total of 4063 units of micro water sources of a variety put up in three states.

Similarly, production assets or animal heads gained by families of study watersheds were 4950(cows

and buffaloes), goat and sheep (4950) and poultry birds by 3855(only in Uttarakhand).

Again, adoption of support livelihood systems was by 377 families or 71% of study families in Himachal, 443 or 78 % for 8 DDP mws, of Haryana and 419 or 93 % in case of Uttarakhand. Types of support livelihood systems rose for 6 to 12 types and 60 to 70 % of adopters went for those are related to biomass production.

Impact of this capital formation has been visualized from i) increase in annual average hh income,ii) food items availability at home and iii) regular employment generation.

Average incremental annual family income was Rs20761 or 47% of the pre project income where share of livestock management and support livelihood systems increased substantially and that of crops fell though total income rose for all five sources. For families of DDP mws, incremental annual income was Rs.31,755 or 63 % more. The shares of livestock management and that of support livelihood systems fell marginally because with improved moisture availability, crop sector also had a boost in production and income. An interesting impact was that average income of a family of IWDP watershed was 127 % of that of family from DDP mws before project. After project it was only 77% or the gap was reduced by 50 percent. But for Uttarakhand Average total incremental income was Rs10,202 per family/year. From gross income Milk yielded the highest followed by support livelihood system and crops trailing behind. But in terms of net income SLS was at the top followed by crop and milk at third place.

Increased availability of various food items and generating some surplus would mean to have much needed cash flow. The indicators used were namely, i) reduction in the number of households who were deficit in one or more items and ii) increase in the number of household who have succeeded to generate surplus. Considering the scenario of 6 items, Milk deficit households reduced by 48 %, fruit by 42percent cereals by 41 %, pulse by 27 % , oilseeds by 23 and vegetables by 19 percent. Whereas, improvement in surplus generation was more marked. Percent households generated surplus was the highest for vegetables (45%) followed by milk (38%) cereals (22%), pulses (11%) Fruits (7%)and oilseeds by only 4percent. Production data obtained from sample hhs revealed that availability in kg/family / yr increased substantially for all six items.

For Haryana decline of deficit hhs was 61% for pulses followed by vegetables(36%) , cereal (33%), fruit (20%), milk (21 %) and pulses (11%).Whereas percent hhs generating surplus rose by 78 % for oilseeds, milk by 71% , cereals by 62 % , pulses by 36 % , vegetables by 7% fruits by only one percent . From production data given by sample families, cent percent families had been getting enough vegetable while

oilseed by 87 % families. In Uttarakhand, about 88 % of households continued to be deficit in one or more items.

Because of increased and diversified economic space created a total 4, 65,250 person days of regular or recurrent jobs and equivalent to 1551 person years' job, taking 300 days' work as full year employment. In other words about 12 % of 12,966 families got benefitted.. Again, 53% of total was due to perennial tree/plant based biomass production systems (such as fruits, fodder and fuel wood etc); 18 % from live stock sector; 22 % from increased area cultivated and 7% from support livelihood systems.

Capital formation or enlargement of base for economic activities in Haryana watersheds had opened up a number of additional avenues for regular employment created a total of 94, 10,380 person days'. It was equivalent to 31,368 person years. Each of 20,246 families (DDP mws 4234 + IWDP was 16,012) got 1.55 man years full employment Shares of four major avenues were 60% of this total came from cultivation, 23 % from livestock, 9% from support livelihood systems and 8 % came from areas planted with perennial trees and plants.

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- (3) Additional avenues for regular employment due to enlargement of base for economic activities in Uttarakhand was 1,82,886 person days'. About 59 % of these person days came from crop cultivation,23 %from support livelihood systems , 12 % from milk production and 6 % came from areas planted with different trees and plants. It was equivalent to 610 person years or 610 persons from 1807 families got full employment for the entire year or 34 % of hhs were provided with one full person years regular employment.
- The conclusions drawn are
- Capital formation enlarged and diversified space for more economic initiatives. Specially for IWDP in Himachal Pradesh and DDP in Haryana
  - Even in Uttarakhand with weak economic base capital formation in the form of support Livelihood System was in right direction.
  - These succeeded to increase employment and income of households and improved availability of main food items at the level of home.
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## Watershed Development Economics Part-II: Assessment and Options Tried

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### 1. Introduction

Economics of a watershed development project are very complicated like that of house keeping for a joint family. Economic assessment of all components, in terms of investment and return, defies quantification and segregation. An examination of Fig -1 (refer annexure), a fairly representative flow chart would raise many questions in this context. In the last six decades while watershed development has been gaining recognition as the approach of many programs, more problems have also been coming up. Critical observations made were on its being either too exclusive or too inclusive and either of high cost or inadequate provisions. Variations in prioritization of core objectives, planning process, package of interventions, implementation mode and approach for assessing the benefits and effectiveness of project investment were wide and some time conflicting (Figure 1).

Thus, a serious review commenced in mid 70s for meeting the demand of Ministry Finance for some concrete information on benefits accruing from implementation of the Centrally Sponsored Scheme for Treatment of Catchments of River valley Projects (RVP) before concurring in its continuation. The evaluation studies proposed by the Ministry of Agriculture posed a serious problem as **none of National or State level Agencies or Universities or ICAR Institutes, who were approached**, were ready to take up the job assigning various reasons. Because of the urgency for getting the scheme cleared, SWC Division of MoA quantified some benefits and presented them to Dept. of Finance to get the scheme cleared with a suggestion that an expert committee be constituted to address the matter. Thus, a Committee was set up under Dr. C. Gopinath of IIM, Ahmedabad with Directors and Joint Directors of Soil conservation such as Dr. T.K. Sarkar, DVC, Mr. M.S. Nair, Kerala, Mr. R. N Behera, Odisha, Mr. Arjan Singh, Haryana, Dr. V. K. Gupta, Economist from Defense Administrative Staff College, Mr. I.S. Kang, CCF, HP and Joint Commissioners Mr. D C. Das and Dr. G.P. Gupta. The Committee familiarized with the works and activities in some states and projects of ICAR Institutes and went through the approach and methodology developed and used by the Ministry. The report considered the activities of State Planning Boards,

Agro Economic Centres Programme Evaluation Organisation and others. Its report recommended an approach, strategy and methodology for conducting such evaluation studies covering four major sectors namely, Technical analysis, Social analysis, Organisational analysis and Economic and financial analysis. (Gopinath, C., 1985). Thus, First set of 40 watersheds in six catchments were evaluated by AFC, Bombay, ASCI, Hyderabad and IIM, Ahmedabad in early 80s. CSWCRTI and a few other agencies also started in right earnest to evolve rationales and methodology. Consequently, many watersheds got evaluated by a large number of agencies in last 25 years. A large number of mega projects supported by WB, EC, GTZ, ICEF, NORAD etc were too got evaluated. The exercises got a boost from a publication brought out by CSWCRTI (Seckler, 1978) and a Report by David Seckler on Lesotho also became available. These helped MoA to improve their approach and methods for computation of a number of protective, productive benefits and employment generation and economic analysis became more inclusive (Das & Singh, 1981 and Das, Mukherjee & Kaul, 1986). Attempts for carrying out study on economics of individual components such as; Eucalyptus as fuel wood for Doon valley (Ram Babuet *al* 1986), wheat-maize rotation, earthen reservoir with a mini catchment of just 2ha., grass & fuel, milk and meat horticulture in Swialiks (Agnihotri *et al*, 1986) *etc*. At the beginning of 21<sup>st</sup> century CSWCRTI brought out an exhaustive technical manual on watershed development for NWDPR scheme, where Chapter 10 is on Monitoring and Impact Assessment (CSWCRTI, no year mentioned).

To sum up the issues that emerged on economic analysis of watershed development project it could be said that cash flow generation from cost and benefit stream has not been the difficulty but developing cost and benefit streams has been proving difficult. If we fail to overcome these difficulties substantially, the results of economic analysis could not claim to be comprehensive and would remain restricted. Thus, investment decision would have to take other aspects into consideration. We are from a professional body and have had tried some approaches, methods and innovations to this end and would like to share with other professionals.

### 2. First Approach - Mini Surface Water Storage Systems: As a Group

In seventies the concern for keeping cost of treatment low for watershed development projects, there were some skeptical perceptions on the cost effectiveness of conservation structures in general and small surface water storages in particular even though by then there were quite a few success stories received wide appreciation in the country and abroad. These induced taking up this study of 16 structures of Hirakud

catchment in Odisha with their catchment area ranging from 10.4ha to 358ha. While area directly protected ranged from 3.2ha to 80 ha, area reclaimed from 2.8 ha to 26ha and area irrigated varied from 2ha to 180 ha. Cost of construction varied from Rs 7,119 to Rs.1,50,445. All structures protected some area directly, but only 9 or 56 % helped reclaim land and 12 or 75 % created some irrigation potential. These benefits were accrued progressively over a period of 8 years, such as area protected from 86 to 351.6 ha; area reclaimed from 2.8 ha to 91.4 ha and area irrigated from 122 ha to 546.8 ha. Total investment on 16 structures was Rs. 4,00, 104.4.

Taking area irrigated alone cost / ha at the year one for 122ha was Rs.3,279.5 and on the eighth year it came down to Rs.731.7 (22 % of the original). For land reclaimed cost/ha in 1<sup>st</sup> year was Rs1,42,894 which got reduced for 546ha to Rs. 4377.5 per ha or only 3 % of the original. Whereas, investment on protecting one ha came down from Rs.4662 to Rs. 1138 /ha in the eighth year or 24 percent of that for initial Year.

The involved economic analysis was carried out with present value series and not with future value series and separately for three outcomes/impacts, namely area protected, area reclaimed and area irrigated. Again, to find out how soon investment could be paid back analysis was carried out for three time frames namely, 10, 15 and 20 years (Das and Singh,1981). The important elements of the computation are

### 2.1. Project Cost Streams:

These were related to investment on i) structures, ii) cost on reclamation and iii) expenses incurred on developing mini command.

### 2.2. Project Benefit Streams

#### 2.2.1 Protection Benefits:

This was again on four counts such as

- i) **Direct land protection benefits** –Some land areas under threat of losing present potentials variously, (gully erosion or stream bank cutting or coarse material deposition or sand casting), and thus were protected. The capital cost of such directly protected land areas was taken as direct protection benefit value. This was computed from minimum annual production and net income for 5 years,
- ii) **Protection to existing production** – Areas which were under the threat of decline or loss of annual production, due to loss of nutrients, water stress, flooding *etc* without the project. The value of expected harvest under the existing conditions for 5 years was taken as existing production benefit.
- iii) **Restoration/ Reclamation benefit**- The extent of land area which had gone out of production and brought back to production was taken as restorative benefit. It was transformed in money stream with land

appreciation value (changes in market value) or Rs 5000 per ha for this study.

iv) **Protection benefit on capital investment** – The River Valley Project investment was in bulk on reservoir, distribution system and its command area. The benefit was computed from reduction in sediment production rate and transformed in money stream by the expenditure incurred on unit storage or Rs 861.59 per ha.

v) **Post Project cost on the structures** –To keep the structures beyond the project needed repair and maintenance while, sharing the benefits some expenses on operational mechanism and personnel were felt necessary. Thus, operation and maintenance cost was taken as 2.5 % of capital cost.

#### 2.2.2 Productive Benefits:

- i) Production value from irrigated land at the rate of additional production of 5q/ha was taken (from departmental statistics) &
- ii) Production value from area reclaimed. –paddy production of about 9.3 q/ha

### 2.3. Results of Economic analysis in terms B: C R are shown in Table -1.

Both on productive as well as protective benefit alone the ratio is more than one while both together it was over 2 and thus quite attractive. With the increase of duration for analysis B:C ratio improved further.

### 2.4. Employment generation

One of the key objectives of a WSD project was to generate more work opportunities to increase cash flow in the hand of rural house holds. The study had thus taken concurrently an additional study on this aspect. Key activities concerning natural resources management three major work components were i) planting on all types of land and by different models ;ii) soil and water conservation treatments and ii) water source development to increase water availability and reuse by a variety micro water source structures. All these works are labour intensive and wage component ranged from 70 to 90 percent of total bill. Again by conserving soil and water, and making water available for irrigation or by improving soil moisture both NSA and GSA got enlarged which generated additional work opportunity.

Thus, for same three time spans improvement in regular and casual opportunity was computed. From expenditure incurred on these structures, labour component was worked out which was divided by approved wage rate to find the person days work provided. Similarly, from additional NSA , area irrigated , area double cropped under rainfed conditions, and areas put under horticulture, fodder plants and norms of man month required for different land husbandry, regular employment created was computed for both pre and post project periods. A ratio

of post project man months to that for pre project or Employment Improvement Ratio (EIR) was used for comparative analysis. These results are also shown also in Table -1 (refer annexure). But this component could not be taken in economic analysis in absence of a rationale to eliminate possible duplication. EIR declined with increase in duration of analysis. This is so because, generation of onetime jobs declined extended duration.

### **3. Second Approach - Comprehensive Assessment of the Mega Project Of IWDP (Hills)**

Integrated Watershed Development Project (IWDP) in Uttaranchal was implemented in 505 village micro watersheds covering an area of 15,73, 000 ha spread over in Garhwal and Kumaon divisions.(CES, Jan,2005). Identification of benefits from all components, their quantification and attempts to convert into money streams were reported in Project completion report CES May, 2005) and Implementation Completion Report (CES June, 2005). These are given in subsequent paragraphs.

#### **3.1 Output and Outcome assessment**

The exercise commenced with identification and quantification component wise outputs and out comes as under

**3.1.1 Soil and Water conservation:** Degradation was arrested on 6122 ha of arable land and 11,675 ha of non-arable land when 4453ha was saved from getting irreversibly lost and 448 ha was put back under productive uses with a gain of Rs.445.3 million and Rs45.7 million respectively.

Sediments arrested were 2928 tons/village and soil loss was reduced by 79% for high risk prone micro watersheds and by 65 % for very high risk prone micro watersheds.

One time jobs of 0.65 million person days was offered during project implementation and for annual repair and maintenance 10,000 person days jobs were there.

**3.1.2. Micro waters sources for conserving, harvesting and reusing rain water:** A large number of micro sources were created such as water harvesting structures of variety (5220), ponds (484), tanks (563), irrigation channels of 456 km, wells 243 that irrigated 4144ha in 292 of 405 project villages (72%) including 11 new villages getting access to irrigation for the first time. NIA enlarged by 30 %, GIA by 54 percent and watershed retention of rainfall was enhanced by17.4mm over the surface of entire project area.

**3.1.3. Increase in Production and income from agriculture and horticulture crops:** Due to increased water for irrigation, re enrichment of moisture in second season, adoption of HYV& HVCs, organic source for nutrients and pest control, supported by

conservation measures/practices and greater crop diversification helped increase yield with irrigation by 27% for paddy, wheat, and peas and for lentils by 31 percent. Under rainfed yield increase was by 29 % for lentil, peas 25%, wheat 20% and paddy by 17 percent.

Similarly, fruit orchards were widely adopted on 3395ha and vegetables on 2918 ha while, basket included more fruits, spices, quite a few aromatic and medicinal plants as well as flowers.

**3.1.4. Live stock produce-Milk:** Planting fodder plants and grasses on 10,275ha increased availability of fodder by 11,712 tones. AI services, health care and reduction of stray animals were other gains. The stage was set for large increase in milk yield per hh and also for generation of substantial surplus.

**3.1.5. Afforestation and Planting:** An area of 19,490 ha or 13 % of total area was greened with fodder, fruit and other economic species of beneficiary choices. Bamboo and Kachnar were most favoured followed by Siras, Amla, Tun, Shesam and Bhimal.

**3.1.6. Improved infrastructures:** Drinking water supply was taken to 8896 persons and 31,398 animal heads through various micro sources. About 108 hand pumps and 99 km long pipelines would be taking 65million liters of water to villages and households.

By improving 32 km of road and, 682 km of bridle path and 142 bridges befitted 441 villages and a population of 80,400. These have saved 132 person days of travelling per household; per year.

Project had also installed 1532 bio gas plants to save about 10,300 tones of fuel wood and to produce 5900t of organic manure per year.

**3.1.7. Institutional development:** For decentralization of planning, implementation and benefit sharing CBOs became integral of WSD projects. These were 505 Village Development Committee (VDC), 497 SHGs, 924 User Groups(UGs) and 335 VanaPanchayats were formed. Over 60 % or Rs36.90 million of total fund for project works were channeled through VDCs, while Rs.15.71 million was mobilized for building Revolving Funds for the SHGs that helped give about 1800 loans totaling Rs 3.38million and repayment was over 62 % that testified the usefulness of additional income generating activities. On the other hand UGs (774) collected Rs. 2.48 million that helped take operation and maintenance of the structures or systems. For better linkage with various agencies for getting funds for new initiatives SHGs were clustered and 17 federations were formed .and firm linkages and 17 federations were formed .and firm linkages, forward and backward, were established.

**3.1.8. Favourable Social Changes:** About 40 % of members in CBOs were women and 28 % of office

bearers like President, Vice president, Secretary and Treasurer were women. While, 71 % of participants in capacity building activities were women which indicate the extent of efforts made to improve gender equity. Where as, each of 901 women out of 2505 who had adopted IGA, got additional income of Rs.3064.

Community participation helped the families acquire homestead and production related assets, such as, manger construction (35%), chaff cutter (15%) and 10 % installed biogas plants while, WHS (23%), Gul/Kuhl (19%) and 9 % took up poultry and piggery. Income from casual jobs due to project activities was Rs 140 while that from regular jobs was Rs.4.20 million. This gave an additional income to BPL families to the tune of Rs.6597.64 / BPL family. Consequently, number of BPL families reduced from 32 % to 23 percent and 9% of 2106 BPL family could shift to APL category.

**3.1.9. Environmental Regeneration:** Moderation of risk of land degradation was discussed under soil and water conservation. A major area of environmental regeneration was is the enlarged green area. As bulk of planting was gap filling, Gross Green Area (GGA) increased by only 2% while but Effective Green Areas (EGA) increased by 16.5 percent. Watershed Eco Index (extent of green area over total geographical area) in percent rose to 66 % from 48 % Thus Land Use Alienation (LUA) reduced substantially while it could meet the NFP stipulation that area under forest (perennial green cover) should be above 60 percent. But for sustainable water availability it should around 80 percent.

Number of saplings planted was 5.64 lakh. As survival rate was 70 % a total of 3.948 lakh saplings were the standing stock. Again, 14 % of the stock was of species like Mango, Jamun, Amla, Tun, Subabul and Sishem which have good ability to tackle pollution and contamination of land, water and air besides having considerable commercial potential. The significant output these bio remediation plants or greening was the base created to absorb 24,124 t of CO<sub>2</sub> and release 18,992 t of CO<sub>2</sub> per year ensuring better balance in cycling these items between land and air and promising faster enrichment of soil organic carbon.

### **3.2. Benefits in Money Streams**

The project area was found to be highly risk prone ecologically and house holds had very weak economic base as they are following a subsistence economy with all concern to reach self sufficiency. Thus, economic import and export and parity of prices could not be considered for cost adjustment. Further practices applicable to developed areas having strong market forces could not be considered useful for the high ecological risk proneness and poor economic base of the families. Thus the approach followed was to work for individual component wise and then move to

project as a whole by aggregating the results of individual components.

But though the benefits could be identified and scenario given above outputs could be identified and quantified for 9 components (3.1.1 to 3.1.9). Outputs and outcome for environmental regeneration could not be transformed into money stream except that for erosion and land degradation control or moderation and were taken into account under soil conservation. Thus transformation in to money stream. Thus this exercise was carried out for eight components.

**3.2.1. Crop and Vegetables:** Increased production was taken as the quantified benefit and duly transformed into income series. These were done for rainfed irrigated crops separately and both combined. Under both situations there were many crops cultivated and yield rise was also varied. The increased production was aggregated from each crop and so the return. So also was the case for production cost Average net income /ha varied from Rs.40,420 from tomato to Rs5597 from French beans. Overall Cost and additional income scenario in the first year is given in Table-2 (refer annexure).

**3.2.2. For Horticulture development:** Investment was Rs.66.74 million on horticulture development on 3396ha under mango, guava and citrus plantations. From number of surviving trees, yield per tree, maintenance cost, sale price realized, net incremental income in the project area was computed from fifth onwards up to 30 years for mango and 20 years for other two fruits. The benefits obtained in 5<sup>th</sup> year were Rs 17.39 million and rose to Rs298.00 million in the 30<sup>th</sup> year.

**3.2.3. Livestock produce-Milk:** Package considered for cost contained fodder and feed, manger, chaff cutter, shelter, AI services and health care. The capital gain from AI services, health care and reduction of stray animals of Rs318.2 million that has set the stage for substantial increase in milk yield. The shadow price for fodder & feed were taken to compute annual maintenance cost per cow and buffalo was computed. Capital cost taken considered was on live stock quality development and total investment was Rs.101.67 million while on manger and chaff cutters was Rs40.48million. Production of milk as benefit came from cows and buffaloes Improved and survived progenies form capital productive assets. Total benefits from all sub streams worked was nil for first 3 years, 24.93 million in 4<sup>th</sup> year; Rs 20.98 million for 5<sup>th</sup> to 8<sup>th</sup> year, and then tapers to Rs 20.49 million..

**3.2.4. Afforested areas:** Economic returns have been assessed to Rs.809.4million from grass, Rs,769.4 million from fuel wood, Rs 58.1 million from bamboo, Rs.290 million from fodder and Rs15.5 million from



thinning. But, area progressively increased from 339 ha to 19,489 ha. Benefits computed separately for Bamboo, fuel & fodder (both green and dry) from 5 species, timber from 9 different species. Total comes to 0.267 million in 2<sup>nd</sup> year to 4803 million in 30<sup>th</sup> year. By 10<sup>th</sup> year it is Rs72.4 million and by 5<sup>th</sup> year it is 90.17 million. The capital cost or investment was Rs 356.7 million while operational cost was Rs9909 from 6<sup>th</sup> year to 30<sup>th</sup> year.

**3.2.5. Soil Conservation:** Treatment package for arable and non arable land included terracing orchard and fruit plantation, fodder grass forage plants, silviculture, planting of agro-forestry species, bamboo and, agave. Besides drainage line treatments for gullies, torrents, stream banks, land slide affected areas etc. Impact quantified and transformed in money stream are given in Table-3 (refer annexure).

**3.2.6. Micro waters sources for conserving, harvesting and reusing rain water:** Measures considered were mainly roof rain water harvesting tanks and village ponds. In former case drinking and domestic uses were transformed in money stream while for ponds only value of water used for animal drinking was used. The benefits quantified and income in ruppees computed is shown in Table-4 (in annexure).

**3.2.8. Infrastructure Development:** Benefits accrued from roads/bridlepath/village contacts, and drinking water and their quantification and money values are shown in Table-5 (refer annexure).

**3.2.7. Social and Institutional Development:** Social benefits came from a) capacity building, b) assets created /saved due to bio gas plants; c) income generated to BPL families' additional income through SHG & others and e) return from community funds. Abstract of identification, quantification and money values are shown in Table -6 (refer annexure).

### 3.3. Results of Economic analysis

The summary results of the analysis are given in Table-7 (refer annexure).

### 3.4. Important omissions

**3.4.1. Value of Benefits from micro water resource structures:** Value appreciation of micro water sources like, irrigation tanks, (563), channels (456 km) and wells with diesel pumps (243) that irrigated 4244 ha was not considered separately though water used for irrigation was included under irrigated agricultural. Land value appreciation as against that of rainfed land, both at market price ie @25 to 35 % of that for rainfed land was used. Similarly, with incremental gross income from crops and vegetables, obtained from the sample, additional income due to irrigation for 15 years was computed, , was taken as contribution of

micro water sources mentioned above against the capital cost on their construction. Besides, value of secondary enrichment of soil moisture in post monsoon months as well as recharge quantum inducing more wells (dug as well as tube wells could not be computed due to lack of proper data and thus was not taken as a component of total new income due to project.

**3.4.2. Value of Benefits from Environmental Regeneration:** This was not been considered as source of new income even though a number of benefits accrued from environmental regeneration were identified and quantified (para 3.1.9). The important ones are briefly listed here under

#### A. Reducing losses due to soil erosion and land degradation

A.1. By reducing /arresting Soil erosion on arable and non arable areas

A.2. Recreating assets damaged by land slides and restoring bio mass production through re-vegetation. These have been transformed into money stream under soil conservation and came to Rs.83.28 million. These would be applicable to value assessment for environmental regeneration as well.

#### B. Greening or enlarging green area

Land management led degradation problems have started due to loss of area under perennial cover or forest area primarily and scientifically can be termed as Land Use Alienation (LUA) and reduction in LUA is an index of improved environment.

#### B.1. Improved Watershed Index and Reduced Land Use Alienation

Through massive planting by different models area under perennial green cover in creased by 18% to 66.23 % of total geographical area (TGA). The index developed to estimate is called Watershed Eco Index (WEI) and is the percent value of green area of the TGA. WEI when computed with gross area under green stock is called watershed eco index (gross) or WEI<sub>g</sub> and when its computed equivalent green area it becomes watershed eco index (effective) or WEI<sub>e</sub> For the project WEI<sub>g</sub> was 66.23 and WEI<sub>e</sub> was 40.27 %. But the benefit was not transformed by then into money stream and search for a rationale had continued.

#### B.2. Improvement in biodiversity of the project area

In this project planting was done both within forest as well on areas outside forest. There would have improvement both of *in-situ* as well as *ex-situ* biodiversity. Practical and simple parameters that could be used to measure the improvement in *ex-situ* biodiversity could not be evolved. Hence, this important environmental benefit could not be quantified either for planted forest blanks or areas outside planted..



### **B.3 Pollution abatement and remediation of land and water**

Only species and percent of total planted population could be quantified. Measuring changes in toxicity, contamination and thus of remediation was outside this study. However, in intervening period there has been fast growth and a fresh search for a basis could yield result.

### **B.4. Carbon Management**

From of surviving planted trees and other plants an estimate of CO<sub>2</sub> absorbed and in lieu O<sub>2</sub> release was made. Should market value of O<sub>2</sub> be used or that of CO<sub>2</sub> could not be decided.

### **4. Third Approach - Alternatives for NWDPR Micro Watersheds of NE Region**

The major components of the NWDPR of 17 watersheds in 8 states evaluated were as under (ESDI, 2010).

1. Soil and Water Conservation
2. Planting works (afforestation of forest species, planting of agro forestry, horticulture, dodder plants and grasses etc.)
3. Infrastructure developed:
  - a. Production systems related and
  - b. Those for logistics & other support
4. Crops/ farm production systems
5. Horticulture and Agro-forestry
6. Animal assets based production systems
7. Institutional Development
8. Social Changes and
9. Environmental regeneration

The hypothesis worked on was that each of the above list had yielded one or more outputs, tangible and intangible, with consequent outcomes/benefits towards attaining project objectives. Now, quantification of incremental income from bio mass production systems, such as cultivated crops, horticulture and agro-forestry and those from animal assets could be done from the house hold survey of sample families. But required data for quantifying benefits from soil and water conservation, infrastructures, environmental regeneration, social changes and institutional development, as was done for the mega project discussed under Approach-2, could not be gathered as these were not within the space of this study while time available and money allotted for such activities were also not there. However, to fulfill the demand of TOR, attempt was made in two ways, namely:

i) **First option was** with enhanced family income mainly from biomass production namely crop farms or farming systems plus animal assets.

ii) **Second option was** with total enhancement of family income and average total project cost per family. This was considered rational as final goal was to improve the livelihood and socio economics of the target families through outcomes / benefit from a number of activities yielding intangible benefits. Besides, the enhancements were through interactive influences of more than one project input while apportioning cost for each of such out put / outcome could not be done from the pattern of expenditure reporting (Fig.-1, refer annexure).

### **4.1. Economic analysis with biomass production from farming systems**

The crops cultivated were paddy, vegetables, oil seeds like soyabean, mustard, ginger, cardamom, fruits even tea at micro scale. Gross production of crops and of fruit, milk, egg and meat were gathered through house hold survey. Gross income was then computed with market price at farm level. While net income from production was computed from the gross computed after deducting production cost. Where as, amongst the cost stream, capital cost and O& M cost for production systems only was taken. The analysis was done for a life period of 15 years and with two representative cases, one of marginal farmer and the other a medium farmer. Average values the two farms were taken. For 17 watersheds values of BCR, IRR and NPV are given in Table-8 (refer annexure).

### **4.2. Economic analysis with annual average family income and average total project cost per family**

Here total incremental annual income was computed from all sources as could be worked out. Then total project cost inclusive of all items was divided by total house hold number in the study watershed. With these two series economic analysis was carried out for a period of 15 years. To illustrate the method an example (JuriCherra MWS, Tripura) is given in Table -9 (refer annexure).

Now, additional family input towards production cost was taken as 200 person days and @Rs70 /person day the cost was Rs14, 000. Thus net enhancement of income per family was Rs23,864 – Rs14,000 or Rs. 9864. Net family income at the end of the project was thus 1.04 time of the average project cost. From cash flow analysis B:C ratio worked out was 1.99:1, NPV at 12 % Rs 42 lakh and IRR at full cash inflow was 46%. Results of analysis for all 17 mws are given in Table 10 (refer annexure).

There were three cases where the results could not be reconciled with practical analysis. In case of Upper Mar- I mws of Mizoram total hh number was 155 and project cost was Rs.27, 62,100 or R17,820/hh/year. This was far higher than net average annual income of Rs11563. There is a need to take in benefits coming from soil and water conservation in reducing land degradation etc.

In case of Nakti in Assam, total project cost of Rs.20, 47,105 was shared by 390 hhs with Rs 5749. Whereas the net income per hh (households) was Rs23,332/hh/yr. yielding a B:C ratio of 4.5:1. While IRR and NPV were not coming to realistic level. Search of the reason located that cost of production did not include the cost of bullock days as these data were not collected.

For Phailianmws, Mizoram total cost was Rs26,97,000 shared by only 15 families where each had the burden of Rs1,79,800 /hh. Total income was no match to this burden. Other benefits would have to be worked out to find the real scenario. For Ghartikhola, the exercise could not be done as data available were not in the form needed.

## **5. Fourth Approach - for DPAP, DDP and IWDP watersheds**

### **5.1. Back up available**

Working on economic analysis for 40 watersheds (IWDP-27, DDP-8 and DPAP-5) in 23 districts of seven states, namely, Arunachal Pradesh, Assam, Haryana, Himachal Pradesh, Nagaland, Sikkim and Uttarakhand, Experiences of first three approach and results obtained were the guides. Here we tried the traditional approach for the like Haryana, Himachal Pradesh and Uttarakhand. While, approach three was used for Arunachal Assam, Nagaland and Sikkim. In all cases a few new problems were encountered, particularly in quantification of cost as well as benefit streams. For application of the approach based on average annual incremental hh income vs. average total project cost per hh., need arose to innovate methods for quantification of cost of production of cultivated crops and vegetables and also of a few more plant based production systems. The exercise offered actual field situations for testing and improving methods for quantification. Some of them are being brought before the participants for critical examination (ESDI, 2012). In view of variations in data base and deviated approaches followed state wise scenario are discussed here under.

### **5.2. Innovations used for Nagaland**

**5.2.1. Cost of production for cultivated crops:** Sample households did not use any externally procured inputs like fertilizer and pesticide and they used their own seeds. Again, all labour on farm was family labors. House hold responses thus, could not give this important data. It had to be derived with some rationale. Now, beneficiary responses revealed that farm labour requirement (male and female) was reduced by 27 person days or from 378 to 351 days. On the other hand due to increased production surplus was generated and disposal related works demanded additional 43 person days' labour per family. Thus total labour input was 351 plus 43 or 394 days for both crop and livestock sector after the project.

The cost of production was thus computed by multiplying person days needed per family with the wage rate of Rs85 per person days (average WDT wage rate for men and woman). It was Rs 33,490/ family. Hence net income works out at Rs8, 372.5 per year per house hold.

**5.2.2. Other plant based cultivation system:** IWDP watershed development plan promoted a number of cultivated plants and mostly through SHGs even some individual farmers too had taken to commercial fruit and plantation crops. From individual sample hhs the information did not come. In 8 study watersheds total number of hhs was 21,136 or average fruit area per family was 0.18ha. While an area of 109.5 ha was put under tea or on an average tea area was 0.05ha' family. But working out return, income and cost of production posed serious problem and some data from the watershed area required to work out these values. Some abstract data for fruit from one case study on banana and that for tea from two case studies could be had. From these case studies per hh income and production cost was worked out.

Cost of production including handling like loading and heavy transport charges for taking to markets on banana, for an area of 0.18 ha, worked out as Rs 34,200 while for tea on 0.05ha it was Rs. 1100. Income from fruit worked out was Rs40,500 while that from tea was Rs4060.

Net average family income from these two sources was Rs 9,850. This amount when added to Rs.8,372 the net income from cultivated crops and livestock the total hh net income increased to Rs18,222, a respectable one that could allow the hh to meet expenses on education and health care at a reasonable level and also help family get some utility assets for an improved quality of life.

### **5.3. Innovations for Assam**

**5.3.1. Production cost:** Some details on income and expenditure, could be gathered from small farmers But while giving details on cost of production they could not provide break up for crops or seasons. Thus, production costs were derived from related information gathered during focus discussion or some basic principles used for time –operation studies.

The computations showed that for average irrigated area of 0.52ha with a house hold used 78 person days while for rainfed area of 0.41 ha it used 48 person days. The WDT approved average wage rate (men and women) was @Rs85 per day. Ignoring the cost of paltry amount on 32 kg fertilizer and 10 kg of vermin compost used, production cost worked out was Rs10,130 per family per year for all crops, vegetables and sugarcane.

Similarly, 200 person days were found necessary for all operations relating to group of 5 milch cattle, for 4 goat & pigs 20 person days and 50 person

days for 5 birds to get egg and chicks or a total 254 person days needed for livestock sector. With the same wage rate of Rs85/day, cost of management was Rs.21,590.

Besides, these two major sources support livelihood systems (SLS) were the third source. There were 206 units of different types of SLS amongst 300 sampled house holds. Average per family the figure was 0.70 unit. On an average adoption of a SLS provided regular works of 100 person days per year. Thus, actual labour input was 70 person days and @85/day it was Rs5,950/year. While the material inputs cost was an average of Rs. 4000 giving a total production cost of Rs 9,950/hh/year.

Thus, total production cost on three systems worked out was Rs.41,670 (10,130 +21,590 + 9,950). Average capital cost per family on 29 tractors and weeders was Rs.7,263. Grand total of input was Rs.48,933 /family /year.

**5.3.2. Gross and Net Income and Liquidity:** Annual income for a house hold was Rs 1,03,147 and bulk came from crop cultivation including vegetables- 36%, livestock management (including poultry and fishery)-32%, and livelihood support systems –22 per cent, Remaining 10 % came from micro-enterprise (6%) and wage (4%).

Gross income of Rs.1,03,147 less total costs of production inputs of Rs.48,933 that left a net income of Rs 54,214 /family /year. This enabled the family to meet the expenditures on education (8100), health care (2580), non-permanent assets TV etc. ( 9200) or a total of Rs 19,880.

Even after meeting these primary expenses the family had a balance of Rs34, 334 or attained a liquidity to repay loan and meet annual debt burden of Rs2915/family /year plus social commitments like marriages, and other festivals

## **5.4. Innovation for Arunachal Pradesh**

**5.4.1. Production cost:** House holds in Arunachal Pradesh were switching over to settled agriculture from shifting cultivation. They were not using any external inputs like fertilizer and pesticide and own or local seeds were only used. Besides, all work force was family labour. Interactive surveys with sample families and group discussions showed that for farm activities, a family needed 516 person days /year Besides, labour input for livestock sector, fruit, fodder and MAP could be taken as 100 person days. Thus, total person days per family per year were 616.

WDT approved wages for men were Rs.250 per day and 200 per woman day or the average was Rs225 per person day for agricultural activities. This was a very high rate. Considering the minimum wage scenario the wage rate of Rs.125 was used. The cost of production thus worked out was Rs.77,000 per family per year.

**5.4.2. Gross income and Net income:** Gross income was computed from the production of each crop and the market price at farm level and average gross income per family per year was Rs1, 13,706/family /year. Hence net income was Rs.36,706 per year per household. (post project gross income less production costRs.77,000). This net income could be considered adequate to cover expenses on clothing, health care, education and essential social commitments.

**5.4.3. Economic analysis:** For economic analysis above net or incremental income was used, but these incomes were transformed for all 243 hhs living in these 4 watersheds. Income without project was taken as 10 % of the post project income as during the project NSA increased by about 985 % and production by 1100 % .because there was a massive shift from shifting cultivation to settled agriculture. All cost on project activities on plantations & CPR, SWC, Micro water sources , EPA, Capacity building, crop demonstration , support livelihood system etc were taken as the capital investment on production base and animal assets as well as on the families themselves. Discount rate used was 12 percent. The analysis was for economic life of 15 years inclusive of 5 project years. For years from 6<sup>th</sup> to 15<sup>th</sup> the maintenance cost as well as incremental production cost was added. The results of the analysis were BCR-1.6; NPV- Rs. 136 lakh and IRR- 31 percent. The project implementation was robust and viable.

But, if capital investment of Rs 99.17 lakh on soil and water conservation and micro waters sources is considered the situation would change. This capital cost when apportioned among 243 hhs, cost burden on each house holds would be Rs.40,817. Expenditure would be in excess of net income by Rs 4,111 or a hh would have a short fall of Rs4,111. The economic analysis would be rational only if we can compute the benefits from soil and water conservation and water sources related works and transform them in money terms.

Further, pre project production data for areas under permanent cultivation were not there. Now, the increase area under permanent cultivation from jhumming was a massive ten fold. Hence incremental gross income before project could be taken as 10% of the post project value. However, this was perhaps not realistic as before the project the hhs were meeting their requirement from jhumming to a great extent. Thus incremental income could be taken as 70percent or Rs.79,594. The net income would then fall down to 2,594 (79,594-77,000) and excluding the share of capital cost. The approach seem to produce results which do not appear to be rational and this has happened due to small number of house holds while capital cost of on their area was too heavy. Thus alternate rationale needs to be found out.

Notwithstanding the anomalies there is an urgent need to raise the productivity level, by applying higher doses of nutrients through organic sources and using better seeds as well as by adopting support livelihood systems that could be most compatible one to compliment the existing livelihood activities.

## **5.5. Innovation for Sikkim**

**5.5.1. Gross Income:** Total production from 150 sample families from each crop in kharif and each crop of rabi was transformed in money stream with market price at farm level. This was divided by sample population or 150 families to get average annual household income. Similar exercise was done for egg, meat and milk. Total gross annual income from all sources was Rs 50,864 where the share of crops was Rs 23,174 (46 % of total) and that from animal sources, Rs 27,690(54%) which included income from SLS as well.

**5.5.2. Production cost and Net Income:** Production cost for rainfed and irrigated areas/hh was computed from labour input of 60 days for rainfed and 90 for irrigated areas. While WDT approved wage of Rs100 per person days was used to get production cost. Similarly, norms of person days for managing cows, goat/pig and egg & chicken was used to get labour input in rupees. For SLS average production cost was Rs6000 per hh. Total production cost thus worked out was Rs28,040 and net average annual family income was Rs22,824.

**5.5.3. Economic Analysis:** Incremental income was used for economic analysis and for, all 598 hhs, found living in four of 10 micro watersheds studied. All costs on project activities on plantations & CPR, SWC, Micro water sources, EPA, Capacity building, crop demonstration, support livelihood system etc were taken as the expenditure, which were capital investment on production base and animal assets, social infrastructures as well as on the families themselves. This was Rs310.63 lakh for all hhs. Discount rate used was 12 percent. The analysis was for economic life of 15 years inclusive of 5 project years. For years from 6<sup>th</sup> to 15<sup>th</sup> the maintenance cost @2% was added. Similarly, for all these years increase in production cost too was taken at 2percent, the results of the analysis were BCR-1.06; NPV- Rs. 47 lakh and IRR- 15 percent. The project implementation was viable.

## **6. Summary and Conclusions**

Data generation on benefits flowing from watershed development project (WSD) and making the process of economic analysis more inclusive has been facing problems since first step for impact assessment of such projects was taken in mid 70s. These were not with the basic theory and methodology of financial and economic analysis prevalent but were with generation

of data as inputs and using them. Many earlier ones have been overcome. But the development and growth of objectives and components of WSD is continuing and thus new dimensions in impact assessment too have been unfurling and perhaps would be so as watershed based planning is not a static one. The problem would be to innovate to take care of them.

In the first approach only one component was taken up where diversities in types, scale and outputs were wide and complex. These hurdles could be overcome by taking 16 structures as a group. It was fairly inclusive of all features and comprehensive in terms of output and outcome. However, the attempt too excluded regular employment opportunities generated and many other environmental outputs such as enlarged green area, enrichment of soil organic carbon, etc.

The second approach was very comprehensive and fairly inclusive of the overwhelming majority of outputs / outcome. However, the exercise proved to be very time intensive besides, being extremely laborious. This would be cost intensive as well that may not pass the norms followed in making fund available for impact evaluation. It is unlikely to be attractive to most who would likely to do an inclusive and precise job for reasons already stated. This elaborate approach too failed to include effect of enlarged green area in terms of bio diversity, enriched soil organic carbon, remediation of contaminated land and water, recharge of ground water, rejuvenation of surface flows, gender sensitivity, social empowerment etc.

The third approach made a strong plea to view the complex scenario of WSD project in a different way, where some components are not directly related to any one of three target sets namely, i) NRM base; ii) biomass production systems and iii) households and communities. Thus input – output – outcome relationship for an intervention is not linear and exclusive. Rather, there are collateral interactions amongst few interventions which makes separation or apportioning of cost and outcome physically and in money terms difficult for each component. Thus the first hypothesis advanced was that project costs on all interventions and activities ultimately goes to yield some tangible and intangible benefit to households individually as well as being a member of the watershed community who depended on the common natural resources base and social infrastructures created or improved. Thus, the same should be apportioned amongst all households.

As a corollary to cost, benefits or income accruing to households are not uniformly of same type or of equal value to all households. Thus, second hypothesis advanced was that all benefits accruing to different sets of households should be pooled and divided equally amongst all households.

Production cost for different sources of income should also be rationally worked out from time

– operation analysis and wage rate actually prevalent, besides those obtained from the house holds which were found to be not inclusive of all and because of fragmentation of holdings and raising crops in small patches within same parcel separation was not possible.

Cost and cash flow analysis could then be based on average additional /incremental annual income vis-à-vis average project cost on each house hold. The results showed that the values of IRR, NAV and BCR were fairly reasonable even though some cases needed closer examination, particularly where number of hhs were too few while watershed areas were too large. In three cases or about 20 % of micro watersheds studied this did not give practical results, such as for Upper Mar-I and Phailianmws of Mizoram number of house holds were 155 and 15 respectively that had put heavy burden of project cost on each. To make the analysis realistic the exercise demanded inclusion of benefits from NRM base treatments. While in case of Nakti in Assam, non inclusion of cost of bullock days yielded a very high B:C ratio. While working on 40 watersheds (IWDP, DDP and DPAP) the third approach yielded fair results. There were large number of innovations to compute production cost for different sources of income and it was felt that this should also be rationally worked out from time – operation analysis and wage rate actually prevalent. It was so as those obtained from the house holds were not inclusive of all and because of fragmentation of holdings and raising crops in small patches within same parcel.

Similarly, adoption of plantation crops like tea, fruit like banana from commercial angle was by a few house hold. For these cases, computation of production cost should include heavy transport cost and also that on handling at farm level.

There were few additions made in cost stream such as, increased cost on production from 7<sup>th</sup> year

onwards as well as in the income stream due to incremental rise in annual production.

The followings are main conclusions

- A common experience with all approaches was to identify and quantify other benefits besides biomass production and then transforming them into money streams. There were some benefits, especially of environmental regeneration, are yet to be worked out.
- Approach based on total incremental income per annum per family vs average project cost , all inclusive, per family offered a simple and practical approach based on two hypothesis project costs on all interventions and activities ultimately goes to yield some tangible and intangible benefit to house holds individually as well as being a member of the watershed community and depended on the common natural resources base and infrastructures created or improved .Thus, the same should be apportioned amongst all households all benefits accruing to various groups of hhs, differently in types and values, should be pooled and divided amongst all house holds equally.
- Production cost for different sources of income should be rationally worked out from time – operation analysis and wage rate actually prevalent besides those obtained from the house holds which were found to be not inclusive of all and because of practical difficulty to separate input costs for crops grown mainly due to fragmentation of holdings and raising more than one crop in small patches within same parcel. For years beyond 6<sup>th</sup>, an increase in annual income due to incremental rise in production should be added.
- Similarly, there should be an addition to production cost beyond 6<sup>th</sup> year due to rise in input prices.

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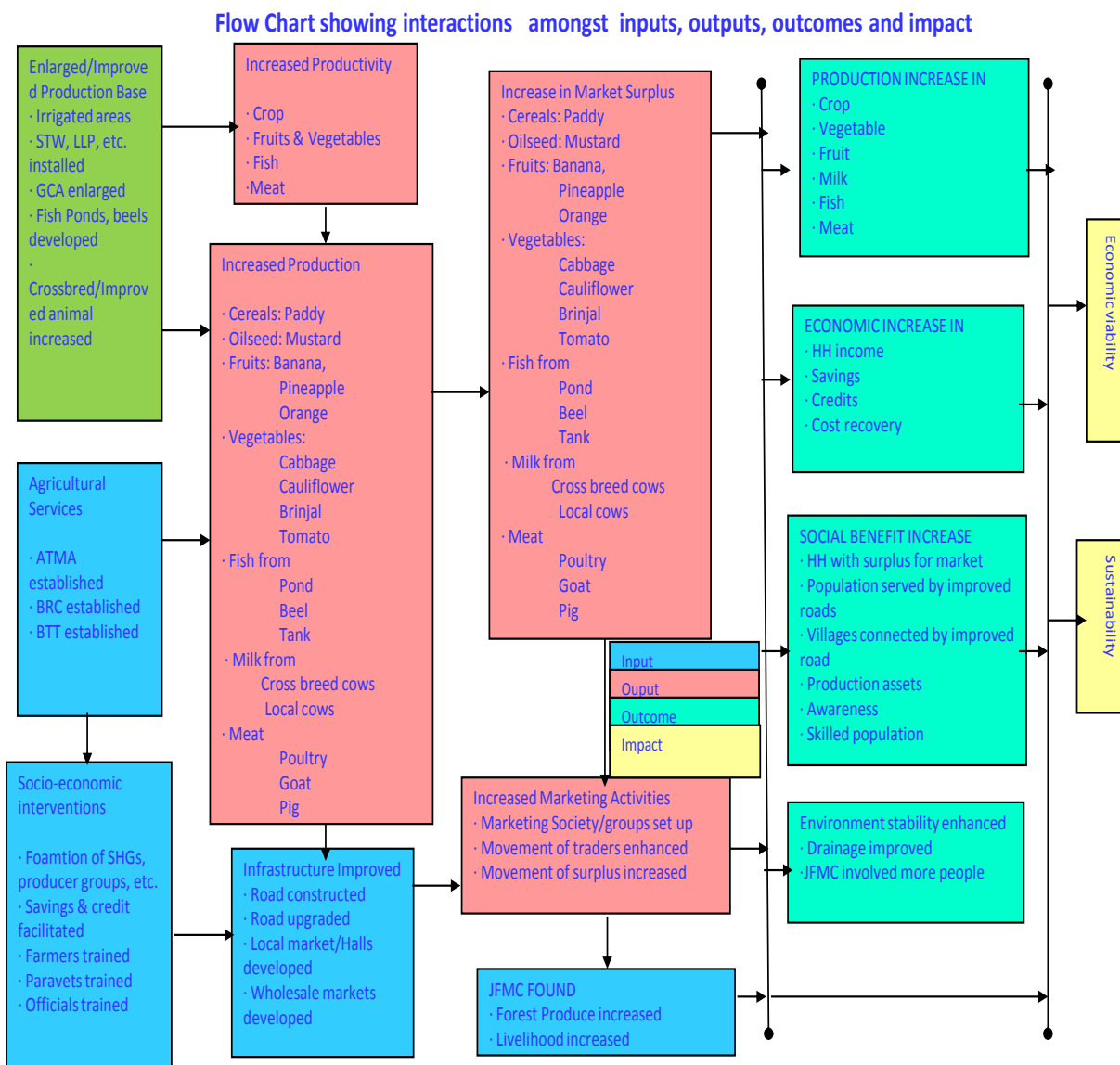
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**Annexure**

**Fig-1: Schematic interrelationship amongst inputs, outputs Outcome and income for WSD project**



**Table-1: Summary results of benefit - cost Ratio of sixteen conservation structures in Karnataka, India**

protection , production and employment						
Period	Cost items	Total cost	Benefit	Items	Total	B:C Ratio
					Benefits	
		000'Rs			000'Rs	
<b>1. On investment and Return</b>						
10 year	1. Structures	572.9	Productive		1389.94	1.13
	2.Reclamation	156.9	Protective/		1458.3	1.19
			Restorative		1063.4*	(0.87)**
	Mini- command	497.6				
	Total	1227.4			2848.24	2.32
15 year	1. Structures	607.3	Productive		1895.16	1.46
	2.Reclamation	166.8	Protective/		1783.71	1.37
			Restorative		(1388.61)*	(1.07)**
	3.Mini- command	527.2				
	Total	1301.3			3678.87	2.83
20 years	1. Structures	630.4	Productive		2235.96	1.66
	2.Reclamation	173.3	Protective/		2006.56	1.48
			Restorative		(1611.63)*	(1.19)**
	3.Mini- command	546.67			4242.52	3.14
<b>2. On Employment( 000 Man Days)</b>						
	Pre project		Post project		Post project : Pre project	
					Employment improvement	
					ratio (EIR)	
10 years	173.37		515.8		2.97	
15years	288.73		733.97		2.54	
20 years	398.09		949.18		2.38	
* Figures computed excluding benefit accruing from reclaimed areas						
** B:C ratios obtained excluding benefit due to reclamation but including the cost						
of reclamation						

**Table-2: Benefits from crop cultivation quantified and transformed in money value  
IWDP (Hills) Uttranchal**

Parameter	Cost In Rs. million	New income in Million RS	Clarifications /Remarks
A.Rainfed	18.01	17.15	96 % financial cost taken ; cost from 6 <sup>th</sup> Year to 30 yr was constant at 11.10 New income kept constant at 17.15 from 6 <sup>th</sup> to 30 <sup>th</sup> year
B Irrigated	55.48	34.31	90 % of financial cost taken; Cost remained constant at 49.25 from 6 <sup>th</sup> to 30 <sup>th</sup> year New income increase over years and Stabilized in 6 <sup>th</sup> year at 91.25
C.Total(RF+ Irr)	73.49	51.28	Cost remained constant at 60.35 f from 6 <sup>th</sup> year to 30 <sup>th</sup> year New income increased from 6 <sup>th</sup> year and stabilized at 108.40

**Table-3: Benefits quantified and transformed in values or money. For  
IWDP (Hills) ,Uttaranchal**

Indicator	Quantified ha/ volume/length etc	Unit value used for transforming in money series	Value/ Income in million rupees
i)Soil loss reduced & debris held back	788470 tonnes	@ Rs 90/m <sup>3</sup> or Rs 56 per tones	<b>44.2</b>
ii) Area protected from irreversible loss	4453ha Irrigated- 1336 Rainfed - 3117	From crop production Value total income saved	<b>31.08</b>
iii)Area gained or reclaimed	447 ha	@2000/ha from fodder and grass annually	<b>0.91</b>
iv)Area saved from land slide	Treated 702 ha Area put under fodder- 500 ha	@2000/ha/year	1.0
	Horti plants & bamboo-202ha	6 <sup>th</sup> -10 <sup>th</sup> year @10,000/ha	2.02
		11 <sup>th</sup> -20 <sup>th</sup> yr @12,000/ha	2.42
		21 <sup>st</sup> -30 <sup>th</sup> yr @15,00/ha	3.03
		<b>Sub- total</b>	<b>8.47</b>
v)Home protected new construction	164 houses	1,50,000/house	24.6
Repaired	328	25000	8.2
		Sub-total	<b>32.8</b>
vi) Road side control- total length 94 202	Removal of debris .For every To be cleared 74m Length of road	For every 30 m length cost 2000 or 66.7/m	<b>6.28 /year</b>



m and debris source area - 127300 ha			
<b>Soil conservation</b>		<b>Grand total</b>	<b>123.74</b>
<b>Productive benefit</b>			<b>40.46</b>
<b>Environmental bene</b>			<b>83.28</b>
The capital cost or investment made			<b>31.75</b>
O & M cost from 7 <sup>th</sup> year			<b>Rs.8573/year</b>

**Table-4: Cost and new income from micro water sources.-Other than irrigation- IWDP (Hills),Uttaranchal**

Item	Cost(1 <sup>st</sup> yr-) Rs. In million	New income (2 <sup>nd</sup> yr) Rs in million	Clarifications
RWHT	6.36	1.25 (2 <sup>nd</sup> yr)	Cost increased to 16.26 (4 <sup>th</sup> yr); Cost increased to 16.26 (4 <sup>th</sup> yr); New return increased and stabilized at 7.83 from 6 <sup>th</sup> year
Village pond	0.87(Yr-1)	0.11 (2 <sup>nd</sup> yr)	Cost rose to 11.05 (4 <sup>th</sup> yr) and stabilized 0.87 from 6 <sup>th</sup> yr; New income rose and stabilized at 3.35 from 6 <sup>th</sup> year
Check dams WH Tanks and wells with pump			Not worked out for other benefits than due irrigation

**Table-5: Identification, quantification and value of benefits due to infra structure development. IWDP (Hills),Uttaranchal**

Investment item	Basis for quantification	Unit value of benefit Rs	Total value of benefits in million Rs.
A Roads etc			
i) Bridge & culverts	Villages connected 78 Households benefited 27,700		
	Time saved on in days/hh - Fuel ^ fodder 15 - Market going & coming 24 - School going & coming 15 - Health care travels human /animal 6 Total for connectivity 60d/hh For 27,700 hhs 16.62 million	Equivalent wage Rs 40 /day of 8 hours	<b>66.48</b>

	days		
ii)Reduced running time and cost for motor cycles	No. of Motor cycles-207 Days MC 100 days / yr/MC Road improved 32 Km Total saving 207x100 x32 = 6,62,400 km	Rs 1.50 /km	<b>0.99</b>
B. Drinking water	Persons benefitted 12,533 Animal benefitted 30,608 Additional DW/person/yr 730lit. Total 730 x12533 = 8141.8x10 <sup>3</sup> Additional /animal/yr 1825 lit Total 1825x30608 =55859.6x10 <sup>3</sup> GT additional= 65001x10 <sup>3</sup> lit	Value- of water Rs .20 /100 lit	<b>1.30</b>
Grand total	Benefit from infrastructure		<b>68.77</b>

**Table-6: Identification, quantification and valuation of returns from social and institutional development, Iwdp (Hills) Uttanchal**

Source of benefit	Identification and quantification	Unit benefit value	Total benefit inRs. Million
A.Capacity building	Persons trained/benefited Staff 3082	Perceived Use of training @Rs1000/staff	<b>3.09</b>
	Villagers trained 70738	similar	<b>8.49</b>
	Line department persons -72	similar	<b>0.72</b>
		Total	<b>11.65</b>
B. Bio-gas Plant Assets saved/ created	Fuel wood saved per hh 6.69t/yr** For 1552 B. Plants 10402.28 t	Rs1500/t market price	<b>15.60</b>
	Value of manure produced# 3.89 t/plant/yr	Rs1400/t	<b>8.34</b>
	For1552 BPs 5958t/yr		
	Sub total		<b>23.94</b>
C new income for BPL families	One time work wage income for 2106 BPL families	From 82families New income/ family was Rs5417/family/yr	<b>11.41</b>
	IGA activities through SHG etc Total income from4 vocations was Rs. 238485 from 5 <sup>th</sup> yr steady for 518 families or	Sub total for BPL	<b>13.79</b>
D New income from IGA trough SHG	*3SHG wit 901 families		<b>0.276</b>
E. Return from Community Funds	VDC fund (Revolving) For 492 VDC total Rs12,75,00,000		
	i) 50 % FDR	@6 % annual interest	<b>3.83</b>
	ii) 25% in savings	@3.5 interest annually	<b>1.11</b>
	iii) 25% advanced as inter loan	@12% annual interest	<b>3.83</b>
	Sub totalfromVDCfund		<b>8.77</b>
	SHG Fund		

	With 492 SHG fund Rs3.87 million		
	i) 50 % advanced as inter loan	@12 % annual interest	<b>0.232</b>
	ii) 50% in savings account	@3.5% annual interest	<b>0.067</b>
	Sub total		<b>0.299</b>
<b>Total, from social &amp; institutional development Institutional Development A-E</b>			<b>49.955</b>
<b>Total capital cost Or investment</b>			<b>172.98</b>

\*\* average of value got from a departments printed document and response from 58hhs

# Data from 9 biogas plant 35t/yr or3.89t/BP/yr

**Table-7: Results of Economic Analysis for IWDP( Hills-II) Uttaranchal**

	<b>IRR %</b>	<b>NPV Rs. in million</b>	<b>B:C Ratio</b>
Agriculture Combined	17.30	63.71	1.10:1
Agriculture Development - RF	16.60	6.80	1.05:1
- Irrigated	17.4	56.92	1.11:1
Horticultural Development	19.0	53.20	1.33:1
Livestock Development	21.4	40.50	1.58:1
Forestry	15.5	185.00	1.59:1
Water Sources Development	13.5	3.10	1.07:1
• RWHT	5.48	-9.93	0.64:1
- Village Pond			
Soil Conservation Activity	19.2	143.10	1.56:1
Infrastructural Development	21.2	105.80	1.66:1
Social and Institutional Development	21.8	106.40	1.88:1
Project all 8 sectors together and Including cost on coordination	17.7	695.96	1.37:1
Project as a whole in duding coordination cost	16.1	546.22	1.27:1

**Table-8: Results of Economic analysis for 17 NWDpra micro watersheds in 8 states of North East Region - with biomass productions alone.**

Sr. No	Watersheds	B:C Ratio	NPV	IRR% at full cash inflow	IRR% at 10% reduced cash inflow
1	Dollugmukhi-111	2.35:1	136.30		
2	<u>Pareng</u>	1.42:1	2.14	27	22
3	Nakli	2.64:1	43.44	42	34.5
4	Torsa Stream	1.99:1	33.61	22.5	17.5
5	<u>Longkhul-II</u>	2.13	0.31	17	13
6	Ngavokdung( lower)	1.04:1	53.03	22.5	18
7	<u>Nongtraw</u>	1.2:1	1.91	34	28
8	Phodjaid	1.3:1	14.93	29	24
9	<u>Phailian-11</u>	1.57:1	1.71	44	37
10	<u>Sertawk</u>	1.49:1	22.21	37.5	31
11	Upper Mar-I	1.31:1	1.57	30	24
12	<u>Jeremdi</u>	1.7:1	12.87	33	27
13	Kamha	1.12:1	11.94	41	34
14	Magakam	1.53:1	10.96	26	22
15	GhartiKhola	2.4:1			
16	Jurichera (Upper)	1.11:1	10.78	26.5	22
17	Kat ma Cherra	1.04:1	8.42	24	19.5

**Table 9:**

<b>Important information</b>			
<b>1.Final total Project cost</b>		<b>Rs 28,51,600</b>	
<b>2 Total number of Households in project watershed</b>		<b>302</b>	
<b>3 Average project cost per family</b>		<b>Rs9442</b>	
<b>4.Equivalent labour used for A to Z operation for all production systems of hh was 200 persondays /yr and @ Rs70 /person days Production cost was</b>		<b>Rs 14,000</b>	
<b>5. Working out gross and net annual average family incremental income</b>			
Source	Post Project	Pre project	Enhancement/incremental income
a.Paddy	9049	3850	5199
b.Vegetables	6100	3000	3001
c. Fruits	8333	1833	6500
d Milk	10200*	9750*	450
e. Pig meat	6410	00	6140
f. Egg	230	93	137
gGoat meat	4500	5000	-500
H Fuel wood **	5475	2337	2337
<b>Total</b>			<b>23864</b>

- \* Post project Rs68x150 days =10200 Pre project Rs65X150 = 9750

- \*\* Increased quantity became available became available and @Rs1.5 per kg

**Table -10: Results of economic analysis with Average total increase in family income and average project cost per family for IWDP watersheds in Arunachal Pradesh, Assam, Nagaland and Sikkim.**

Sr. No	WS	Total increase family Income	Project cost/family	B:C Ratio	NPV	IRR% at full cash inflow
1	Dollugmukhi-111	25,370	11,060	1.79:1	34.5	40
2	<u>Pareng</u>	42,771	20, 576	2.4:1	37.6	61
3	Nakli	23,332	5,249	4.55		
4	Torsa Stream	15,985	1,919	2.48:1	52	62
5	<u>Longkhul-II</u>	40,102	26, 623	1.51:1	22	30
6	<u>Ngavokdung( lower)</u>	36,786	5,583	1.85: 1	43.24	28
7	<u>Nongtraw</u>	25,062	8,841	2.18: 1	40. 531	52
8	<u>Phodjaud</u>	30,005	9,929	2.81: 1	60.60	74
9	<u>Sertawk</u>	28.177	9,594	1.47:1	24.25	29
10	Upper Mar-I	11,563	17,820			
11	<u>Jeremdi</u>	30,066	7,087.5	4.09:1	104.23	128
12	Kamha	47,420	10,067	5.79:1	149.48	259
13	Magakam	21,105	6,276	1.43:1	14.24	28
14	Jurichera (Upper)	23,864	9,442	1.99:1	42	46
15	Kat ma Cherra	22,374	6,623	3.42:1	85.6	88

## Effectiveness of Watershed Management: A Case Study of some Successful Watershed Projects in Five States

U. Hemantha Kumar<sup>1</sup>

### 1.1 Background

The purpose of the initiation of watershed intervention in India is the promotion of economic well-being and the social improvement of the people in resource poor regions. Many projects designed within this approach were, at different points of time, taken up by the Government of India. The Drought Prone Areas Programme (DPAP) and the Desert Development Programme (DDP) were brought into the watershed mode in 1987. The Integrated Wasteland Development Programme (IWDP) launched in 1989 under the aegis of the National Wasteland Development Board also aimed at the development of wastelands on watershed basis. These programmes were implemented under different guidelines. All these attempts have the focus on enhancement of the viability and quality of rural livelihood support systems. The results from these initiations are mixed in nature. None of the study has made much dent to know the driving force that leads to the success of watershed project. The outcome of recent workshop on "Success Stories under Watershed Management" held at New Delhi, during 02-03 February 2011, organised by the DoLR has stressed the need to explore possible commonalities in successful implementation of watershed management projects in the country. The present paper endeavoured to bridge the gap and explore the possible reasons for success of watershed management in India. The findings of the study under watershed management in India would help to replicate same to other watersheds especially in the Integrated Watershed Management Programme (IWMP) implemented under New Common Guidelines (2008). The effectiveness of watershed may be varied from one watershed project to another. These are mainly in tune to the geo-hydrological/agro-climatic conditions as well as community involvement, and good governance.

The present available literature reflects some gaps in prudent management of NRs, particularly land, water and biomass. However, these trends coupled with increasing pressure on resource base causing adverse impacts over resource preservation in future. To overcome these adverse impacts, certain attempts were made through soil and water conservation and biomass practices in sample villages of five selected states. The approach to these interventions is certainly in the realm of natural resource base. To overcome certain imbalances while dealing with these resources, it has to refer the dynamics of institutions, participatory approaches

and livelihood security and act accordingly. Hitherto, the research study findings discussed above have not highlighted the impact of investment in watershed interventions. Where the visible impact is positive towards the small and marginal farmers have associated mostly with the natural resources to cope up the climate change effects as well as maintain the livelihoods in sustained manner.

Based on a brief review of the studies by various agencies (Joshi, P.K., A.K. Jha, S.P. Wani *et al* (2005); Batchelor, CH., Ramamohan Rao, M.S, and Manohare Rao, S (2003); FAO (2003); Harsh Mitter, (2005); Hemantha Kumar.U, (2005); Hemantha Kumar. U *et al* (2007); Joshi, P.K., Pangare, V., Shiferaw, B., Wani, S.P., Bouma, J. and Scott, C.A. (2004); Joshi, P.K., A.K. Jha, S.P. Wani *et al* (2005); Joy, K.J., Parnjpe, Suhass, Shah, Amita, Badigar, Shrinivas and Lele, Sharachandra, (2005); Kerr. J. (2007); Palanisamy. K and Suresh Kumar D, (2005); Reddy V. Ratna, Hemantha Kumar .U and Mohana Rao D., (2006); Sharma S S P & U Hemantha Kumar (2010) on WDP projects, a few important issues are highlighted for further consideration in Watershed Development Projects.

- Harmonise the use of soil and water between upstream and downstream within a watershed area is the first step.
- Further stand-alone treatment ignoring the hydrological boundaries needs to be amended.
- A long term commitment for a continuum in NR Management is essential. Invest in watershed hydrology expertise with reference to protection of upstream (providers) such that the downstream beneficiaries (recipients) either invest inbuilt protection through increased contribution to WDF or providing incentives to the providers from the WSD funds.
- Regular and routine monitoring of the environmental parameters is important for environmental enhancement. It is important to avoid mono-scaling up either from administration or researchers or influential persons.
- Working together in NRM, will be more sustainable, i. e. avoid hierarchical patterns in NRM. Resist treatment at lower reaches, at the first instance. Consider regional characteristics.
- Avoid fixed recipes, consider local culture and have flexibility NRM in particular.
- Equity and women empowerment need further attention for sustainable development.
- Training of the leaders from CBOs is needed for smooth transition of the programme.
- Rural marketing and sustainable livelihoods are needed to safeguard the rights of the disadvantaged.
- Correct silent famine (mal-nutrition), illiteracy and preventable diseases.

### Objectives

1. To examine the institutional arrangements for successful watershed projects in study areas,

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2. To analyse the overall impact of watershed projects on livelihood security in sustainable mode.

### **Hypothesis**

1. Collective action arrangement (norms, rules, equity, distribution, delivery and linkages of forward and backward) has made much dent for successful management of watershed Projects.
2. Training and exposure visits contributed the enhanced capacity and confidence among different stakeholders in the watershed area which was in turn helped the successful management of watersheds.
3. Dynamic leadership and Attitude, Skill and Knowledge arrangements made by PIA at the time of project implementation has helped the sustainable maintenance of the project even after the completion of the projects.

### **Study Area**

The study has been carried out in five states namely the Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, and Uttarakhand in the year 2011-12.

### **Methodology and Sampling**

The indicators of successful watersheds have been identified based on some sorts of indicators developed by Government Agencies and Civil Society Institutions. The selection of watersheds in the Five Sample States was made with the consent of the State Level Nodal Agency (SLNA). Two successful watersheds were selected in each state. The study covered the Pre and Post Watershed Project scenarios. The primary data were collected selecting the sample of 10 for User Groups including SMF (small and marginal) and LMF (large and medium), one each for Watershed Committee, Village Secretary, Gram Panchayat, PIA and three for SHGS and 10 for Labour/asset less) through structured questionnaires at different levels. The study of Effectiveness of Watershed Management was taken up in 10 watersheds; covering 6 under DPAP, 2 under IWDP and one each NWDpra and Uttarakhand Decentralised Watershed Development Programmes (UDWDP). In all 5 districts in 5 states 300 beneficiaries were chosen for the study. In the sample, there were 50 beneficiaries each from SMF and LMF categories, and 100 beneficiaries from landless/asset less and the rest 100 beneficiaries from WC, SHG, Village secretary, GP and PIA (see Table 1.1-annexure). First, the allotment of funds for these components and their use with reasons for shortfall or excess, were studied. The 'works' are supposed to involve the NRs (land, water, vegetation), encouraging farmers to adopt better production systems. Accordingly efforts were made to assess the pre- and post-project NRM, Production systems and Institutional building (include Human Resource Development). The pre-project data was taken as control. Not less than 30 primary stakeholders per watershed (both SMF & LMF) were selected and their views were elicited. In the case of eliciting views on community benefits, FGD approach was

adopted. The socio-economic impacts in limited way were also included in the study.

### **2.1 Institutional Arrangements in Successful Watershed: An Examination**

Various kinds of interventions can be used to enhance awareness of the potentials of collective action and facilitate its emergence. The informal institutions of local cooperation commonly exist in the developing world (Bardhan 1993). The other external agencies of one or the other type facilitated the emergence of formal institutions of collective action in many documented case studies. The success of collective action in a given situation once it evolves depends upon several factors. The classic impediments of collective action are group size and inequality. A number of factors, either internal or external to the group, are identified as important determinants for the success of collective efforts in managing commons. These include clearly defined boundaries, monitoring, mechanisms for conflict resolution, and recognition of rights to organise and presence of graduated sanctions to penalize violators (Ostrom 1990). Some of the factors identified to the success of collective efforts of farmer organisations include homogeneity, size, choice of services, commercial activities, self-reliance and autonomy, finance, skills and education, participation, organisational structure and governance, legislation and focus. (Stockbridge, et al. 2003). It is anticipated that many of these factors will be relevant for issues related to collective participation in watershed management.

Keeping in view of the past experiences mentioned above, the present paper looked at the social and institutional impact in 10 sample watersheds spreads across 5 states revealed that the PIA and the district level authorities have made stringent efforts toward better participation of different community in the watershed planning, implementation as well as maintenance of activities in the watershed. It was observed that the policy decision was made that some portion of budget allocation earmarked for capacity building exercise and has done at district level by the Project Director. The district authorities have taken the help from NGO for delivery of capacity building includes training and exposure visits. The in-built awareness level by the PIA and WDTs the response of the stakeholder's that was ensured and earmarked amount for capacity building has been utilised properly.

### **Institutional Arrangements in Sample State Watersheds:**

Institutional building implies the formation of groups, conduct of meetings, participation in the decision-making, planning, implementation and post-project maintenance of the project and finally maintenance of records. In the composition of watershed committee, landless/assetless, women and other socially backward people (SC/STs) were considerably involved so as to minimise inequalities and social

conflicts. As size-class-wise composition also some sort of equity was maintained to some extent. Considerable composition of marginal and small farmers was involved in watershed development activities. Each SHG was given some amount of money as revolving fund which they could use for providing loans at mutually agreed rate of interest to their members. Some sort of considerable mechanisms for conflict resolution, rules, norms and post-project arrangements were made in almost all the sample watersheds. The selection of members and meetings were held democratically. The priority of watershed viewed by the villagers was first in drinking water, improvement of fuel and fodder and income generating activities. Interestingly, the groups such as SHGs, UGs and Labour Groups were formed during project period in almost all watersheds and surprisingly the survival/functioning of these institutions after the project completion period were visible.

Experience has shown that sustainability of watershed management projects is closely linked to effective participation of the communities who derive their living from natural resources. This requires sustained effort to inform and educate the rural community, demonstrate to them the benefits of watershed development and that the project should be planned and implemented locally by the rural community with external expert help (from government and non-governmental agencies) as required. Since the rural societies in the poor and developing countries are plural and stratified, divisions are based on gender, caste and religious groups, and socioeconomic status including land tenure; ensuring participation of all sections becomes a major exercise in patience and social manoeuvring. These conditions call for a flexible approach and responsiveness to diverse, often unexpected situations. The better performance of the projects with higher-levels of participation seems to be related to the complex, often site-specific locally prevalent livelihood systems. It is important to understand the conditions when people participate in watershed management programmes. These are: (i) making people aware of potential benefits of collective action in conserving and managing natural resources; (ii) including demand driven activities in the watershed program; (iii) empowering people in planning, implementing and managing watershed programs; and (iv) expecting high private economic benefits. The major challenge is to benefit the landless, the socially disadvantaged and resource-poor participants who have low ability to pay for the different programmes. In fact these aspects were addressed in our sample watersheds.

The activities of PIA include formation of homogeneous groups such as SHGs, UGs, LGs and also formation of WC as per norms. Training, capacity building, exposure visits and DPR preparation with participatory approach are the other activities of the PIA. Besides, PIA has to ensure the gender equity in the planning and execution of the works. In addition to the above, the issues such as

regular meetings of the WC and WA, social audit and sharing of usufructs with a pro-poor bias were examined in the selected watersheds, mostly by FGD and by eliciting information from the PIA's.

#### **a) Formation of homogeneous groups**

On an average 7 SHGs, 7.2 UGs and 2.4 LGs were formed in the sample watershed areas. The groups were more in Andhra Pradesh, with 12 SHGs, 7 UGs and 4 LGs whereas very less in Maharashtra and Uttarakhand sample watersheds respectively (Table 2.1-annexure). The formation and strengthening of groups as well as continue even after withdrawal of the project by PIAs was positive impact as it was observed in our sample watersheds.

#### **b) Formation of WC**

Representation of CBOs, women, landless, SC/ST in WC was almost as per norms in the watersheds but varied in nature (Table 2.2-annexure). One of the effectiveness of watershed management indicators was the pro-poor bias in benefit sharing from the resource/asset developed in almost all the sample watersheds.

#### **c) Training and capacity building**

The frequency of training per year was more in Uttarakhand followed by Karnataka sample watershed projects. The participation per training was also more in Uttarakhand and Karnataka sample watersheds (Table 2.3-annexure). It was observed that considerable participation from women as well as SC/STs also ensured in almost all the sample watersheds.

There seems to be an active participation of women in the training programmes about more than 50 per cent of the trainees was women. SC/ST accounted for more than 40 per cent of the trainees. It was highest in Maharashtra (63 per cent).

#### **d) Exposure visits**

On an average 54 in Uttarakhand, 32 in Karnataka and 26 in Andhra Pradesh participated in exposure visits out of which, 62.5 per cent in Karnataka 61.5 per cent in Andhra Pradesh and 59.3 per cent in Uttarakhand were women participants (Table 2.4-annexure).

As far as participation of SC/ST is concerned, about 63 per cent in Maharashtra, 46 per cent in Andhra Pradesh and 33.3 Per cent in Uttarakhand of the total was participated in the exposure visits.

#### **e) DPR preparation**

In all the watersheds, DPR was available. About 4/5<sup>th</sup> of the DPR was prepared with participatory approach. In almost all the sample states about 3/4<sup>th</sup> of the DPR was in participatory mode (Table 2.5-annexure). Almost in all the cases of arid areas (96 per cent) DPR was prepared through participatory mode.

#### **f) Women in planning and execution of works**

The participation in the planning and execution of works by women was found in Uttarakhand 90 per cent, 82 per cent in Karnataka and 78 per cent in Andhra Pradesh (Table 2.6- annexure).

#### **g) Meetings of WC and WA**



On an average 11 out of scheduled 12 meetings (91.7 per cent) were held by WC in Madhya Pradesh, 12 out of 14 meetings (85.7 per cent) in Andhra Pradesh, whereas 83.3 per cent in Uttarakhand during the project period. However, the meetings conducted were observed to be less (61.1 per cent) in Karnataka watershed (Table 2.7- annexure). The WA met 10 times of scheduled 12 meetings (83.3 per cent) in Madhya Pradesh during the project period. In the hilly humid areas of Uttarakhand it was slightly less with 66.7 per cent.

#### **h) Pro-poor bias in usufruct sharing**

On an overall basis, it could be stated that in 2/3<sup>rd</sup> cases, the usufructs sharing was agreed in favour of poor. Encouraging response was from semiarid areas like Andhra Pradesh, Karnataka, Madhya Pradesh and Maharashtra (80.4 per cent) as against 62 per cent in the humid region such as Uttarakhand watersheds.

#### **i) Social audit**

On an average in half of the cases social audit was attempted. It was 100 percent in 2 states/schemes (Karnataka and Madhya Pradesh) while it was nil in one state/schemes (Semiarid Maharashtra). In other Semiarid Andhra Pradesh (88 per cent) and Humid Uttarakhand (78 per cent) areas the response was considerably also good.

#### **Capitalizing on the formation of CBOs:**

The implementation of the Watershed Development Project has resulted in enhancing and strengthening the CBOs at the habitation level. The SHGs have expanded their scope from thrift and loans and proved to be useful conduit for community based development. Even the UGs are now involved in thrift and loan activities. There is a large scope for involving both of them in NRM activities as well as doable production technologies. Further as CIGs they could be useful in product processing and marketing and also they could be involved in contract farming. As per NABARD (2008), there are over 5 million SHGs saving units as much as Rs.37854 million up to 2007-08. Andhra Pradesh stands first in formation of SHG followed by Karnataka (Table 2.8- annexure).

There are instances where the CBOs have already involved in production systems. So the CBOs as encouraged by NABARD may be involved to sustain the production systems and also to maintain and use the assets created through the project (eg. WHSs and developed CPRs).

One of the indicators for strengthening of institution building was conducting the meetings regularly and participation of different groups in the watershed. The field data as well as focus group discussions show that a number of meetings were held as against the norms of different community based organisations. The same trend was maintaining during post project situations. This was mainly because of the PIA and WDT members have made stringent efforts in this regard. The earmarked funds were also helpful to continue the groups as well the activities carry forward further. Internal fund raising was done among the groups and the proper capacity

building measures (training/exposure) were tagged with the groups by the PIA. This was observed in almost all the sample watersheds in 5 states.

#### **Participation and Capacity building:**

Empowerment of human resource is an important component in watershed development programme. Capacity building is a process by which groups, institutions and individuals increase their ability to understand and address their development needs in a sustainable manner. Ultimately, development takes place through organisations and institutions. As it is a continuous process, it should be undertaken at all stages of watershed development, viz., planning, and implementation and monitoring. Capacity building could be done through imparting training to the target groups, arranging exposure visits and making them more participatory in the whole gamut of implementation of watershed development programmes. Different people have different roles and responsibilities in project implementation and there is a need to train all the people involved. Training and exposure visits enhance knowledge, skill, attitude and human relationships. The experience show that the training programmes should aim at: (i) strengthening those processes, skills and knowledge that help in the delivery of various watershed development activities; (ii) improving the quality and content of the subject matter; and (iii) providing more number of relevant trainings involving more community participation particularly rural women (Palanisami. K and Suresh Kumar D, 2005). Therefore, it is essential to examine in depth the whole gamut of training towards capability building among the various clientele groups operating in watershed. As per the 1994 guidelines (implemented in April 1995 and revised guidelines of 2001 and subsequently later 2003 hariyali guidelines) for implementation of watershed development, people have new roles in programme planning and implementation. This calls for building new skills and capacities. This need is very well recognised and one full year is provided for this purpose. About 5 per cent of the total funds were allocated for community organisations and training.

The capacity building measures in our sample districts were found decentralised at district as well as watershed level and the full utilisation of earmarked funds by the PIA. The very high response of the stakeholders the earmarked amount for capacity building has been utilised properly. In view of the above, our field data show in the sample district watersheds, the high level of capacity building as well as confidence building measures coupled with the closeness between the PIA and Watershed committee (primary stakeholders) have led to efficient management of watershed structures and CPR management, in almost all the sample watersheds of five states. It reflects to some extent positive sustainability of watersheds. If we look at the financial allocation and expenditure incurred under these watersheds for capacity building, almost all funds earmarked for capacity building of the total

funds allocated/ expenditure was incurred for training and exposure visits. As part of Training programme and exposure visits, all member of different CBOs (Watershed Committees, SHGs and UGs) were trained at various levels.

### **3.1 Livelihood Opportunities in Sample Watershed Villages**

Watershed project is playing an effective role in enhancing the crop productivity by making irrigation water available in appropriate way. The primary survey result shows that the average water use per acre has increased significantly for the commercial crops for the large farmers; while in the case of food crops and horticulture average water use efficiency has improved due to water retention capacity for small and large farmers as well during the post project period. Since water is essential for agricultural production, the provision of adequate water by means of increasing ground water level and conservation of surface water are instrumental. With available water harvesting structures, farmers were inclined to new cropping pattern and agricultural diversification (towards vegetable cultivation, livestock and fisheries). Both agricultural diversification and intensification lead to increase in agricultural productivity in the regions where watershed programmes were found effective.

#### **Change in cropping pattern and productivity**

Watershed interventions provide an opportunity for change in cropping pattern on hand and strengthening the existing cropping systems on the other hand and it was observed from data analysed that the farmers both the small and the marginal as well as large category have been benefited from the change in cropping pattern and increase in productivity during the watershed development programme in the sample watershed villages. During the kharif season, Jowar is the main cereal crop followed by Bajra, and Maize. The pulses during this season in the watershed are Moong, Urd (black gram) followed by Tur (pigeon pea), and Chana. The oilseed crops during this season are Soyabean, followed by Til and Groundnut. During the rabi season main cereal crop is Wheat followed by Bajra, Maize and Jowar. The important pulses during this season are chana followed by moong. Soyabean and Groundnut are important oilseed crops. The summer season crop is not very common in this area. Area under pulses has increased significantly during the post project period. Area under vegetables has also shown significant improvement in the sample watershed villages. Productivity of Jowar has increased across all areas in the Kharif season. Moong also shows a significantly increased productivity in the Kharif season.

#### **Crop Productivity**

The change in the area and productivity of the major crops in both rabi and kharif season for both small and large farm category of farmers is given in Table

3.1. The data show that per farmer analysis on an average for the small farmers, the area of major cereal crop Jowar during kharif season has increased to some extent (percentage change 9.9) in the post project period but productivity has increased (percentage change 52.4) significantly (Table). For the pulses crop and oilseed crop in kharif season for small farmers, area and productivity both has improved. Whereas, for large farm category both the area and productivity of cereal crop Jowar in Kharif season has gone up. Area under pulses and oilseeds has also increased but there is also improvement in the productivity of pulses and oilseeds in Kharif season for large farmers. The highest change in the area and productivity is observed during the post project period for the cotton crop. For both the category of farmers it has significantly improved. Overall the impact of investment in watershed has favoured small farmers both the area as well as productivity of cotton, vegetable and course cereals.

During the rabi season major cereal crops were Maize and Bajra. Area and productivity both have improved for the rabi cereal crop in the post project period. For pulses and oilseeds crops, the change is in favour of small farmers where both the area and productivity has increased significantly (Table 3.1- annexure).

#### **Cropping Intensity**

Crop intensity (CI) is a major source of productivity increase and agriculture growth in the country. Enhancing the cropping intensity is one of the ways to increase crop production. The farmers with large holdings may look for enhancing production by vertical growth of yields while smallholders may look for increasing CI to have more income. Back in 1981-82 more than one crop was grown only 1/4<sup>th</sup> of the area. During the two decades since then, crop intensity increased from 124% to 128%. Three points of the Input Survey show that the crop intensity remains the highest in marginal holdings and declined with an increase in farm size. In the latest year of the Input Survey marginal farmers took a second crop on 39% area compared to 25% and 21% on medium and large holdings (Ramesh Chand and et al. 2011). These results shows that small and marginal holders in India have been making much more intensive use of land compared to upper size categories. Enhancing the Cropping Intensity (CI) is one of the ways to increase crop production. The farmers with large holdings may look for enhancing production by vertical growth of yields while smallholders may look for increasing CI to have more income.

Cropping intensity on an average per watershed in the 10 sample watersheds for both the small and large cultivators has increased but it was more in case of small farmers. The cropping intensity has improved on an average in Andhra Pradesh (6.3%), Karnataka (19.1%), Madhya Pradesh (4.1%), Maharashtra (4.3%) and Uttarakhand (5.3%) respectively for large farmers and by 7.1%, 31.8%, 9.5%, 79.4% and 2.4% respectively for the small

farmers (Table 3.2- annexure). Nevertheless, for both large and small farm category of farmers the data is showing an increase in the cropping intensity.

### **Crop diversification**

Watershed development programme provides an opportunity to farmers to generate farm income within short period through crop intensification and diversification. Crop diversification is the technique of intensification of crop and maximum utilization of specific land for using multiple crops in a short period. One of the major objectives of the watershed development programmes was to diversify crop in order to generate high income and employment opportunities within short period from limited available land. Therefore, the diversification examined the temporal shifts in the area towards food crops to commercial, horticulture and vegetables crops. To augment HH income the farmers tend to move to a) commercial crops and b) horticulture crops include vegetables. In fact the SMF contribute upto 50 per cent of fruits and vegetables to the national pool.

### **Diversification to commercial crops**

There was a perceptible increase in area under commercial crops in the semi-arid areas of Karnataka and Maharashtra being 35.4 and 25.7.ha /watershed with SMF and 21.0 and 33.4 ha/watershed with LMF. However there was a thrust on commercial crops in semi-arid areas of Andhra Pradesh, Madhya Pradesh and humid region of Uttarakhand (Table 3.3-annexure). The data revealed that in both SMF and LMF the crop diversification took place towards food crops to commercial crops. When compared in different agroclimatic regions, there was perceptible difference in semi-arid as well as humid areas where large holders increased area under commercial crops as compared to the case of smallholders.

### **Diversification to horticulture**

Diversification has brought mixed results in our 10 sample watershed villages across five states. As pointed out earlier, the smallholders brought more area under horticulture. The sample watershed states as Karnataka, Maharashtra and Uttarakhand where the small farmers brought more area under horticulture (Table 3.4- annexure). At the same time the sample states as Andhra Pradesh and Madhya Pradesh where the large farmers brought more area under horticulture.

### **Availability of cereals for consumption at HH level**

From the primary surveys, availability of cereals was ascertained with SMF and LMF. With the implementation of the project, the availability of cereals at HH level increased to 49.7 per cent with SMF and to 36.7 per cent with LMF. There was significant increase in semi-arid Andhra Pradesh. Insofar as LMF are concerned, the range was 22.5 per cent in semi-arid Andhra Pradesh to 23.1 per cent in

semi-arid Karnataka. The per cent increase was more with SMF (49.7) than with LMF (36.7). But the availability levels were generally better with LMF (Table 3.1). The SMF of Uttarakhand were having availability less in accessing food (cereals: rice) as compared to other ecosystems. Overall availability was more with the semi-arid areas such as Andhra Pradesh, Karnataka, Madhya Pradesh and Maharashtra due to the impact of the project.

### **Livestock Enterprises**

Under semi-arid rainfed conditions, the pre-dominant farming system in almost all watershed areas is the mixed crop-livestock farming. Livestock constitute an important asset base on which village communities depend for supplementary incomes, especially in times of stress. With diminishing land-holding size, diversification of agriculture became an unavoidable compulsion and for vast majority of households in water scarce areas, livestock invariably was the first option. India accounts for a significant share of world's livestock resources with nearly 57% of the world's buffaloes, 16.5% of cattle, 16.2% of goats, 5.7% sheep and 5% of poultry (FAO, 2004). Though the contribution of agriculture and allied sectors to the Gross Domestic Product (GDP) has declined during the last few decades, livestock sector has been among the few high-growth sectors in rural India. In the selected states the livestock population (Table 3.6- annexure) were as follows

In the present study, the stock of bovines and small ruminants per watershed was reported during pre and post project periods. Diversification towards livestock farming has very important role in increasing the farm income. Average number of livestock per household has increased during the post project period for both small and large category of farmers in the sample village watersheds. Increase is much higher and significant among the large farmers for buffalo. Number of milch cows and buffalo has also increased in the post project period (Table 3.7-annexure). It was also observed that considerable positive impact towards increase of small ruminants in almost all the sample village watersheds.

### **Milk Production**

An important livelihood option to the farmers is dairying. The CAGR in milk production is way above crop production in our country. Globally India stands first in total milk production. Annual average milk production in the country is only 795 litres as compared to world average of 2021 litres. Thus even though, as a producer of milk, India stands first, its yield levels are very low.

But our 10 sample watershed villages milk production per annum for small and large farmers in pre and post project period shows that total milk production in the selected sample watersheds for small and large farmers have increased significantly whereas it was more for small farmers. Marginal increase in milk days was observed for both the categories of farmers (Table 3.8- annexure). The total milk production from cows by small farmers has

increased to 14.4 to 94.4 per cent. However, for the large farmers, it has changed 13 to 49.4 per cent.

As per primary survey at HH level of the SMF and the LMF, the adequacy plus surplus of milk produced by them was examined.

Overall there was an increase in the adequacy at HH level 1.3 to 56.7 per cent with SMF and 10.8 to 67.9 per cent with LMF. In case of SMF the range was 1.3 per cent (Karnataka) to 56.7 Maharashtra during the post-project period. However significant increase in adequacy was observed in Andhra Pradesh, Maharashtra and Madhya Pradesh (Table 3.9- annexure). Insofar as LMF are concerned, the post –project range was 10.8 per cent in Karnataka to 67.9 per cent in Madhya Pradesh.

### **Employment Generation**

Economic effectiveness is considered as one of the major achievement of watershed programme. Increase in income from different activities of agriculture, livestock, and non-farm sector has been found significantly in most of the sample watersheds. The study has worked out income levels of different size classes of farmers of their average income per household per annum. Due to watershed development practices, impact on household income can be attributed to a number of factors. Some of them include cropping pattern, animal husbandry and employment diversification. Cropping pattern in turn is governed by involvement of risk and prices of different crops in the market. Animal husbandry is an alternative livelihood, which is mostly influenced by availability of CPRs in that area and suitability of weather conditions. In the study regions, agriculture is the dominant source of income, followed by livestock and non-farm sector. The relative shares of income have positively changed after the introduction of different practices not only from agriculture and livestock but also from labour in different locations of farmers. However, one should not attribute this positive trend solely to these practices, as other factors also contributed in this regard.

In India, rural employment has undergone significant changes during the recent decades. The total rural employment grew at the rate of 1.23% per annum during 1983-to 1994. However non-agricultural employment grew faster than agricultural employment between 1993-2004. Non-agricultural employment grew at the rate of 3.33% per year compared with 1.7% per year during the pre-reform period as a percentage of total rural employment, non-agricultural employment increased from 22% in 1993 to 28% in 2005. Watershed played a dominant role in boosting up the rural employment generation. Watershed project has the strong potential of employment generation that varies across regions depending on cropping intensity and labour intensive crops grown in that region. This in result led to minimising migration of landless and other labour in the villages (Sharma SSP and U H Kumar 2010). Looking at the employment scenario in the country as a whole, it shows only a gradual change the overall rate of growth of employment between 1983 and

2007-08 is 1.8% per annum by usual status as against the population rate of growth at 1.98% per annum and GDP growth rate of 6.12% per annum at 1999-2000 prices. The growth rate of rural employment during the same period has been 1.44% per annum as against population growth rate of 1.66% per annum (Himanshu, 2011)

It is well known that NRM activities create employment though one time, in works related to water harvesting, soil conservation and CPR development. But with a successful implementation of the watershed development programme it is expected to generate additional employment in several ways. First is the enhanced crop production (increase in CI, increase in irrigated and/or rainfed area). Second is diversification to enterprises like dairying. Third is micro enterprises live vermincompositing, green fodder production, homestead farming etc. The fourth area is non-farm activities like NTFPs, bee keeping, mushroom production etc. Abraham (2008) showed that male members are employed more in non-farm sector than women as seen below. In their study, the Institute of Economic Growth, Delhi found that the share of non-farm employment out of the total employment varies in nature (Table 3.10- annexure). In fact in several states over the years the non-farm employment is on the rise.

### **Non-farm rural employment**

In another pioneering study of NCAER (2002), income from non-farm employment varied from state to state being 19.6 percent in Maharashtra. Farm income from cultivation was more in Karnataka (69.6 percent) (Table 3.11- annexure). It is varied in nature. There was considerable contribution from non-farm sector too in our sample watershed states. In other words employment on farm alone would be inadequate for a sustainable living of the farmers, more so the SMF.

### **On-farm labour days during pre and post project periods**

Overall, there was increased employment days range from 21 in Andhra Pradesh to 55 in Karnataka for men and 19 in Uttarakhand to 59 in Karnataka for women during project and post project scenario (Table 3.12- annexure).

Agro-climatologically, the increase in on-farm labour days was almost all 10 sample watershed villages in the case of both men and women in semi-arid and humid areas. In semi-arid areas the increase was a range of 21 (Andhra Pradesh) and 55 (Karnataka) days for men and 22 (Madhya Pradesh) and 59 (Karnataka) days for women. The on-farm labour days were highest in semi-arid for both men and women and lowest in hilly humid areas for women.

### **Non-farm labour days**

As reported by Abraham, the number of non-farm labour days was lower with women compared to men. The study results were also reveals the same.

They were 7 days (Andhra Pradesh) and 35 (Uttarakhand) for men and 6 days (Madhya Pradesh) and 19 days for women increased in the post-project period (Table 3.13- annexure).

As pointed earlier, the men were more involved in non-farm activities than women. Agro-climatologically both in humid and semi-arid zones the non-farm employment was more. Additional labour days were highest with men of hilly humid area and lowest with women of the semi-arid ecosystem.

#### **Economic Effectiveness**

The economic effectiveness was measured in terms of increase in income generation at HH level of both the SMF and the LMF. Further, the debt reduction in both SMF and LMF perspectives as well as percentage reduction in migration in both men and women was analysed. Finally, the CBR and IRR were also examined.

#### **Increase in income generation**

The Economic effectiveness measured through increase in income show that there is substantial increase in income (nominal rate) of the people in the post project period. The survey data shows that for small farm category farmer, total average annual household income from agriculture, non-farm sector, and livestock have increased by 40.8 per cent (Andhra Pradesh) at lowest and 63.2 per cent (Uttarakhand) at the highest. Whereas this increase for large farm size category farmers have been 27.9 per cent (Andhra Pradesh) at lowest and 51.8 per cent (Uttarakhand) at the highest (Table 3.14- annexure). Therefore, we can say gain is more to the small farmers. The sources of increase in this income has mostly come from crop production followed by non-farm sector include labour and livestock. Income increase in watershed programme is inevitably related to the sustenance of the project as the beneficiaries consider the project as one of the important option to be engaged for their livelihood.

#### **Debt reduction**

The impact of WS project is more visible and effective an income generation at HH levels. It has positive impact on debt reduction. Overall, there was 6.8 per cent (Karnataka) and 48.8 per cent (Maharashtra) reduction with SMF (Table 3.15- annexure). In the case of LMF, it was a reduction of 3.6 per cent (Uttarakhand) and 42.9 per cent (Madhya Pradesh).

#### **BCR and IRR**

The planning commission suggested a BCR of 1.3 as viable entity in the case of watershed. In the present study, the overall BCR was 1.2 (Andhra Pradesh, Uttarakhand and Madhya Pradesh) and 4.2 (Maharashtra) and 1.7 (Karnataka) (Table 3.16- annexure). It ranged from 1.2 in semiarid Andhra Pradesh to 4.2 in the case of semiarid Maharashtra. The IRR (per cent) was 57.5 in semiarid Maharashtra to 12.0 in semiarid Andhra Pradesh.

Thus Maharashtra watershed development programme indicated superiority, largely due to increased diversification, particularly livestock activities.

#### **4.1 Conclusions, Suggestions and Recommendations**

During the recent years, watershed as an approach for resource conservation and poverty alleviation evolved with various tools for bringing the stakeholders and the distant beneficiaries together. This has strengthened the participatory management of watershed programmes. Based on the preceding analysis coupled with our wider field observations, we discuss here some of the important recommendations and policy implications of the effectiveness of watershed management projects. The watershed Development Programmes (10 sample watersheds- IWDP, DPAP, NWDPR and UDWDP) in five states shows mixed results at different micro-watershed level. The study found the positive impact on bio-physical factors due to the construction of filed bunds, soil and water conservation structures. Increase in soil moisture, soil fertility and water retention period helped to harness the bio-physical resources in sample watersheds. Based on the data analysis and field-based observations the following are recommended for further effective post project. The above summary calls for certain recommendation and policy implication at wider spectrum.

1. The first and foremost recommendation is to enhance capacity and confidence building measures should be decentralized and demand-driven at watershed level and for different stakeholders. Our field data showed that due to centralization of capacity building measures at the district, the core and need-based components at watershed level have been ignored. Each watershed has its own agenda for training and exposure visits according to location-specific as well as the availability of resources. The capacity building aspects should be designed at the time of problem identification and prioritization of the watershed activities. Efforts are made to enhance fund allocation for better capacity building measures. Better training efforts could help to ensure participation of different stakeholders through contributions, spent of time and watching/guard/ maintenance of watersheds.
2. Since the core group to whom the sustainability of watershed lies for planning, implementation, monitoring and post project maintenance of watershed, unfortunately the involvement of these core group (PIA and Watershed Development Team and Watershed Committee) members at the watershed level were appearing to be very weak in some of sample watersheds. It was found that PIA and WDTs spending time and involvement in the formation, empowering the groups in the watershed activities was very poor. Hence, delay in decision-making process in the watersheds was observed. As a result,



sustenance of SHGs, their functioning, contribution by user groups and maintenance of structures as well as rising of Watershed Development Fund was lacking. The conversion of social capital in to economic capital among SHGs and contributions by the UGs to Watershed Development Fund (WDF) has not materialized in a substantive manner. Hence, Enabling of primary and secondary stakeholders need to be addressed properly.

3. The conversion of natural capital to the economic capital in gainful manner in 10 sample watersheds has been in an effective way established to some extent. Though bio-physical impact gave some room for improvement of productivity, employment, reduction in debt and migration, the sustenance of common pool resources have not addressed properly. The availability of irrigation is central to increased cropping intensity, crop productivity, hence labour absorption and reduced migration.

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However, irrigation benefits are often limited to a subset of households within the village community. The critical issue therefore, is to expand the coverage of irrigation benefits through revival of water bodies if; larger number of poor households is to gain from the project. Another aspect is development of CPRs can be an important means to influence a larger number of poor households. But, this needs significant changes in the ownership as well as management structures. Since participatory in common land is complementary with that in water, the need is to explore a large part of the available water through repair, renovation and restoration (RRR) as common pool resource and thereby expand its net of beneficiaries so that the sustenance of watershed and its benefits accrued to the different section of people will be reached judiciously.

**Annexure**

**Table 1.1: Details of Sample Villages/watersheds**

S.L No.	State	District	Mandal/ Block	Watershed Name/ Village	Sample size			
					SMF	LMF	Land less/ asset less	Others (include WC/VS/ GP/PIA/ SHGs)
1.	Andhra Pradesh	Visakhapatnam	Kotavarutla	Pandur/IWDP Watershed (2003-2008)	05	05	10	10
			Makavaripalem	Rachapalli/IWDP Watershed (2003-2008)	05	05	10	10
2.	Karnataka	Chikballapur	Siddagatla	Kannemangala/D PAP Watershed (2002-2008)	05	05	10	10
			Chintamani	Hirekattigenahalli/DPAP Watershed(2002-2007)	05	05	10	10
3.	Madhya Pradesh	Chindwara	Mohkhed	Sarungbehri/DPA P Watershed (2007-08 to 2011-12)	05	05	10	10
			Parasia	Satnoor/DPAP Watershed (2007-08 to 2011-12)	05	05	10	10
4.	Maharashtra	Sangli	Kadegoan	Nerli/DPAP Watershed (2003-04 to March 2012)	05	05	10	10
				Sonkeri/DPAP Watershed (2003-04 to March 2012)	05	05	10	10

5.	Uttarakhand	Dehradun	Kalsi	Aragad/NWDPR A Watershed (2007-08-continued)	05	05	10	10
			Pauri (Garhwal)	Sarnoka Khala(UDWDP-World Bank) Watershed (2005-06-continued)	05	05	10	10

**Table 2.1: No. of Groups Formed per Watershed**

Name of the State/Watershed (Average)			Programme	SHG (Nos)	UGs (Nos)	LGs (Nos)
Andhra Pradesh	Visakhapatnam	Pandur/ Rachapalli	IWDP	12	7	4
Karnataka	Chikbhallapur	Kannemanagala/ Hirekattigenahalli	DPAP	7	6	2
Madhya Pradesh	Chindwara	Sarungbehri/ Satnoor	DPAP	6	11	6
Maharashtra	Sangli	Nerli/ Sonkeri	DPAP	5	6	0
Uttarakhand	Dehradun	Aragad / Sarnoka Khala	NWDPR, UDWDP	5	6	0
Average				7.0	7.2	2.4

**Table 2.2: Social and Institutional Impacts**

Name of the State/Watershed (Average)			Programme	Representation of CBOs, Women, Landless, SC/ST in WC (%)	Social Audit (%)	Pro- poor bias in benefit sharing (%)
Andhra Pradesh	Visakhapatnam	Pandur/ Rachapalli	IWDP	100	88	100
Karnataka	Chikbhallapur	Kannemanagala/ Hirekattigenahalli	DPAP	85	100	100



Madhya Pradesh	<b>Chindwara</b>	<b>Sarungbehri/ Satnoor</b>	DPAP	100	100	100
Maharashtra	<b>Sangli</b>	<b>Nerli/ Sonkeri</b>	DPAP	78	0	70
Uttarakhand	<b>Dehradun</b>	<b>Aragad / Sarnoka Khala</b>	NWDPR, UDWDP	100	74	100

**Table 2.3: Capacity Building**

Name of the State/Watershed (Average)		Program me	Frequency of trainings/year (Nos.)	Participati on per training (Average)	Women Participan ts (Nos.)	SC/ST Participa nts (Nos.)
Andhra Pradesh	<b>Visakhapatna m</b>	<b>Pandur/ Rachapalli</b>	IWDP	6	26	16
Karnataka	<b>Chikbhallapur</b>	<b>Kannemanag ala/ Hirekattigena halli</b>	DPAP	7	32	20
Madhya Pradesh	<b>Chindwara</b>	<b>Sarungbehri/ Satnoor</b>	DPAP	6	18	8
Maharashtra	<b>Sangli</b>	<b>Nerli/ Sonkeri</b>	DPAP	4	22	12
Uttarak hand	<b>Dehradun</b>	<b>Aragad / Sarnoka Khala</b>	NWDPR A, UDWDP	12	54	32

**Table 2.4: Exposure Visits: Participation of Women and SC/ST members**

Name of the State/Watershed (Average)		Program me	Women Particip ants (Nos.)	Women (%)	SC/ST Partici pants (Nos.)	SC/S T (%)
Andhra Pradesh	<b>Visakhapatna m</b>	<b>Pandur/ Rachapalli</b>	IWDP	16	61.5	12
Karnataka	<b>Chikbhallapur</b>	<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	20	62.5	8
Madhya Pradesh	<b>Chindwara</b>	<b>Sarungbehri/ Satnoor</b>	DPAP	8	44.4	4

Maharashtra	<b>Sangli</b>	<b>Nerli/ Sonkeri</b>	DPAP	12	54.5	14	63.6
Uttarakhand	<b>Dehradun</b>	<b>Aragad / Sarnoka Khala</b>	NWDPR A, UDWDP	32	59.3	18	33.3

**Table 2.5: DPR: Peoples Participation**

Name of the State/Watershed (Average)			Programme	DPR Available (%)	No. of Watershed where Watershed Map is Available (%)	Preparation of DPR	
						Participatory (%)	Only PIA/WDT (%)
Andhra Pradesh	<b>Visakhapatnam</b>	<b>Pandur/ Rachapalli</b>	IWDP	100	100	100	0
Karnataka	<b>Chikbhallapur</b>	<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	80	80	80	20
Madhya Pradesh	<b>Chindwara</b>	<b>Sarungbehri/ Satnoor</b>	DPAP	100	100	90	10
Maharashtra	<b>Sangli</b>	<b>Nerli/ Sonkeri</b>	DPAP	100	90	100	0
Uttarakhand	<b>Dehradun</b>	<b>Aragad / Sarnoka Khala</b>	NWDPR A, UDWDP	100	100	100	0

**Table 2.6: Participation of Women in Planning & Execution of WDP**

Name of the State/Watershed (Average)			Programme	Participation of Women (%)
Andhra Pradesh	<b>Visakhapatnam</b>	<b>Pandur/ Rachapalli</b>	IWDP	78
Karnataka	<b>Chikbhallapur</b>	<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	82
Madhya Pradesh	<b>Chindwara</b>	<b>Sarungbehri/ Satnoor</b>	DPAP	66
Maharashtra	<b>Sangli</b>	<b>Nerli/ Sonkeri</b>	DPAP	55
Uttarakhand	<b>Dehradun</b>	<b>Aragad / Sarnoka Khala</b>	NWDPR, UDWDP	90

**Table 2.7: Conduct of Regular of Meeting of WC during the Project Period**

Name of the State/Watershed (Average)			Program me	WC			WA/GP		
				As per norms (No.)	Actually held (No.)	% Achieved	As per norms (No.)	Actually held (No.)	% Achieved
Andhra Pradesh	Visakhapatnam	Pandur/Rachapalli	IWDP	14	12	85.7	8	6	75.0
Karnataka	Chikbhallapur	Kannemanagala/Hirekattigenahalli	DPAP	36	22	61.1	8	6	75.0
Madhya Pradesh	Chindwara	Sarungbehri/Satnoor	DPAP		11	91.7	12	10	83.3
Maharashtra	Sangli	Nerli/Sonkeri	DPAP	10	8	80.0	4	4	0
Uttarakhand	Dehradun	Aragad / Sarnoka Khala	NWDPR A, UDWDP	24	20	83.3	12	8	66.7

**Table 2.8: State-wise SHGs and their savings**

	State	No. of SHG	Savings (Rs lakhs)	Saving per SHG (Rs)
1.	Andhra Pradesh	1007071	97125.26	9644.33
2.	Karnataka	484376	38849.06	8020.43
3.	Madhya Pradesh	150845	9203.35	6101.20
4.	Maharashtra	170065	8155.23	4795.36
5.	Uttarakhand	30078	1310.88	4358.27
	<b>All India</b>	<b>5009794</b>	<b>378538.94</b>	<b>7555.98</b>

Source: NABARD, 2008

**Table 3.1: Change in Cropping Pattern (Average of 10 Watersheds)**

Crop	Pre Project/per farmer				Post Project/per farmer			
	Small holders		Large holders		Small holders		Large holders	
	Area (ha)	Yield (kg/ha)	Area (ha)	Yield (kg/ha)	Area (ha)	Yield (kg/ha)	Area (ha)	Yield (kg/ha)
<b>Kharif</b>								
Cereals (Jowar, Bajra, Maize, Vegetables)	1.11	1990	3.12	2445	1.21	2980	3.98	3342
Pulses (Moog, Urd, Tur, Chana)	0.28	1267	0.77	1453	0.39	1688	0.99	2002
Oil seeds (Soyabean, Groundnut)	0.18	779	1.18	1068	0.27	1022	1.59	1327
<b>Rabi</b>								

Cereals (Wheat, Bajra, Maize, Jowar, Vegetables)	0.70	1980	1.58	2895	1.28	3113	1.98	3894
Pulses (Chana, Moong)	0.19	566	0.58	980	0.28	778	1.18	1012
Oil seeds (Soyabean, Groundnut)	0.15	1021	0.39	1353	0.28	1969	1.05	2254

% Change/per farmer			
Small holders		Large holders	
Area (ha)	Yield (kg/ha)	Area (ha)	Yield (kg/ha)
Kharif			
9.0	49.7	27.6	36.7
39.3	33.2	16.9	37.8
50.0	28.6	34.7	24.3
Rabi			
82.8	57.2	25.3	34.5
47.4	37.4	103.0	3.3
86.7	92.8	169.2	66.6

**Table 3.2: Cropping Intensity**

Name of the State/Watershed (Average)	Programme	SMF			LMF		
		Pre Project (%)	Post Project (%)	% Change	Pre Project (%)	Post Project (%)	% Change
<b>Pandur/ Rachapalli</b>	IWDP	130.0	140.0	7.1	150.0	160.0	6.3
<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	110.0	145.0	31.8	110.0	131.0	19.1
<b>Sarungbehri/ Satnoor</b>	DPAP	117.5	128.7	9.5	122.4	127.9	4.5
<b>Nerli/ Sonkeri</b>	DPAP	67.9	122.6	79.4	114.0	118.9	4.3
<b>Aragad / Sarnoka Khala</b>	NWDPR, UDWD	125	128.0	2.4	131	138	5.3

**Table 3.3: Diversification in Agriculture – Food crops to Commercial crops (SMF & LMF) (Area in ha per Watershed)**

Name of the State/Watershed (Average)	Programme	SMF	LMF
		Increase/ decrease in area (ha)	Increase/ decrease in area (ha)
Pandur/ Rachapalli	IWDP	2.2	3.6
Kannemanagala/ Hirekattigenahalli	DPAP	35.4	21.0
Sarungbehri/ Satnoor	DPAP	2.4	5.7
Nerli/ Sonkeri	DPAP	25.7	33.4
Aragad / Sarnoka Khala	NWDPRA, UDWDP	3.2	6.8

**Table 3.4: Diversification in Agriculture – Crops to Horticulture (SMF & LMF) (Area in ha per Watershed)**

Name of the State/Watershed (Average)	Programme	SMF	LMF
		Increase/ decrease in area (ha)	Increase/ decrease in area (ha)
Pandur/ Rachapalli	IWDP	5.4	7.0
Kannemanagala/ Hirekattigenahalli	DPAP	6.6	5.0
Sarungbehri/ Satnoor	DPAP	2.8	4.4
Nerli/ Sonkeri	DPAP	5.0	4.8
Aragad / Sarnoka Khala	NWDPRA, UDWDP	5.0	4.9

**Table 3.5: Livestock population ('000s)**

State	Cattle		Buffaloes		Sheep		Goat	
	1997	2003	1997	2003	1997	2003	1997	2003
Andhra Pradesh	10602	9300	9638	10630	9743	21376	5213	6277
Karnataka	10832	9538	4361	3991	8003	7256	4875	4484
Madhya Pradesh	19497	18912	6648	7575	657	546	6470	8142

Maharashtra	18072	16303	6073	6145	3368	3094	11434	10684
Uttarakhand	2030	2181	1094	1228	311	296	1070	1158

Source: Directorate of Economics and Statistics, MoA, GoI

**Table 3.6: Livestock-Bovines & Small Ruminants**

Name of the State/Watershed (Average)	Programme	Bovines			Small Ruminants		
		Pre Project (Nos)	Post Project (Nos)	% Change	Pre Project (Nos)	Post Project (Nos)	% Change
Pandur/ Rachapalli	IWDP	46	68	48	124	203	63
Kannemanagala/ Hirekattigenahalli	DPAP	195	360	85	665	790	19
Sarungbehri/ Satnoor	DPAP	186	221	19	211	266	26
Nerli/ Sonkeri	DPAP	498	634	27	468	551	18
Aragad / Sarnoka Khala	NWDPRA, UDWDP	56	97	73	150	171	14

**Table 3.7: Increase in Milk Production [Cows + Buffaloes (SMF & LMF)]**

Name of the State/Watershed (Average)	Programme	SMF			LMF		
		Pre Project (litres /annum)	Post Project (litres /annum)	% Change	Pre Project (litres /annum)	Post Project (litres /annum)	% Change
Pandur/ Rachapalli	IWDP	606	1177	94.4	747	1055	41.1
Kannemanagala/ Hirekattigenahalli	DPAP	798	913	14.4	1227	1545	26
Sarungbehri/ Satnoor	DPAP	1110	1590	43.3	1284	1919	49.4
Nerli/ Sonkeri	DPAP	943	1121	18.9	1023	1156	13
Aragad / Sarnoka Khala	NWDPRA, UDWDP	137	168	22.6	550	648	18

**Table 3.8 Availability of Milk for Consumption at Household Level**

Name of the State/Watershed (Average)	Programme	SMF			LMF		
		Pre Project (%)	Post Project (%)	% Change	Pre Project (%)	Post Project (%)	% Change
Pandur/ Rachapalli	IWDP	61.6	76.4	24.0	73.6	88.8	20.7
Kannemanagala/ Hirekattigenahalli	DPAP	94.1	95.3	1.3	80.7	89.4	10.8
Sarungbehri/ Satnoor	DPAP	42.4	58.6	38.2	45.5	74.5	63.7
Nerli/ Sonkeri	DPAP	21.2	33.2	56.7	28.0	47.0	67.9
Aragad / Sarnoka Khala	NWDPRA, UDWDP	85.0	90.4	6.4	78.8	95.9	21.7

**Table 3.9: Per cent share of farm and non-farm employment (per cent)**

	State	Agriculture		Non-agriculture	
		1983	1999	1983	1999
1.	Andhra Pradesh	74.93	77.24	25.07	22.76
2.	Karnataka	80.43	80.80	19.57	19.20
3.	Madhya Pradesh	86.61	86.43	13.39	13.57
4.	Maharashtra	78.50	79.74	21.50	20.26
5.	Uttar Pradesh	80.01	77.74	19.99	22.26

Source: NSSO

**Table 3.10: Non-farm Income in Rural India by State**

	State	Cultivation	Agri. Wages	Non-farm	Others	Real Per Capita income (Rs)
1.	Andhra Pradesh	55.7	19.7	23.4	1.1	5046
2.	Karnataka	69.6	8.9	20.1	1.4	4767
3.	Madhya Pradesh	69.4	7.3	21.4	1.9	4159
4.	Maharashtra	66.9	10.0	19.6	3.4	5524
5.	Uttar Pradesh	54.6	2.9	40.4	2.1	4185

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P.Lanjouw & A.Shariff (2002)

**Table 3.11: Increase in labour days per annum – Agriculture Activity (Men & Women)**

Name of the State/Watershed (Average)	Programme	Men			Women		
		Pre Project (No.)	Post Project (No.)	Increase in Labour days	Pre Project (No.)	Post Project (No.)	Increase in Labour days
Pandur/ Rachapalli	IWDP	41	62	21	45	69	24
Kannemanagala/	DPAP	195	250	55	172	231	59

<b>Hirekattigenahalli</b>							
<b>Sarungbehri/ Satnoor</b>	DPAP	64	106	42	43	65	22
<b>Nerli/ Sonkeri</b>	DPAP	217	245	28	226	273	47
<b>Aragad / Sarnoka Khala</b>	NWDPRA, UDWDP	74	120	46	35	54	19

**Table 3.12: Increase in labour days – Non-farm Activity**

Name of the State/Watershed (Average)	Programme	Men			Women		
		Men Pre (No.)	Men Post (No.)	Increase in Labour days	Men Post (No.)	Men Pre (No.)	Increase in Labour days
<b>Pandur/ Rachapalli</b>	IWDP	22	29	7	26	36	10
<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	80	93	13	89	98	9
<b>Sarungbehri/ Satnoor</b>	DPAP	16	28	12	5	11	6
<b>Nerli/ Sonkeri</b>	DPAP	108	123	15	88	106	18
<b>Aragad / Sarnoka Khala</b>	NWDPRA, UDWDP	72	107	35	18	37	19

**Table 3.13: Economic Effectiveness – Increase in Income Generation per HH (SMF & LMF)**

Name of the State/Watershed (Average)	Programme	SMF			LMF		
		Pre Project (%)	Post Project (%)	% Change	Pre Project (%)	Post Project (%)	% Change
<b>Pandur/ Rachapalli</b>	IWDP	38660	54447	40.8	104338	133472	27.9
<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	31873	45670	43.3	75826	101304	33.6
<b>Sarungbehri/ Satnoor</b>	DPAP	27476	40227	46.4	101878	138788	36.2
<b>Nerli/</b>	DPAP	105423	152137	44.3	151286	214870	42.0



<b>Sonkeri</b>							
<b>Aragad / Sarnoka Khala</b>	NWDPRA, UDWDP	59524	97115	63.2	60831	92352	51.8

**Table 3.14: Economic Effectiveness – Debt Reduction with WDP (SMF & LMF)**

Name of the State/Watershed (Average)	Programme	SMF		LMF	
		Debit Reduction (Rs/year)	% Change	Debit Reduction (Rs/year)	% Change
<b>Pandur/ Rachapalli</b>	IWDP	19793	-22.4	23793	-19.4
<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	4588	-6.8	6657	-9.9
<b>Sarungbehri/ Satnoor</b>	DPAP	16942	-16.1	15096	-42.9
<b>Nerli/ Sonkeri</b>	DPAP	4150	-48.8	216225	-29.0
<b>Aragad / Sarnoka Khala</b>	NWDPRA, UDWDP	8777	-36.0	18669	-3.6

(-) sign indicates debt reduction

**Table 3.15: BCR & IRR**

Name of the State/Watershed (Average)	Programme	Cost-benefit ratio	Internal rate of return (%)
<b>Pandur/ Rachapalli</b>	IWDP	1.2	12.0
<b>Kannemanagala/ Hirekattigenahalli</b>	DPAP	1.7	18.0
<b>Sarungbehri/ Satnoor</b>	DPAP	1.2	33.0
<b>Nerli/ Sonkeri</b>	DPAP	4.2	57.5
<b>Aragad / Sarnoka Khala</b>	NWDPRA, UDWDP	1.2	16.5

## Watershed Development in Bundelkhand: Impact, Issues and Interventions<sup>1</sup>

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### Abstract

Since millions of rupees have been spent from the public exchequer on the watershed development programmes in India, it is imperative to examine how these programmes have impacted the lives of rural people, rejuvenated the natural resource-base, and improved the livelihood support system. Keeping these aspects in view, this paper examines the impact of WDP on income, employment, productivity and other development indicators, including cropping pattern, cropping intensity, and capacity building of watershed institutions. The study is based on the primary data collected from 35 watersheds spread across 6 districts of Bundelkhand region of Uttar Pradesh. It covers only those watersheds which were sanctioned and executed during the financial year 2002-03 to 2004-05. Seventy five beneficiary households, giving due representation to SMF and LMF, were randomly selected from each sampled watershed. Thus, a total of 2525 households were selected for the detailed analysis. In addition to the direct collection of data from the beneficiary farmers, the FGD approach was also applied to get data related to the entire watershed area.

The paper finds that no significant change has taken place in the cropping pattern after the implementation of WDP, except for an increase in wheat acreage. The post-project increase in cropping intensity was only 10.3% point. Inadequate and erratic rainfall, lack of irrigation facilities and Anna Pratha turned out to be the key factors behind this low increase in the cropping intensity. The findings also reveal that the highest gain in productivity was observed in cereals crops and lowest in oilseed crops. As far as net increase in average income is concerned, it was found to have increased by 15.37% for SMF and 26.96% for LMF, implying that large farmers benefited more than small ones. The paper observes that net employment grew faster in non-farm than in farm activities. However, gender difference in the employment level was noticed in both the activities. Further, wages in both farm and non-farm sectors recorded a significant increase in the post-project period. Nevertheless, seasonal migration of rural workers has not declined even after implementation of the project.

The paper argues that no sincere efforts had been made for capacity building of watershed institutions. In the absence of effective functioning of these institutions, PIA and local elites were reported to have been taking most of the decisions related to the

WDP and formality of approval of GS and GP was mainly done on paper, without making the GS members aware of the key objectives, provisions and processes of WDP. The paper, therefore, suggests that creation of public awareness, building social capital, putting in place an effective institutional framework for WDP and empowerment of institutions of GS and GP can ensure participatory watershed management. Empowered and enlightened watershed institutions, adequately supported by the block and district level officials and local NGOs, can improve the project outcome and guarantee the equitable distribution of the project benefits.

### 1. Introduction

Water, food, and livelihood securities are the interconnected issues that need serious attention of policy makers, development functionaries and other stakeholders of rural development. Evidence suggests that the GDP growth trajectory during the post-economic reform period has shifted significantly from agriculture to non-agricultural sectors, however, there has not been enough occupational mobility among rural workforce towards these sectors due to lack of required education and skills and inadequate availability of livelihood diversification options for them. Consequently, a majority of rural population still depends on agriculture for their livelihood. Since, net sown area (NSA) in India shows a declining trend in the recent years mainly due to increasing rate of transfer of agricultural land for non-agricultural uses, future requirements of agricultural outputs, including food grains, can only be met by raising the productivity of land, water, labour and other resources. Rain-fed agriculture with 60 percent of total NSA contributes about 40 percent to the total output. This implies that India has a great potential to increase agricultural output if productivity of rain-fed agriculture is substantially increased. Agricultural productivity and livelihood of rural households in the rain-fed regions can be improved through making efficient public investment in soil and water conservation and water harvesting activities on the watershed basis. The watershed development programme (WDP) can increase land productivity through improved moisture and water availability for agriculture. With the increased contribution of livestock sector to the rural economy, WDP also addresses issues like drinking water and fodder for cattle, etc. by facilitating crop-livestock integrated farming systems.

The Department of Land Resources (DoLR), Ministry of Rural Development, Government of India, has been implementing DPAP, IWDP and DDP on watershed basis. While these programmes may have differed in their objectives and coverage, the common ground is to develop and manage land and water resources for sustainable agricultural development. In order to improve the efficacy of these programmes, Government of India has set up a mechanism to

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constantly monitor and evaluate the implementation of these programmes and towards this end, the Government constituted the National Rain-fed Area Authority (NRAA) in 2007. The new Common Guidelines come into force w.e.f. 01.04.2008 with the approval of NRAA for the Integrated Watershed Management Programme (IWMP). The new guidelines, among others, emphasize on: integration of livestock in the farming system at the planning stage; cluster approach in the selection of micro watersheds; coordination and synergy with MGNREGS and SGRY; increasing the cost norm to Rs.12000 per hectare in plains and Rs.15000 per hectare in hills and difficult areas; and training of IWMP functionaries and stakeholders. It may be mentioned here that the watershed cannot be restricted to the administrative boundary of revenue village and therefore development of watershed requires an integrated approach and inter-village and inter-farmer cooperation and equitable sharing of benefits across upper-reach, middle-reach and tail-end farmers as well as across SMFs and LMFs.

Undoubtedly, livelihood of majority of rural households directly or indirectly depends on agriculture and allied activities, such as horticulture, dairying, bovine and ovine rearing, fishery, poultry, piggery, bee keeping, etc. These activities are directly proportional to the availability of adequate quantity of productive land, natural resources such as water, herbs and shrubs, trees and forests, CPRs, etc. Water and soil are most critical inputs in the development of the above stated activities. Since in a semi-arid and rain-fed region, water becomes a scarce commodity and, therefore, even fertile soil does not help much, not only agricultural operations, but also the livestock production becomes utmost difficult. Given the dependence of rural households on the agriculture and allied activities for livelihood, there cannot be any alternative to the development of these activities. Fortunately, in rain-fed agricultural regions, productivity of land can be raised significantly through soil and moisture conservation and water harvesting and conservation works. Therefore, the main objectives of the watershed development programmes are to augment the land and water resources of these regions so that agricultural productivity, income, and employment may be increased for the rural households. Up to what extent these programmes have been successful in achieving these objectives needs close scrutiny and probing. Therefore, in this paper we attempt to assess the impact of WDP on the agricultural productivity, cropping pattern, cropping intensity, etc. The study is confined to only six districts of Bundelkhand region of Uttar Pradesh where rural households face lots of hardship due to inadequate access to water and other biophysical resources and consequently get inadequate income and employment opportunities in both farm and non-farm sectors.

## 2. Objectives of the Study

The main objectives of the study are to assess the impact of WDP on: cropping pattern, cropping intensity; agricultural productivity, household income, and employment. Moreover, the study also examines the status of watershed institutions, governance and management constraints and suggests policy interventions to revitalise and reinvigorate the implementation of the watershed development programme so that the intended outcomes of the programme may effectively be realised.

## 3. Methodology

The study is based on the primary data collected from 35 DPAP watersheds spread across six districts of Bundelkhand region of the State of Uttar Pradesh. The study examines only those watersheds which were sanctioned and executed from financial year 2002-03 to 2004-05. Seventy five beneficiary households, giving due representation to small and marginal farmers (SMFs) and large and medium farmers (LMFs), were selected from each sampled watershed. Thus, a total of 2525 farmer households were selected for the detailed analyses. Initially visits of various districts were undertaken by the principal investigator along with the co-investigator as a part of the primary interaction with the district officials to collect secondary data and develop an in-depth understanding of the districts, besides collecting factual information on various issues related to planning, management and implementation of the programme. These visits were also used for selection of the sample watersheds. The interaction with programme implementing agency (PIA) and district level officials was also initiated in order to get their feedback on the various issues.

Detailed project reports (DPRs) of the selected watersheds were also collected from the PIA to get the details of the project. Moreover, Mid-term Evaluation or Final Evaluation reports, wherever available, were also collected and examined to get insights into the ground-level achievements and deficiencies of the projects. Further, the research team also visited the project sites to assess the works done in the watershed areas and photographs of water structures created under the programme were taken wherever and whenever required. In addition to the direct collection of data from the beneficiary households, the focussed group discussion (FGD) approach was also applied to get data related to the entire watershed area. A team of the trained field investigators and supervisors visited the districts for the collection of primary and secondary data and other relevant information using the pre-tested questionnaire schedules. The list of all projects sanctioned and implemented during the financial years 2002-03 to 2004-05 were collected from the offices of BSAs. The watersheds were selected in consultation with the BSA in each selected district. The field work started in the month of April, 2011 and completed by the end of May, 2011. The collected data were scanned

and cleaned through SPSS before doing further analysis.

#### 4. A Brief Profile of the Study Area

The State of Uttar Pradesh comprises four economic regions, namely Western Region (WR), Central Region (CR), Bundelkhand Region (BKR) and Eastern Region (ER). BKR, which consists of about 12.21% of geographical area and a little less than 5% population of the state, is one of the most backward regions of the state. The region is divided into seven districts, namely, Hamirpur, Banda, Lalitpur, Jhansi, Jalaun, Mahoba and Chitrakoot. It is drained by the Yamuna River System. The main tributaries of Yamuna are Betwa, Ken, and Dhasan Rivers. The region suffers from acute ecological degradation, and fragility of soils and other natural resources. Agriculture and livestock are the main sources of livelihood in the rural areas. However, productivity in agriculture and livestock sectors is quite low due to inadequate water availability and irregular rainfall pattern. The rural economy is at the subsistence level and inadequate to support the livelihood of rural households. Consequently, a large number of people seasonally migrate to other places to support their family.

A comparison of socio-economic profile of BKR with other regions is shown in Appendix Table A1. The table reveals that density of population in BKR is only 280 per sq km as against 690 in the State and highest 778 in the ER. Sex ratio is also found lower (863) in BKR than that in the State (897). In case of most of the development indicators, BKR is far behind the WR and more closer to ER. However, the ER has highest and the BKR lowest population pressure among all the regions. As far as urbanisation is concerned, ER has the lowest percentage of urban population, followed by BKR, while WR has the highest percentage. In case of percentage of SC population, BKR is next to the CR. This indicates that there is high concentration of SC population in the BKR. In terms of average literacy rate, BKR stands first by having the highest percentage of literate people. Work participation rate is also found highest in the BKR among all the regions. This may be due to poor economic condition of the people of this region that forced them to work, as poor cannot afford to remain unemployed. In terms of health infrastructure, the BKR appears to be better placed as is evident from the number of PHC per lakh population. However, this result needs to be interpreted with caution as density of population in the region is lowest. Road infrastructure in BKR is poorest among all the regions. The authors made extensive tour of the region during the field study and observed the pathetic condition of roads. Although number cannot capture the quality of roads, still Table-A1 shows that length of pucca road per 1000 sq kms of area is lowest in the BKR. However, when length of pucca road is measured per lakh population, it is the BKR which has the highest number. The percentage of

villages electrified and per capita electricity consumption in BKR is higher than that in the ER, and lower than the WR and CR.

Distribution of land holdings is found skewed across regions. Average size of operational holding in the State is observed lowest in ER (0.65 ha) and highest in BKR (1.56 ha). However, productivity of land in BKR is lowest among all the regions due to lack of adequate irrigation facilities. Table-A1 shows that cropping intensity in this region is much lower than the state average. It is found highest in WR, followed by ER. Low cropping intensity and low per hectare productivity in the BKR make the agriculture economically unviable to the farmers but due to lack of other gainful employment opportunity in the rural area, a majority of rural people of the region depend on agriculture, livestock, minor forest products and seasonal migration for their livelihood. The principal crops in the BKR are cereals such as wheat, and barley. Cereals occupy the majority of the cropped area and are sown primarily during the Rabi (winter/dry) season. In addition, pulses, grams and oil seeds are also important crops. Share of Kharif crop in the gross sown area (GSA) in the region is much lower (28.48%) than the Rabi crop (70.87%), whereas the state average is 45.89% and 50.52%, for Kharif and Rabi crops respectively. Table A1 also reveals that per hectare yields of major crops are lowest in the BKR and highest in the WR. In case of food grains, it is just half that of WR.

Gross value of agricultural output per hectare of net sown areas (NSA) at current market prices in 2007-08 was highest in WR (Rs.69268) and lowest in BKR (Rs.23180). This indicates that gross income from agriculture in BKR is about one-third that in the WR. Similarly, gross value of agricultural output per agricultural worker in BKR was only Rs.17520, while corresponding value in WR was much higher at Rs. 39740 during the same year. As far as industrialization is concerned, number of working factories per lakh population is estimated to be highest in WR (11.50) and lowest in BKR (1.50). Similarly, per capita gross value of industrial output in 2006-07 was highest in WR (Rs.13787) and lowest in BKR (Rs.1564), about 1/9<sup>th</sup> that of WR. Per capita NSDP was also found second lowest in BKR (Rs.15955) and highest in WR (Rs.20535). Thus, a perusal of socio-economic profile reveals that BKR is the most backward region among all the regions, except for ER in case of a few development indicators.

#### 5. Impact Assessment of the WDP

Impact of WDP, to a greater extent, depends on the normalcy of rainfall and retention of the run-off. Occurrence of normal and inerratic rainfall has close link with the outcome of watershed development projects as part of strategy to maintain food, fodder and fuel securities in sustainable manner. The conservation of the water also minimizes degradation of natural

resource base, and improves the groundwater recharge. In the event of continuous drought over a period of time, such projects may not be able to yield the desired results as there may not be any water to conserve. The information regarding average rainfall in the sample districts during 2004-2010 is given in Appendix Table A2. Although the actual rainfall has been less than the normal across all the sample districts during 2004-2010, as is displayed by Table A2, it has been found to be less than 55% in all the districts. On an average, actual rainfall in the region during the period 2004-05 to 2009-10 has been lower than the normal rainfall. This factor is to be kept in mind while assessing the impact of WDP in the sample districts.

It may be pointed out that the impact of WDP is not confined only to farmers; it spreads over to other rural households, including landless workers. Development of CPRs under the WDP helps the landless livestock holders and also the other households who get fuel, fodder and water. Further, wage-earners get employment opportunity in the NRM related works. Therefore, in order to capture the overall economic impact of the WDP, analysis of data and information related to all stakeholders are required. However, the present study attempts to assess the impact only on farmers' households who are the direct beneficiaries of the programme. The economic effectiveness is examined on the basis of several economic indicators, such as increase in income, employment and wages, and reduction in migration, etc.

No doubt, a number of studies have been conducted to evaluate the impact of WDP on various bio-physical, socio-economic and institutional development indicators. These studies reveal that WDP facilitates to conversion of barren and uncultivated land into arable land, regeneration of soil, water and other natural resources, and thus helps to improve land productivity and livelihood of rural people (Deshpande & Narayanamoorthy, 1999; Wani et al. 2008, Arya, 2010; Sreedevi et al. 2008; Joshi et al. 2005, Samuel, et al, undated). However, impact of the WDP varies significantly across watersheds, mainly due to natural, social and institutional factors. Singh et al. (undated) reviewed the watershed evaluation studies conducted by NIRD Hyderabad in 12 states in collaboration with various institutions and NGOs reveals that benefits of WDP vary significantly across states and watersheds. For instance, in Uttar Pradesh, out of 87 sample watersheds, quality of water harvesting Structures (WHS) was found to be good in 23 watersheds, satisfactory in 41 watersheds and poor in remaining watersheds, whereas the quality of WHS in the majority of watersheds in Tamil Nadu and Gujarat were reported to be either good or very good. It is also observed that the impact of the WDP has not spread to wider areas and in some cases, the treated areas have reverted to the original status and impact on productivity, equity and sustainability is quite invisible at a larger scale (Samra and Sharma, 2009). Performance of the WDP is found

often poor in terms of both ecological restoration and improving the livelihood of rural households (Kerr et al, 2002). It is also observed that the benefits of the WDP in most of the watershed are corned mostly by the big farmers and small and marginal farmers and landless workers do not get adequate benefits (GOI, 2001). In some watersheds, social fencing helped to regenerate the biotic resources and promoted various farm and non-farm activities, but at the same time, it may go against the landless poor livestock holders if grazing is banned in the watershed development areas and no mechanism of equitable sharing of benefits among all rural households (both land holders and landless) is evolved. Kerr et al. (1998) find that landless and nearly landless suffered due to seal off access to CPR, including grazing land during the re-vegetation process. The employment generated for the landless workers in the watershed development activities cannot compensate for loss of access to CPRs (Calder, et al, 2008). A study conducted by Shah (undated) in Gujarat finds that although the WDP has positive impact on productivity and soil/moisture conservation, there is no significant reduction in the gender and income inequality. Joshi et al. (2005) observe that the WDP is silently rejuvenating and revolutionizing the rain-fed areas. However, lack of appropriate institutional support is the major obstacle in realising the potential benefits of WDP. On the basis of review of earlier studies on the performance of watershed development projects, Sharma et al. (2005) identify the following limitations of the WDP:

1. Productivity gains are often limited and temporary.
2. Landless and marginal farmers often benefit only marginally or not at all, increasing inequalities at the village level.
3. Common lands do not get adequately treated and re-vegetation does not take place as expected.
4. Gains from recharge of groundwater are rapidly dissipated through increased withdrawal.
5. Domestic, livestock and ecosystem water needs often do not get adequately addressed and may even suffer as a result of increased withdrawal.
6. Downstream impacts of intensive upstream water conservation are not being considered.
7. Costs at which the gains are achieved are considered to be high.
8. People's participation is limited to the watershed implementation stage.
9. No/little building of institutions for long-term collective management of resources.

Despite the above stated limitations, various evaluation studies find evidences of positive impact of watershed development programmes. Some of these positive impacts are: improvement in cropping intensity, diversification of cropping pattern, recharge of groundwater, regeneration of natural resources, decline in sedimentation downstream, improvement in availability of drinking water, creation of additional employment opportunities in the rural areas, improved

fodder production and consequently increase in milk and other livestock production and increase in the growth of rural economy through multiplier effects, etc. However, these positive outcomes depend on a number of factors, ranging from natural to socio-economic and institutional. As stated earlier, this paper assesses the impact of the WDP, identifies key issues related to the execution of the programme and draws some policy implications for effective implementation of the programme. Impact of the WDP in the Bundelkhand region has been assessed in the points given below.

### 5.1 Impact on Cropping Pattern

Table 1 compares the cropping pattern before and after the execution of the project in the sample districts (refer annexure). About 15% to 39% of GSA in the pre-project and 16% to 40% in the post-project period are shared by wheat crop. Area under wheat has increased in all the districts in post-project period. This implies that the WDP has positive impact on changing the cropping pattern in favour of wheat. Area under all other cereals has either declined or remained constant in the post-project period. The data reveal that there has been some marginal decline in the area under barley in the post-project period in almost all the districts. In case of jowar also, net area under the crop has marginally declined in four districts and remained unchanged in two districts. Similarly, area under maize has either declined or remained unchanged after the implementation of the programmes. Thus, the area under wheat crop has increased after the project, while in all other cereal crops, area either has declined or remained unchanged in the sample watersheds.

The table shows that area under different crops varies significantly across districts, For instance, in case of acreage under urad crop, the percentage varies from 0.95 in Banda to 24.71 in Lalitpur in pre-project period and from 0.95 to 22.6 in post-project period. Moong occupies very less area under cultivation. Its percentage share in the total area is lowest in Jalaun (0.17%), followed by Hamirpur (0.26%) and Banda (0.58%) in pre-project period, whereas, it is observed to be the highest in Mahoba, followed by Jhansi. In the post-project period, its area has moderately increased in Banda, Hamirpur, and Jhansi districts and recorded a marginal decline in Mahoba. Masur is one of the important pulses grown in the Bundelkhand region. Its area ranges from 2.64% in Jhansi to 10.77% in Lalitpur in pre-project period and from 2.67% in Jhansi to 10.25% in Mahoba in the post-project period. Except for Jalaun, in all other districts, area under masur has slightly increased in the post-project period.

After wheat, the second most important crop in terms of acreage is gram. The highest percentage of area under gram is found in Hamirpur (30.94%), closely followed by Banda (30.31%) and Mahoba (28.19%) in pre-project, whereas in the post-project, the percentage is observed to be the highest again in Hamirpur (31.12%), followed by Banda (30.31%) and

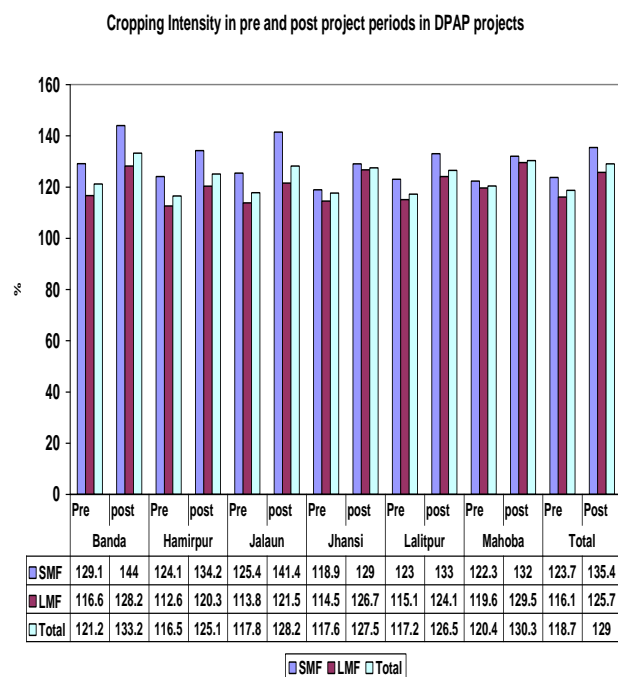
Mahoba (27.45%). Except for Mahoba and Banda, in all other districts, percentage of area under gram has marginally increased after the project. Lalitpur has the largest percentage of area under peas (21.36%), followed by Jhansi (9.75%) and Mahoba (8.34%) in pre-project, while in the post-project period, the percentage of area under it has declined in Jalaun, Jhansi and Lalitpur and increased in the remaining districts. Arhar is mostly grown in Banda, Hamirpur and Jalaun districts as is obvious from the percentage of area under this crop in these districts. The area under this crop has almost remained unchanged in the post-project period.

Among the oilseed crops, mustard/rapeseed and til are important crops grown in the region. Area under mustard ranges from 0.21% in Lalitpur to 2.48% in Jalaun in pre-project period and from 0.25% in Lalitpur to 2.7% in Jalaun in the post-project. The results show that there has been a mild increase in its area in the post-project period. Area under 'alsi' has either declined or remained unchanged after the project. Percentage of area under til is highest in Jalaun, followed by Jhansi and Mahoba in both the period. Groundnut is mostly grown in Jhansi and Mahoba. Green fodder is not an important crop in Bundelkhand region. The area under it is as low as 0.0% in Lalitpur and as high as 1.25% in Banda. A moderate increase in percentage of area under fodder is observed in four, out of the six districts. It can be concluded from data shown in Table 1 that there has not been any significant change in the cropping pattern after the implementation of the project. However wheat is the only crop which shows an increase in its area under cultivation. It is expected that after the implementation of WDP, composition of cropping pattern would change. With addition to existing irrigation facilities available to the farms, farmers were expected to grow more remunerative water intensive crops. The field observations, however, reveal that the impact of WDP on the creation of additional irrigation facilities in the watershed area was poor. Persistent drought, scant rainfall and inadequate and poor quality of works, among others, are the main reasons for low impact of WDP on changing the cropping pattern.

### 5.2 Impact on Cropping Intensity

Cropping intensity (CI) is the ratio of GSA to NSA. An increase in CI indicates that more crops are grown in an agricultural year on the same piece of land. It is expected that after the implementation of WDP in a village, farmers would be able to grow more number of crops per unit of land, thus raising the total production and income of the beneficiary farmers. Our findings reveal that on an average, the CI in sample villages has marginally increased in the post-project over the pre-project period. Figure-1 shows district-wise CI in pre and post-project periods. Overall, it has increased from 118.7 percent in pre-project to 129 percent in the post-project period, a net increase of 10.3 percent point. It is

significant to note that the CI on the small size of holding is greater than that on the large size of farms. In case of SMFs, it has increased from 123.7% in pre-project to 135.4% in the post-project, a net increase of 11.7 percent point, whereas in case of LMFs, it has increased from 116.1% to 125.7%, a net addition of 9.6 percent point. Figure-1 shows that CI varies across categories of farms and districts. In pre-project period, it is found to be the highest in Banda, followed by Jalaun and Lalitpur. In the post-project period also, it is observed to be the highest in Banda, followed by Jalaun and Hamirpur. Net increase in CI on SMFs is highest in Jalaun (16% point), followed by Banda (13.9% point), Hamirpur (10.1% point) and Jhansi (10.1% point), while in case of LMFs, the net increase is found to be the highest in Jhansi (12.2% point), followed by Banda (11.6% point) and Mahoba (9.9 point). Overall, the impact of WDP on raising the CI is observed to be the highest in Banda, followed by Jalaun. Although CI has increased about 10 percent in the post-project period, it is still quite low. Most of the farmers take only one crop (mostly Rabi Crops) during the whole agricultural years. Inadequate and erratic rainfall, lack of irrigation facilities and ‘Anna Pratha’ are found to be key factors behind the low level of CI in the region. Figure 1 is given below:



### 5.3 Impact on Agricultural Productivity

#### 5.3.1 Productivity Gain in Cereals

Table 2 (in annexure) presents data on productivity changes in the cereal crops after the implementation of the project. A perusal of the table reveals that there has been a moderate increase in the per hectare yield of major cereal crops in the study area. In all the sample projects, wheat is the major crop grown in both the

periods. In regard of small farms, productivity in wheat ranges from 15q/ha in Banda to 22.99 q/ha in Jalaun in pre-project period, while in the post-project period, it varies from 16.55 q/ha in Banda to 25.04 q/ha in Jalaun. The net increase in the productivity is found to be the highest in Banda (9%), followed by Jalaun (8.92%) and Mahoba (7.53%). Thus, about 5-9% increase in wheat productivity on small farms is observed after the project. On an average, it is slightly higher on large farms as compared to small farms. On large farms, it ranges from 15.38 q/ha in Banda to 23.45 q/ha in Jalaun in pre-project and from 16.9 q/ha in Banda to 25.10 q/ha in Jalaun in the post-project period. The net increase in the wheat productivity on large farms is observed to be the highest in Banda (9.88%), closely followed by Jhansi (9.24%) and Mahoba (8%). Productivity of barley crop is found to be much lower than that of wheat and it varies significantly across districts. On an average, no significant difference is found in the per hectare productivity of barley between small and large categories of farms in both the periods. Two points emerge from the productivity analysis of Barley crop. First, there is wide variation in its yield across the districts and second, the productivity has increased marginally during the post-project period.

Jowar is also grown by almost all the farmers. Some farmers grow it only for fodder and others for cereals as well. Per hectare yield of Jowar on small farms varies from 3.41 q/ha in Hamirpur to 13.13 q/ha in Jalaun in pre-project and 3.68 q/ha in Hamirpur to 14.18 q/ha in Jalaun in post-project period. Table 2 indicates that productivity of Jowar varies significantly across districts in both the periods. It is found to be the lowest in Hamirpur, followed by Banda and Mahoba and highest in Jalaun, followed by Lalitpur and Jhansi during pre and post-project periods.

Millet (Bajra) is grown by more than 60 percent of sample farms. Like Jowar, it is also grown as a cereal as well as fodder. In case of small category of farms, per hectare yield of Millet is highest in Hamirpur and Mahoba (9.25 q/ha each) and lowest in Jhansi (4.54 q/ha) in pre-project period, while in the post-project period, it is highest in Hamirpur (10 q/ha) and lowest in Jhansi (4.78 q/ha). The productivity increase ranges from 2.16% in Mahoba to 8.91% in Jalaun. In case of large size of farms, the productivity is found to be the highest in Mahoba (9.43 q/ha), followed by Hamirpur (9.2 q/ha) and Banda (6.97 q/ha) in pre-project period, whereas, in the post-project, it is found to be highest in Hamirpur (10.1 q/ha), followed by Mahoba (9.82 q/ha) and Banda (7.6 q/ha). The productivity of Millet on large farms also recorded an improvement after the project. Maize is grown by less number of farmers in the study area. Its productivity varies considerably across districts. In case of small farms, it is as low as 3.92 q/ha in Jalaun and as high as 12.69 q/ha in Banda in the pre-project period. It is also found to be the lowest (4.61) in Jalaun and highest in

Mahoba (13.63) in the post-project period. In regard of large holders, the productivity was found to be varying from 4.0 q/ha in Jalaun to 12.70 q/ha in Banda in the pre-project and from 4.20 q/ha in Jalaun to 13.68 q/ha in Banda in the post-project period. The productivity of maize shows an improvement in the post-project period.

### 5.3.2 Productivity Gain in Pulses

Table-3 (in annexure) shows productivity changes in pulses after implementation of the project. In case of urad, per hectare productivity shows wide variation across districts on both categories of farms in both the periods. While small farmers recorded improved productivity ranging from 3.11% in Banda to 8.4% in Mahoba, Large holders have shown an increase in the productivity ranging from 5.49% in Banda to 6.67% in Jalaun. Overall, productivity increase is observed to be slightly higher on large farms than on the small farms. Productivity in regard of moong in SMF category is found to be the highest in Lalitpur, followed by Mahoba, and Jalaun in both the periods. In case of LMFs category, it is estimated to be highest in Lalitpur, followed by Mahoba and Jhansi in both the periods. Net increase in the productivity of moong is observed to be the highest in Hamirpur (8.21%), followed by Banda (8.11%) and Mahoba (7.69%).

The productivity in regard of Masur in small farms varies from 6.19 q/ha in Banda to 8.52q/ha in Jalaun in pre-project and from 6.2 q/h in Hamirpur to 9.3 q/ha in Jalaun in the post-project period. In case of large category of farms, its yield is found to be the highest in Lalitpur (8.6 q/ha), followed by Jhansi (8.3 q/ha) and Mahoba (6.7 q/ha) in pre-project period, whereas, in the post-project period, it is observed to be the highest in Jalaun (9.2 q/ha), closely followed by Jhansi (9.0 q/ha) and Mahoba (7.1 q/ha.). The data reveal that the productivity increase in masur has been slightly higher for large farms than small farms. Net increase in the productivity of gram on SMF varies from 3.26% in Lalitpur to 8.77% in Jhansi. On large size of farm, it varies from 6.35 q/ha in Hamirpur to 8.6 q/ha in Jhansi in pre-project and from 6.8 q/ha in Hamirpur to 9.15 q/ha in Jalaun. Highest productivity gain in masur is observed in Banda (7.35%), followed by Jalaun (7.27%).

Per hectare productivity of Peas in small farms is found to be the highest in Jhansi (11.36 q/ha), followed by Jalaun (9.36 q/ha) and Hamirpur (8.72 q/ha) in pre-project, whereas in the post-project period, it is observed to be the highest in Jhansi (12.5 q/ha), followed by Jalaun (10.3 q/ha) and Banda (9.52 q/ha). In case of large category of farms also, the productivity is observed to be the highest in Jhansi, followed by Jalaun and Hamirpur in both the periods. It is also found that the net increase in the productivity on large farms is highest in Mahoba, followed by Banda and Jhansi, whereas in case of small farms, the net increase is highest in Jhansi, followed by Banda and Jalaun. On

an average, productivity increase is found to be higher for large farms than for small farms. Arhar is one of the important pulses grown in the entire Bundelkhand region. Its productivity ranges between 5.87 q/ha and 8.74 q/ha in pre-project and between 6.0 q/ha and 9.4 q/ha in the post-project for small holders. Except for Lalitpur and Mahoba, which witnessed a marginal decline in its productivity, in all other districts, productivity of Arhar recorded an improvement in the post-project period.

### 5.3.3 Productivity Gains in Oilseeds

Mustard is grown by most of the farmers in Bundelkhand region. Table 4 (in annexure) shows that in SMF category, yield of this crop is observed to be the highest in Lalitpur (6.69 q/ha), closely followed by Jhansi (6.46 q/ha), and Jalaun (6.45 q/ha) in the pre-project, while in the post-project period, it was found to be the highest for Jalaun and Jhansi (7.0 q/ha in each) and lowest for Mahoba (5.5 q/ha). On an average, productivity of mustard is slightly higher on large than small farms. Table 7 indicates that productivity of mustard has increased after the project on both categories of farms, though it varied significantly across districts. Alsi is also grown by some farmers in the sample watersheds. Its productivity on small farms ranged from 3.11 q/ha in Hamirpur to 4.34 q/ha in Lalitpur in the pre-project and from 3.42 q/ha in Hamirpur to 4.5 q/ha in Jhansi in the post-project period. Lalitpur and Mahoba have slipped to negative growth in the productivity, while all other remaining districts recorded positive change in the productivity. Contrary to this, in case of LMF, net change in the productivity was found to be positive in all the districts.

Productivity of til is quite low as it ranges from 0.80 q/ha to 1.40 q/ha on small farms and from 0.80 q/ha to 1.65 q/ha on large farms. This shows that overall, per hectare yield of til is higher on large farms than the small farms. However, average percentage increase in the productivity is more or less same on the categories of farms. Groundnut is grown only by few households in the watershed villages. It is a most suitable crop for rain-fed and sandy soil. Its per hectare yield varies from 3.60 q/ha to 6.5 q/ha on small farms and from 3.60q/ha to 6.65 q/ha on large farms. Except for Mahoba which has registered negative change in the productivity on small farms, in all other districts, productivity of groundnut has recorded positive change on both categories of farms in the post-project period.

Table 5 shows average productivity of cereals, pulses and oilseed crops on SMF and LMF in pre and post project period (refer annexure). On average, per hectare yields of various crops have been slightly higher on LMF than the SMF during both the periods. However, no significant difference in the productivity gain in the post project period is observed across category of farms. In case of cereal crops, net gain in productivity was estimated to be 6.86 percent on SMF and 6.88 percent on LMF. The highest gain is observed



in wheat yield. In case of pulses, average productivity gain is estimated to be higher on SMF than on LMF. However, the gain varies from crop to crop. It was found highest in gram crop on both the categories of farms. Similarly, in case of oilseed crops also, average productivity gain was slightly higher on small than large farms. Overall, the productivity gain was highest in cereal crops and lowest in oilseeds.

#### 5.4. Impact on Household Income

Since farmers did not keep record of cost of cultivation and agricultural income, it was difficult to get costs and returns data, especially for the pre-project period. Further, variation in the input-output prices across years makes it difficult to assess the real impact of the WDP on the farm income. In order to avoid this problem and assess the real impact of the project, the input and output data in terms of physical quantities were collected which were far easier and more accurate to recall. Then, the physical quantities of inputs and outputs are converted into monetary value at the realized market prices of inputs and outputs in year 2010-11. Cost of family labour is imputed at the prevailing wage rates for agricultural workers. Apart from crop husbandry, livestock is next to agriculture in term of its contribution to the household income. It is the backbone of rural economy. In recent years, its contribution to the agricultural GDP has significantly increased. At all-India level, during 1993-94 to 2004-05, GDP from the crop sector grew only by 1.87 per cent per annum, while the GDP from livestock increased by 4.43 percent per annum during the same period. Similarly, while employment in crop sector during the same period grew up by 1.12 percent annually, the corresponding employment rise in livestock sector was by 2.81 percent per annum (Singh, 2010). It may be noted that Bundelkhand region has a very high ratio of livestock population to human population, yet average productivity of livestock is much lower than that of other regions of the State. The Bundelkhand region face frequent droughts with highly inadequate irrigation facilities, reduction in groundwater table, erratic and low rainfall and less retention of moisture in soil. Lack of green fodder is one of the key constraints in raising the productivity of both bovine and ovine domestic animals. As fodder development is one of the objectives of WDP, execution of WDP in the sample villages is expected to increase the availability of fodder to the beneficiary farmers who can raise number of cattle on their farms to augment their farm income.

Table-6 (in annexure) presents information on average income per household from agriculture and livestock activities for small and large farms. Average income is estimated by deducting the input cost from the gross value of output and adding the imputed value of family labour actually worked in agriculture and livestock activities. The table shows that overall, average income per household from agriculture and allied activities for small farmers has increased from

Rs.27130 in pre-project to Rs.31300 after the project, which shows a net increase of 15.37%, while for large farmers, average income went up from Rs.76195 in pre-project period to Rs.96733 after the project, a net increase of 26.96%. Thus, percentage increase in income is higher for large farms than the small ones. Overall, average income per household for large farms is about three times higher than that of small farmers. Further, a perusal of district-wise data indicates that although average income per household under SMF category in the post-project period was highest in Jalaun, followed by Lalitpur and Hamirpur, the net increase in the average income per household was highest in Mahoba (47.58%), followed by Jhansi (38.19%). For the large category of farmers, average income per household is observed to be the highest in Jalaun, followed by Mahoba and Lalitpur. The income was worked out to be lowest in Banda, followed by Hamirpur. As far as, percentage increase in income is concerned, it is estimated to be the highest in Banda, followed by Lalitpur.

Household income from agriculture has increased in almost all the watersheds after the WDP; however, the percentage increase varies significantly across districts. Overall, per household income from agriculture on small farms has increased from Rs.17361 in pre-project to Rs.20554 after the project, thus registering a net increase of 18.39%; whereas the corresponding income on large farms went up from Rs.57873 to Rs.77697, a net increase of 34.25%. Thus, income of large farmers grew faster than that of small ones in the post-project period. Further, while perusing the district-wise income data, we find a wide variation across the districts, which could be attributed mainly to the differences in size of operational holdings, level of productivity and the cropping pattern.

Household income from livestock, on an average, has increased by 10% on SMF household and 3.90% on LMF household. For instance, in regard of the former, it went up from Rs.9759 in the pre-project to Rs.10746 in the post-project period, while in case of the latter, it has marginally increased from Rs.18322 in pre-project to Rs.19036 in the post-project period. Table 9 (in annexure) shows that there exists wide variation in the household income from livestock across districts and categories of farms. For small category of farmers, the average income from livestock is observed to be the highest in Lalitpur, followed by Hamirpur and Jalaun for both the periods, while for large category of farmers, it is estimated to be highest in Hamirpur. On SMF category in Hamirpur and on LMF category in Jalaun and Mahoba, net increase in the income from livestock was observed to be negative.

From the above analysis, it is concluded that average income from agriculture, including livestock has increased in the post-project period. Overall, a small farmer's income in the watershed area has increased by 15.37% in the post-project period, whereas the corresponding increase for a large farmer

is 26.96. This implies that large farmers benefited more than their small counterpart. Further, average increase in household income from livestock is much lower than that from agriculture.

### 5.5. Impact on Employment Generation

It is expected that rural households would get additional on-farm and off-farm employment opportunities after implementation of WDP via increase in CI, changing cropping pattern and improvement in agricultural productivity. If, as a consequence of WDP, additional irrigation facilities are created in the watershed area, it would generate more employment per unit of land as irrigation is one of the key determinants of employment in agriculture. The study finds that overall employment generation per household has increased in the post-project period. Surprisingly, increase in employment is higher in non-agriculture than in agricultural activities. Table 7 shows that, at the aggregate level, as against about 7.9% and 8% employment increase in agriculture respectively for males and females, the corresponding employment increase in non-farm activities rose by 15.0% and 13.2% for males and females respectively. Two points emerge from this analysis. First, employment increase is much lower in agriculture than in the non-agricultural activities for both the genders. Second, employment increase in non-farm activities is slightly higher for males than females. Further, it was found that employment increase in agriculture was slightly higher for SMF category than for LMF for both the genders, while increase in non-farm employment is higher for LMF category than SMF category. The main factor behind relatively higher increase in employment in agriculture for small farmer's household may be due to the fact that some marginal and small farmers also work as agricultural labourers on large farms. Besides, a fairly good number of cases have been found where the small farmers have leased-in land from the large farmers and raised crops on the same on share-cropping basis. It may further be pointed out that given the constraints on the possibility of raising income from agricultural operation, on account of small size of holdings and severe dearth of irrigation facilities further abetted by Anna Pratha, marginal and small farmers migrate to the nearby towns during the off-season in search of employment opportunities. The provision of 100 days of employment under MGNREGS to a rural household also reported to have contributed towards the boost in the non-farm income. In regard of the higher non-farm income of the large farmers, it may be stated that on account of better educational level and resources, they are better positioned to get more opportunity in non-farm activities where average income per person is higher than the farm activities. It may also be pointed out that while agricultural employment is limited mainly to crop husbandry and livestock; non-farm employment spreads over a number of activities,

ranging from public works to manufacturing, businesses and services. In view of the better resourcefulness of the big farmers, the potential for them to get/generate non-farm jobs is much bright.

A perusal of Table 7 reveals that employment availability in agriculture to both small and large farmers, on an average, is quite inadequate (in annexure). The intensity of under-employment /unemployment in the entire Bundelkhand region is quite high. During our field investigation, rural households have also reported to out-migrate seasonally as well as permanently in search of better income and employment opportunities. It may be pointed out that more than 75% of total agricultural holdings in the region, on an average, are below two hectares which is not even sufficient to meet the basic household needs, if farm income is not supplemented by the income from non-farm activities. It is one of the key issues related to sustainability of livelihood of rural people.

The district-wise data on number of person-days of employment generated in pre and post-project highlight that agricultural employment for male was highest in Lalitpur, followed by Mahoba and Jalaun for both the periods, while it was found to be the lowest for Jhansi, followed by Banda. Female employment in agriculture is observed to be the highest in Mahoba, followed by Lalitpur and Hamirpur during both the periods. Non-farm employment for male is observed to be the highest in Jalaun, followed by Hamirpur and Lalitpur. For female, it is found to be the highest in Hamirpur, followed by Jalaun and Banda. As far as increase in employment after the project is concerned, the study finds that increase in agricultural employment for male is highest in Jalaun (8.7%), followed by Lalitpur (8.3%) and Mahoba (8.2%), while it is observed to be the lowest in Hamirpur (6.3%). For female employment in agriculture, the increase is noticed to be the highest in Jalaun (8.4%), followed by Lalitpur (8.3%) and Jhansi (8.2%). Increase in non-agricultural employment for male is observed to be the highest in Mahoba (15.7%), followed by Lalitpur (15.2%) and Banda (15.1%), while it is observed to be the lowest in Jalaun (14.2%). For female, the increase is found to be the highest in Mahoba (13.4%), followed by Hamirpur (13.1%) and Lalitpur (12.9%). It is found to be the lowest in Jalaun (10.6%).

Comparing employment generation for small farmer's households to that of large farmer's households, it was found that employment availability in agriculture to large farmer's households is much higher than the small farmer's households. Such a phenomenon is expected as not only the average size of cultivated land is higher for LMFs category but they also have better access to the irrigation facilities through the installations of shallow and deep tube-wells, which goes beyond the financial capacity of a marginal/small farmer. They are also the ones who were reported to have obtained maximum advantage of

the projects due to availability of large tracts of land with them part of which could be spared for erecting structures such as earthen, contour bunds, digging of ponds etc. all of which had helped them to retain the soil moisture far more effectively as compared to the small farmers.

### **5.6 Impact on the Wage Rates**

There has been substantial increase in wage rates in all the three activities—NRM, agriculture and non-agriculture. In case of NRM, wage rate is not determined by the market forces but fixed-up by the government; whereas in farm and non-farm activities, wages are largely determined by the market forces. Although minimum wage rate for agricultural workers under Minimum Wage Act 1948 is fixed as Rs.100 by the State Government, the actual agricultural wage rate varies significantly across districts, depending upon the demand for and supply of the work. In watershed works, wage rate during the execution of the project was Rs100, though it has been increased to Rs.120 in 2011, a net increase of 20%. Wages have increased substantially both in agriculture and non-agricultural activities during the five-year project period. Overall, average agricultural wages for male and female workers have increased from Rs.62.08 and Rs.53.95 in pre-project to Rs 94.84 and Rs.81.27 in the post-project period respectively, thus registering a net increase of 52.77% and 50.64% respectively (Table 8, in annexure). In non-agricultural activities, average wages for male and female workers have increased respectively from Rs.68.85 and Rs.59.81 in pre-project period to Rs.107.26 and Rs.93.24 in the post-project period, thus registering a net increase of 55.79% and 55.89% respectively. In the post-project period, agricultural wages for male workers have registered significant rise. The increase in wages is observed to be the highest in Hamirpur and Jalaun (57.33% in each). The rise in the wage rate for male workers is found to be the lowest in Lalitpur (46.54%), followed by Banda (47.68%). As far as increase in agricultural wages for female workers is concerned, it is found to be the highest in Lalitpur (50%), followed by Hamirpur and Jalaun (49.45% in each). In the post-project period, non-agricultural wages for male workers have increased substantially. The highest increase is observed in Hamirpur and Jalaun (57.95% in each), followed by Jhansi (56.59%). As far as, increase in non-agricultural wage rates for female workers in the post-project period is concerned, it was found highest in Banda (56.96%). Implementation of MGNREGS is reported to be the main reasons for post-project rise in wages in farm and non-farm sectors both. MGNREGS wage rate is quite often used as a benchmark for demanding wages by the workers in agricultural activities.

### **5.7 Impact on Migration of Workforce**

Two types of migration take place from the rural households--seasonal migration and all-time migration. Seasonal migration occurs due to non-availability of productive employment in a particular agricultural season. In Bundelkhand region, most of the farmers grow Rabi crops and keep their land fallow in the ensuing Kharif season. In the absence of any productive employment during these times of the year, some working hands of their families migrate to nearby places i.e., towns in search of employment. Besides, frequent draughts and crop failure also force the rural households to temporarily migrate to other places. Overall, percentage of small farmers reporting seasonal migration has increased from 20.17 in pre-project to 21.85 in the post-project period, while the percentage of large farmers reported to have seasonal migration has increased from 13.45% in pre-project to 14.75% in post-project period. These results indicate that the seasonal migration has not yet reduced even after the implementation of WDP. Bundelkhand region actually has more migration in the post-rabi season because of 'Anna Pratha'. Promotion of farming round the year and increase in the production efficiency may reduce the seasonal migration via rise in the employment level in agriculture. In order to know whether the MGNREGS has reduced the migration or not, the opinions of the sample respondents on this issue were solicited. Overall 7.4% small farmers and 7.6% large farmers opined that the scheme had reduced the migration. The results indicates that a large majority (above 92%) sample households responded that the MGNREGS had not reduced the migration.

As per opinions of the respondents, all-seasons migration has slightly increased in the post-project period. The percentage of small farmers reported to have all-time migration from their households was reported to have increased from 7.82 in pre-project to 8.24 in the post-project period, while corresponding percentage for large farmers registered an increase from 6.15 in the pre-project to 7.47 in the post-project period. District-wise data show that the percentage of small farmers reported to have all-seasons migration was highest in Hamirpur (11%), followed by Jalaun (9%) and Banda (8.7%) in the pre-project period. Except for Lalitpur, in all other districts, the percentage of such farmers has increased in the post-project period, implying that all-seasons migration has increased moderately in the post-project period. For large category, the percentage of farmers reported to have all-time migration was found to be the highest in Lalitpur (9.2%), followed by Jalaun (8.2%) and Mahoba (6.9%) in the pre-project period, while in the post-project period, it is found to be the highest in Mahoba (9.7%), followed by Jalaun (9.4%) and Lalitpur (9.2%). Except for Banda, in all other districts, all-seasons migration has increased in the post-project period.

### **5.8 Impact on Institution Building**

Institutions play a dominant role in the development activities. In most of the cases, WDP fails to provide desirable results in the absence of sound institutional framework for its planning, execution, and implementation and equitable sharing of benefits from it. The operational guidelines for WDP provide institutional framework for managing the watershed development programmes. Apart from constitution of WDT, WC, and UGs, the operational guidelines also envisage greater role of GPs and GSs in the planning, execution and monitoring of watershed related activities in their jurisdiction. Provision is also made to get partial contribution from the beneficiary households so that they may take active participation in the watershed development works. Joshi, et al. (2005) observed that the benefits from the projects were high in those watersheds where people's participation was high. A study by Badal et al., (2006) reveals that institutional effectiveness along with training of farmers and frequency of the visit of extension workers are the key determinants of people's participation in the WDP. Field studies conducted in various regions reveal that participatory watershed management programmes made significant impact on improving productivity, income and livelihoods in the rain-fed areas. However, people's participation alone may not provide desired results unless the process adequately addresses the interrelated issues of technology, equity and sustainability (Shah, 2001).

The main focus of this section is to explore whether these institutions are only on paper or in reality. Further, efforts are also made to identify the causes of inertia in PIA and government officials to involve various stakeholders in the planning and implementation of watershed development programmes. Identification of constraints in the institution building becomes quite relevant today, especially due to the integrated approach followed by the government in the management of WDP. Our field observations and FGDs with the local people reveal that a majority of rural people do not have much idea about the objectives of WDP. The contribution from the beneficiaries towards WDF is one of the key determinants of participatory management of WDP. However, the PIA did not make any effort to get contribution from the beneficiaries towards the WDF. In all the sample districts, not even a single farmer reported to have contributed towards WDF either in cash or kind. Our detailed discussions with the officials of PIA reveal that since contribution to WDF is mandatory before starting works on the project, the officials fear if they attempt to collect funds from the beneficiaries, it would make delay in the implementation of project. Therefore, the officials follow short-cut, instead of encouraging and persuading the people to share partial cost of works done on their land, they deposit the amount in the WDF after withdrawing it from the allocated project funds and shown as spent on the wage payment to the

beneficiaries. Our argument in this context is that unless the beneficiaries of the project make mandatory contribution to the WDF, no effective participatory institutional mechanism could be ensured for management of WDP and making the equitable distribution of benefits from the project.

Our findings reveal that farmers, at large, have not been involved in the watershed development activities. This indicates that institutional arrangement at the project level is quite weak. In almost all surveyed watersheds involvement of local people, including women and weaker section, in planning, designing, implementing and monitoring the watershed development works is minimal. In the absence of effective involvement of community, PIA and local elites take most of the decisions related to the projects and formality of approval of GS and GP is mainly done on paper without making the GS members aware of the key objectives, provisions and processes of WDP. In such an opaque system, the real stakeholders remain isolated with the project. It is also observed that no sincere efforts have been made to build the capacity of local institutions. Labour groups (LGs) were not formed in almost all the watersheds. Transparency, accountability and participation (TAP) issues relating to the programme have not been adhered to, though these are very important ingredients of the programme. Social audit was not done in any watershed. Although, GPs and GSs have been given the major responsibility to approve and execute the watershed development works, the experiences of the functioning of these institutions across the state show that with some exception, these are more attuned to the pre-73<sup>rd</sup> amendment mode rather than to the post-73<sup>rd</sup> amendment mode. The most important reason for this state of affair is the lack of horizontal (State- Agencies relationship) and vertical (People and the State Agencies relationship) accountability in their functioning. As per the watershed guidelines, the project should be approved by the GS. However, GS, as an institution of local governance, management and planning, was found to be totally defunct in the sample districts. A large chunk of GS members, especially women and marginalized groups were found to be hardly attending the meeting. The programmes, therefore, have become mostly PIA-centric. It may be noted that each watershed development programme has a training and capacity building component. As per the operational guidelines, community mobilization and training of concerned functionaries, and beneficiaries are pre-requisites for initiating development work in watershed projects. For this purpose, 5% of the project budget is earmarked. Our findings reveal that overall, about 82% small and 80% large farmers reported that they were not provided any training programme. Overall, the study finds that the institutional effectiveness, an important pre-requisite of success of the WDP, is quite weak in the sample watersheds. No

sincere efforts have been made for capacity building of watershed management institutions at project level.

## 6. Emerging Issues

Based on the findings of the study, focussed group discussions and field observations, the following issues have been identified.

1. Survival of planted saplings is the key issue. Apart from lack of water and protection of plants, grazing of the same by goats and other stray animals is the main reason for non-survival of plants. This is mainly due to lack of social fencing in the sample watersheds.
2. Farmers took less interest to invest in the maintenance of the created structures as they opined that maintenance was the responsibility of the government. Indifference on the part of the beneficiaries arose on account of their non-involvement in planning, decision-making and implementation of the WDP.
3. Distribution of land holdings in the region is relatively uneven. There is high concentration of land in the hands of big farmers who usually do not take much initiative to invest in agriculture to improve productivity. High cost of development of groundwater, risk of failure of groundwater structure and low cost of cultivation of rain-fed farming are found to be the main reasons for lack of motivation among big farmers to invest in agriculture. Lack of private investment flow in agriculture in the post-project period has emerged one of the key issues.
4. PIA did not make any effort to get contribution from the beneficiaries to the WDF. As per the operational guidelines, every beneficiary farmer has to contribute 10 percent of total cost of the work done on his land in case of general category and 5 percent in case of works on farmers belonging to SC/ST categories and also 5 percent for works on common lands.
5. Since, sample watersheds were sanctioned during the period April 2002 to March 2005 and the projects were to be completed within five years, most of the completed projects could not deliver the desired results due to, among others, the scanty rainfall during the last 5 years.
6. Participation of GS in the project is minimal. Consequently, key good governance indicators—accountability, transparency, monitoring and evaluation—are by and large found missing at the watershed levels. GS, as an institution of local governance, management and planning, was found to be totally defunct in the sample districts. A large chunk of GS members, especially women and marginalized groups were found to be hardly attending the meeting. The WDP, therefore, has become mostly PIA-centric.
7. Delay in release of funds from DRDA to the PIA is reported to be one of the serious problems by the officials.
8. The possibility of groundwater development in the watershed areas has not been fully explored. Given the fact that Bundelkhand region mainly comprises hard rock formation and that rainfall does not percolate and store subsurface, the failure rate of tube-wells is quite high and as a result, farmers generally do not take the risk of extraction of groundwater. This calls for public investment in exploring the potential groundwater.
9. Anna Pratha i.e., leaving their cattle free after Rabi harvesting and existence of large number of wild cattle put more pressure on the CPRs and also discourage the farmers to grow crops in Kharif season. This system, at large, has adversely affected the cropping intensity in the region.
10. Institutional framework at the project level was found to be extremely weak. Constitution of WC, WDT, SHGs and UGs are mostly on paper. The stakeholders and even the members of these bodies do not appear to have much awareness about the existence of such institutions in their village. The main reason is that the PIA has no interest to follow participatory approach in the planning and execution of the project and, as a consequence, it keeps the villagers in dark about the various aspects of the projects.
11. Little or no efforts were made by the PIA to explore the possibility of developing entrepreneurial skills among the rural households for setting up micro enterprises.
12. Capacity-deficit was identified one of the major constraints in the effective implementation of the programme. There was not only shortage of staff in the BSA office but also the officials were not found to be trained in planning and execution of the programme.
13. It is interesting to find that in some watersheds, some farmers reported to have broken the bund structures to release the stored water so that they may recover the land for Rabi cultivation. This shows that purpose of watershed development is defeated because there is no formal system of sharing of benefits. No sincere efforts were made by the PIA to set up and develop the institutional framework in this context.
14. The focus of all watersheds was mainly on carrying out the works, not on following the right procedure and processes of conceptualizing, planning and execution as laid down in the operational guidelines. Transparency mechanism has not yet taken place in almost all the watersheds of the State. Community, at large, did not know that after the work was completed, the project was supposed to be transferred to the community.
15. No sincere efforts appear to have been made towards social mobilization. It is due to inadequate

social mobilization that community participation in the WDP was found almost in non-existence.

## 7. Policy Interventions

Based on the findings of the study, the following policy interventions are suggested:

1. Since water scarcity and heavy erosion of the fertile top soil during the rainy seasons are the core issues, there is a need to work on both kinds of instruments of rain water storage, conservation and harvesting and soil and moisture conservation. An effective linkage between conservation and harvesting of rainwater and development of groundwater in the watershed area should be established through convergence of activities of district line departments.
2. Prohibitive cost of groundwater development, high risk of failure of groundwater structure, and low returns from agriculture have emerged as key reasons for lack of motivation among the farmers to invest in agriculture. Since ability and willingness to invest is quite low among farmers, public investment in the resource-poor agriculture of the region appears to be the best possible intervention.
3. In regard of small and marginal farmers, there is a need to integrate WDP with MGNREGS, so that the benefits to them could be maximized. For instance, in all the watershed areas, levelling of the land of small and marginal farmers could be done under MGNREGS. While preparing the labour budget and annual action plan under the MGNREGS, GP should give preference to works related to land levelling on the small and marginal farmers of WDP beneficiaries.
4. The creation of awareness among the farmers is a must before initiating such ambitious programmes. It can be done by showing them documentaries containing success stories. The people who were the heroes of the success stories could also be called for a meeting with the farmers. It may not cost much but is likely to be very effective in propagating the benefits of the WDP. It shall also significantly improve peoples' participation.
5. Creating awareness and building social capital in the watershed areas is necessary for better project planning and implementation. This could be possible only through creating an effective institutional framework at the GP level and social mobilization through an external agency, such as CSOs. An empowered GP can ensure effective community participation in WDP which is currently found missing in the sample watersheds.
6. Capacity building of village level watershed institutions is necessary for optimizing benefits from the project. The delivery of the programme is effective only when these institutions are vibrant and play active role in the conceptualizing, planning, execution, monitoring and evaluation of the projects. Involvement of these institutions in the post-project activities, such as maintenance of structures and distribution of benefits is mandatory. Empowered and enlightened watershed institutions, adequately supported by the block and district level officials, can improve the project outcome significantly.
7. On pilot basis, some GPs headed by dynamic, well-informed and educated pradhans may be entrusted with the task of PIA to implement the WDP in collaboration with credible local NGO who could provide technical guidance and other support, under the supervision of WDT and district level concerned officials. Since GPs know their needs, problems and potentials better, their direct involvement would not only help to engage them in the initial stage of planning and designing of the WDP but also inculcate in them a sense of belongingness.
8. MGNREGS model of accountability and transparency may be replicated in the WDP also. Open meetings of GS may be held in which various WDP related documents, such as sanction and release letters, cheque books, muster rolls, vouchers, list of beneficiaries, details of work executed, employment generated, wages paid to the workers, contribution to WDF, names of members of WC, WA, UGs, SHGs, etc should be put for the GS scrutiny. Social audit, an important instrument of transparency and accountability, should be made mandatory in the WDP.
9. An effective water sharing system should be put in place with the active involvement of GS and UGs.
10. The project should be handed over within time and efforts should be made to generate resources for WDF by enforcing mandatory contribution provision and collecting the user charges. Contribution of beneficiaries to the WDF in the form of voluntary labour should be stopped as it provides scope to the PIA for manipulations and also discourage the beneficiaries to fully participate in the project planning and management.
11. A panel of independent experts, drawn from top professional intuitions, including IITs, agricultural universities, IIMs, etc should be selected as State Monitors who could be entrusted with the task of monitoring and evaluation of 5-10% of completed projects.
12. From the extensive interaction with the various stakeholders, it emerged that PIA did not make any serious effort to get contribution from the beneficiaries to the WDF. Stringent actions are required to be taken against the officials for not making efforts to get the mandatory contribution from the intended beneficiaries.
13. The PIA should be sensitized towards the needs of small and marginal farmers of the watershed area.

14. There is a need to create social awareness about the harm of the Anna Pratha. A community-driven awareness campaign through meetings of Gram Sabhas to be attended by the block level officials should be adopted for the removal of this practice. Its removal would encourage the farmers of all hues to grow more crops and increase the cropping intensity.
15. Crop-husbandry should be properly integrated with animal-husbandry on the one side and rural non-farm activities on the other. Fodder security should be given utmost priority in the watershed development areas for stall-feeding. There is need to set up a fodder bank at the GP level, given power to GP to maintain and manage it. Further, for unclaimed cattle, rehabilitation centres should be set up. In our view, cropping intensity, change in cropping pattern and diversification of agriculture would not be possible in the watershed areas unless large inflow of stray bovine population is stopped.
16. From each GP, about 3-4 educated, well-aware and motivated farmers should be identified for intensive training in resource-use planning, agriculture extension, livestock rearing, institution building, livelihood support system, etc. These trained farmers should be involved in various watershed planning and development activities, including rejuvenation of soil and water resources, protecting CPRs and campaign against 'anna pratha'. Provision of honorarium to them may be made so that they may take active interest in planning, execution, monitoring and evaluation of WDP.
17. Livelihood should be made a special component in the overall plan of WDP. SHGs should be genuinely formed, activated and supported in terms of capacity building, finance, technology and market in order to develop a sustainable livelihood support system for them.

### 8. Summing up

The main objectives of the WDP are to augment the land and water resources so that agricultural productivity, income, and employment may be increased for the rural households. Up to what extent these programmes have been successful in achieving these objectives needs close scrutiny and probing. Therefore, this paper attempts to assess the impact of WDP on the agricultural productivity, cropping pattern, cropping intensity, etc. The study is confined only to Bundelkhand region of Uttar Pradesh where rural households face lots of hardship due to inadequate access to water and other bio-physical resources and consequently get inadequate income and employment opportunities in both farm and non-farm sectors. The study is based on the primary data collected from 35 watersheds spread across 6 districts of the region. It

examines only those watersheds which were sanctioned and executed during the financial year 2002-03 to 2004-05. Seventy five beneficiary households, giving due representation to SMF and LMF, were randomly selected from each selected watershed. Thus, a total of 2525 households were selected for the detailed analysis. In addition to the direct collection of data from the beneficiary households, the FGD approach was also applied to get data related to the entire watershed area.

The findings of the study reveal that impact of the WDP on various development indicators in the region was quite moderate. No significant change was found in the cropping pattern. Persistent drought, scant rainfall and inadequate and poor quality of works, among others, were observed the main reasons for the low impact. The post-project increase in the cropping intensity was estimated to be 10.3% point. Inadequate and erratic rainfall, lack of irrigation facilities and Anna Pratha turned out to be the key factors behind this low increase. Impact of the programme on productivity improvement was found to vary across crops. The highest productivity gain was observed in cereals crops, especially wheat and lowest in oilseed crops. As far as net increase in average household income is concerned, it was found to have increased by 15.37% for SMF and 26.96% for LMF, implying that large farmers benefited more than small ones. The paper also finds that net employment in the post-project period grew faster in non-farm than in farm activities. Further, gender difference in the level of employment was found to exist in both the activities. Overall, average level of employment for female workers was lower than their male counterparts. Wages in both farm and non-farm sectors recorded a significant increase in the post-project period. However, seasonal migration of rural workers could not be reduced even after implementation of WDP and MGNREGS.

The paper argues that the institutional effectiveness, an important pre-requisite of success of the WDP, was quite weak in the sample watersheds. No sincere efforts had been made for capacity building of watershed management institutions. In the absence of effective participation of stakeholders of the programme, PIA and local elites were reported to have been taking most of the decisions related to the projects and formality of approval of GS and GP was mainly done on paper, without making the GS members aware of the key objectives, provisions and processes of WDP. The paper, therefore, suggests that creating public awareness, building social capital, setting up an effective institutional framework for WDP and empowerment of institutions of GS and GP can ensure participatory watershed management. Empowered and enlightened watershed institutions, adequately supported by the block and district level officials and local NGOs, can improve the project outcome and guarantee equitable distribution of the project benefits.

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## Annexure

**Table-A1: Region-wise Some Socio-economic Indicators in Uttar Pradesh**

Indicators	WR	CR	BKR	ER	U.P.
Population (million)	61.20	30.16	8.23	66.61	85.85
Area (1000 sq km)	79.83	45.83	29.42	166.20	240.93
Population Density (2001)	767	558	280	778	690
Sex Ratio (2001)	862	879	863	946	898
Urbanisation (in %)	28.25	25.15	22.39	11.74	20.78
% of SC Population	18.17	26.10	25.14	21.15	21.15
Literacy Rate (2001)	57.36	57.58	59.30	54.27	56.27
% of main workers to total population (2001)	24.19	25.36	27.01	22.02	23.67
No of PHC per lakh population (2009-10)	1.92	1.91	3.11	2.23	2.10



Length of pucca Road per 1000 Sq kms (2008-09)	978	863	388	920	864
Length of pucca Road per lakh pop. (2008-09)	110	113	122	102	108
% of village Electrified (2009-10)	92.91	95.55	95.62	84.10	88.89
Per capita Electr. Consumption (2009-10) in KWH	296	214	181	135	211
Average Size of holding in ha (2000-01)	0.96	0.80	1.56	0.65	0.83
% of NIA to NSA (2008-09)	91.71	84.49	56.41	76.44	81.12
Cropping Intensity (2008-09)	162	153	125	155	154
% of GIA to GSA (2008-09)	88.12	80.44	48.07	70.63	77.00
% of NIA by Canal (2008-09)	13.59	20.55	41.88	21.88	19.85
% of Govt Tube Wells (2008-09)	1.57	1.43	4.42	4.66	2.65
% of Private Tube Wells (2008-09)	73.45	77.22	20.05	70.13	68.72
% of Other Sources (2008-09)	11.39	0.80	33.64	3.34	8.68
Fertilizer use in agriculture per ha of GSA (kg)	179.58	158.86	43.24	159.54	155.97
% of cultivable land to total reported area (2008-09)	82.21	80.57	79.48	76.59	79.56
% of barren and uncultivable land to total reported Area (2008-09)	1.79	2.31	3.66	1.63	2.06
% of Area under Forest to total reported Area (2008-09)	4.83	5.39	8.26	9.10	6.88
Productivity of Food Grains (q/ha) in 2008-09	27.83	23.62	14.52	22.58	23.63
Productivity of wheat (Q/ha) in 2008-09	34.04	30.26	23.82	26.91	29.97
Productivity of Rice (Q/ha) in 2008-09	22.46	20.51	13.19	22.09	21.77
Productivity of Oilseeds (Q/ha) in 2008-09	12.57	7.80	4.52	6.89	8.87
Productivity of Sugarcane (ton/ha) in 2008-09	564.46	477.35	369.9	444.20	524.67
% share of Area under Kharif in 2008-09	47.33	45.69	28.48	49.32	45.89
% share of Area under Rabi in 2008-09	47.68	49.33	70.87	48.60	50.52
Gross value of Agri. output per ha of NSA (2007-08)	69268	54893	23180	46001	53685
Gross value of Agri. output per Ag. Worker (2007-08)	39740	25259	17520	15815	24779
Population per livestock (2009-10)	3.13	2.95	1.84	3.43	3.10
Population per milch cattle (2009-10)	22.34	23.17	17.10	22.88	22.28
Per capita NDP in Rs. at current Prices (2007-08)	20535	16745	15955	11645	16060
No of working factory per lakh pop. (2006-07)	11.50	5.91	1.50	1.75	6.09
Per Capita gross value of Industrial output (2006-07)	13787	8943	1564	2172	7653
Credit- Deposit Ratio (2008-09)	52.48	44.30	48.78	26.37	42.57

Source: Compiled from the District Development indicators of Uttar Pradesh, 2010

**Table-A2: Average Rainfall in the Sample Districts (in mm per annum)**

Sample Districts	2004-05		2005-06		2006-07		2007-08		2008-09		2009-10	
	N	A	N	A	N	A	N	A	N	A	N	A
<b>Banda</b>	902	635	902	707	902	411	902	303	902	661	902	511
<b>Hamirpur</b>	864	708	864	784	864	439	864	466	864	889	864	794
<b>Jalaun</b>	862	668	862	542	862	92	862	271	862	493	862	586
<b>Jhansi</b>	850	613	850	545	850	545	850	360	850	717	850	571
<b>Lalitpur</b>	1044	790	1044	952	1044	542	1044	443	1044	824	1044	752
<b>Mahoba</b>	864	324	864	448	864	444	864	366	864	679	864	488

N= Normal A= Actual Source: Compiled from District Statistical Handbooks

**Table-1: Changes in the Cropping Pattern (% of GSA)**

Crops	Phase	Banda	Hamirpur	Jalaun	Jhansi	Lalitpur	Mahoba
<b>Wheat</b>	Pre	34.81	31.11	30.72	39.19	20.54	14.62
	Post	36	32.5	31.7	40.2	22.5	15.8
	% change	1.19	1.39	0.98	1.01	1.96	1.18
<b>Barley</b>	Pre	0.36	0.76	2.33	1.22	0.79	0.85
	Post	0.33	0.7	2.28	1.22	0.73	0.85
	% change	-0.03	-0.06	-0.05	0	-0.06	0
<b>Jowar</b>	Pre	6.51	6.85	3.32	2.09	1.17	1.93
	Post	6.45	6.67	3.32	2.03	1.17	1.9

	% change	-0.06	-0.18	0	-0.06	0.0	-0.03
<b>Millet</b>	Pre	0.23	0.04	1.65	0.01	0.0	0
	Post	0.23	0.04	1.62	0	0.0	0
	% change	0	0	-0.03	-0.01	0.0	0
<b>Maize</b>	Pre	0.20	0	0	0	4.89	0.01
	Post	0.20	0	0	0	4.78	0
	% change	0.0	0	0	0	-0.11	-0.01
<b>Urad</b>	Pre	0.95	1.96	5.05	9.84	24.71	11.47
	Post	0.95	1.9	5.15	9.6	22.6	11.6
	% change	0	-0.06	0.1	-0.24	-2.11	0.13
<b>Moong</b>	Pre	0.58	0.26	0.17	2.14	0.91	2.56
	Post	0.63	0.3	0.17	2.18	0.91	2.5
	% change	0.05	0.04	0	0.04	0	-0.06
<b>Masur</b>	Pre	7.05	9.71	10.4	2.64	10.77	10.05
	Post	7.15	9.8	9.79	2.67	11	10.25
	% change	0.1	0.09	-0.61	0.03	0.23	0.2
<b>Gram</b>	Pre	30.31	30.94	19.32	6.24	9.58	28.19
	Post	30.31	31.12	19.5	6.4	9.78	27.45
	% change	0	0.18	0.18	0.16	0.2	-0.74
<b>Peas</b>	Pre	0.42	4.66	8.06	9.75	21.36	8.34
	Post	0.5	4.7	7.93	9.58	20.5	8.5
	% change	0.08	0.04	-0.13	-0.17	-0.86	0.16
<b>Arhar</b>	Pre	4.68	4.69	3.06	0.41	0.03	1.48
	Post	4.5	4.69	3.06	0.41	0.03	1.45
	% change	-0.18	0	0	0	0	-0.03
<b>Mustard</b>	Pre	0.61	1.67	2.48	0.41	0.21	1.15
	Post	0.7	1.75	2.7	0.51	0.25	1.33
	% change	0.09	0.08	0.22	0.1	0.04	0.18
<b>Alsi</b>	Pre	0.88	1.41	0.24	0.87	0.00	3.72
	Post	0.59	1.25	0.24	0.80	0.00	3.60
	% change	-0.29	-0.16	0.00	-0.07	0.0	-0.12
<b>Til</b>	Pre	0.69	1.77	8.01	7.67	1.19	4.63
	Post	0.69	1.80	8.25	7.67	1.23	4.63
	Net change	0.00	0.03	0.24	0.00	0.04	0.00
<b>Groundnut</b>	Pre	0.31	0.01	0.00	15.88	0.14	1.79
	Post	0.31	0.00	0.00	14.67	0.14	1.62
	Net change	0.00	-0.01	0.0	-1.21	0.00	0.17
<b>Green Fodder</b>	Pre	1.25	1.05	0.91	0.22	0.0	0.07
	Post	1.25	1.10	1.0	0.25	0.0	0.07
	Net change	0.0	0.05	0.07	0.03	0.0	0.0

**Table 2: Per Hectare Yield of Cereal Crops in DPAP districts (in quintals per hectare)**

Crops	Far_cat	Phase	Banda	Hamirpur	Jalaun	Jhansi	Lalitpur	Mahoba
<b>Wheat</b>	SMF	Pre	15.00	19.12	22.99	20.00	16.40	15.81
		Post	16.35	20.50	25.04	21.50	17.20	17.00
		% change	9.00	7.22	8.92	7.50	4.88	7.53
	LMF	Pre	15.38	19.50	23.45	20.35	16.25	16.13
		post	16.90	21.00	25.10	22.23	17.50	17.42
		% change	9.88	7.69	7.04	9.24	7.69	8.00
<b>Barley</b>	SMF	Pre	7.64	7.13	13.87	13.92	14.40	7.13
		Post	8.23	7.83	14.50	14.50	15.25	7.67
		% change	7.72	9.82	4.54	4.17	5.90	7.57
	LMF	Pre	7.79	7.13	14.00	14.00	14.60	7.00
		post	8.52	7.56	14.50	14.60	15.00	7.35
		% change	9.37	6.03	3.57	4.29	2.74	5.00

<b>Jowar</b>	SMF	Pre	4.14	3.41	13.13	7.17	8.82	6.34
		Post	4.45	3.68	14.18	7.80	9.33	6.25
		% change	7.49	7.92	8.00	8.79	5.78	-1.42
	LMF	Pre	4.23	3.48	13.30	7.31	8.80	6.47
		post	4.60	3.70	14.30	7.90	9.20	6.70
		% change	8.75	6.32	7.52	8.07	4.55	3.55
<b>Millet</b>	SMF	Pre	6.84	9.25	5.05	4.54	-	9.25
		Post	7.40	10.00	5.50	4.78	-	9.45
		% change	8.19	8.11	8.91	5.29	-	2.16
	LMF	Pre	6.97	9.20	5.00	4.63	-	9.43
		post	7.60	10.10	5.42	5.00	-	9.82
		% change	9.04	9.78	8.40	7.99	-	4.14
<b>Maize</b>	SMF	Pre	12.69	-	3.92	4.44	7.98	12.49
		Post	13.50	-	4.10	4.82	8.50	13.63
		% change	6.38		4.59	8.56	6.52	9.13
	LMF	Pre	12.70	-	4.00	4.53	8.00	12.65
		post	13.68	-	4.20	4.90	8.35	13.63
		% change	7.72	-	5.00	8.17	4.38	7.75

**Table-3: Per Hectare yield of Pulses in Pre and Post Project Periods**

<b>Crops</b>	<b>Far_cat</b>	<b>Phase</b>	<b>Banda</b>	<b>Hamirpur</b>	<b>Jalaun</b>	<b>Jhansi</b>	<b>Lalitpur</b>	<b>Mahoba</b>
<b>Urad</b>	SMF	Pre	1.61	1.62	2.95	3.09	4.96	3.69
		Post	1.66	1.7	3.1	3.25	5.25	4.0
		% change	3.11	4.94	5.08	5.18	5.85	8.40
	LMF	Pre	1.64	1.6	3.0	3.15	5.0	3.76
		Post	1.73	1.7	3.2	3.32	5.3	4.0
		% change	5.49	6.25	6.67	5.40	6.00	6.38
<b>Moong</b>	SMF	Pre	1.94	1.31	3.12	2.13	4.11	3.19
		Post	2.1	1.37	3.3	2.27	4.42	3.35
		% change	8.25	4.58	5.77	6.57	7.54	5.02
	LMF	Pre	1.85	1.34	2.2	2.17	4.2	3.25
		Post	2.0	1.45	2.3	2.3	4.3	3.5
		% change	8.11	8.21	4.55	5.99	2.38	7.69
<b>Masur</b>	SMF	Pre	6.19	6.06	8.52	8.21	6.56	6.7
		Post	6.5	6.2	9.3	8.77	6.93	7.3
		% change	5.01	2.31	9.15	6.82	5.64	8.96
	LMF	Pre	6.31	6.0	8.6	8.3	6.6	6.7
		Post	6.83	6.3	9.2	9.0	7.05	7.1
		% change	8.24	5.00	6.98	8.43	6.82	5.97
<b>Gram</b>	SMF	Pre	6.66	6.23	8.37	8.55	7.36	8.4
		Post	7.0	6.67	9.0	9.3	7.6	9.0
		% change	5.11	7.06	7.53	8.77	3.26	7.14
	LMF	Pre	6.8	6.35	8.53	8.6	7.45	8.56
		Post	7.3	6.8	9.15	9.1	7.72	8.85
		% change	7.35	7.09	7.27	5.81	3.62	3.39
<b>Peas</b>	SMF	Pre	8.57	8.72	9.36	11.36	8.01	7.55
		Post	9.52	9.45	10.3	12.5	8.0	8.1
		% change	3.65	2.81	3.62	4.38	-0.04	2.12
	LMF	Pre	8.7	8.8	9.42	11.2	8.0	7.63
		Post	9.35	9.4	10.0	12.0	7.9	8.25
		% change	7.47	6.82	6.16	7.14	-1.25	8.13
<b>Arhar</b>	SMF	Pre	7.75	5.87	8.74	6.47	6.23	6.14
		Post	8.36	6.3	9.4	6.8	6.15	6.0
		% change	7.87	7.33	7.55	5.10	-1.28	2.28

	LMF	Pre	7.98	5.99	8.65	6.55	6.20	6.00
		Post	8.42	6.25	9.15	6.70	6.05	6.00
		% change	5.51	4.34	5.78	2.29	-2.42	0.00

**Table 4: Per Hectare Yield of Oilseeds in pre and post-project period (in quintal per hectare)**

Crops	Far_cat	Phase	Banda	Hamirpur	Jalaun	Jhansi	Lalitpur	Mahoba
Mustard	SMF	Pre	5.62	5.73	6.45	6.48	6.69	5.24
		Post	6.0	6.1	7.0	7.0	6.72	5.5
		% change	6.76	6.46	8.53	8.02	0.45	4.96
	LMF	Pre	5.62	5.73	6.4	6.61	6.83	5.35
		post	6.12	6.25	6.9	7.15	6.9	5.45
		% change	8.90	9.08	7.81	8.17	1.02	1.87
Alsi	SMF	Pre	3.86	3.11	4.18	4.2	4.34	4.19
		Post	4.15	3.42	4.45	4.5	4.25	4.13
		% change	7.51	9.97	6.46	7.14	-2.07	-1.43
	LMF	Pre	3.94	3.17	4.27	4.3	4.43	4.1
		post	4.11	3.30	4.50	4.4	4.30	4.2
		% change	4.31	4.10	5.39	2.33	-2.93	2.44
Til	SMF	Pre	1.29	0.82	1.5	1.25	1.31	0.80
		Post	1.40	0.85	1.6	1.33	1.40	0.85
		% change	8.53	3.66	6.67	6.40	6.87	6.25
	LMF	Pre	1.31	0.80	1.53	1.20	1.34	0.80
		post	1.40	0.85	1.65	1.27	1.45	0.85
		% change	6.87	6.25	7.84	5.83	8.21	6.25
Groundnut	SMF	Pre	3.60	3.36	5.75	5.51	6.47	3.37
		Post	3.92	3.60	6.30	6.0	6.50	3.33
		% change	8.89	7.14	9.57	8.89	0.46	-1.19
	LMF	Pre	3.60	3.45	5.8	5.6	6.55	3.44
		post	3.73	3.5	6.1	6.0	6.65	3.50
		% change	3.61	1.45	5.17	7.14	1.53	1.74

**Table 5: Average Yield (Quintals per hectare) in pre and post project periods and Productivity gains in the post-project period**

Crop	SMF			LMF		
	Pre	post	Net gain in (%)	Pre	post	Net gain in (%)
wheat	18.22	19.60	7.57	18.51	20.03	8.19
Barley	10.68	11.33	6.07	10.75	11.26	4.67
Jowar	7.17	7.62	6.23	7.27	7.73	6.45
Millet	5.82	6.19	6.30	5.87	6.32	7.69
Maize	6.92	7.43	7.30	6.98	7.46	6.88
<b>Total Cereals</b>	<b>9.76</b>	<b>10.43</b>	<b>6.86</b>	<b>9.88</b>	<b>10.56</b>	<b>6.88</b>
Urad	2.99	3.16	5.80	3.03	3.21	6.06
Moong	2.63	2.50	6.39	2.80	2.64	5.60
Masur	7.04	7.5	6.53	7.09	7.58	6.99
Gram	7.60	8.1	6.58	7.72	8.15	8.03
Peas	8.93	9.65	8.02	8.96	9.48	5.86
Arhar	6.87	7.17	4.39	6.90	7.10	3.01
<b>Total Pulses</b>	<b>6.01</b>	<b>6.35</b>	<b>5.66</b>	<b>6.08</b>	<b>6.36</b>	<b>4.61</b>
Mustard	6.04	6.39	5.83	6.09	6.46	6.10
Alsi	3.98	4.15	4.27	4.04	4.14	2.48
Til	1.16	1.24	6.60	1.16	1.25	7.02

Groundnut	4.68	4.94	5.67	4.74	4.91	3.66
<b>Total oilseeds</b>	<b>3.97</b>	<b>4.18</b>	<b>5.29</b>	<b>4.01</b>	<b>4.19</b>	<b>4.89</b>

**Table-6: Changes in the Household Income after the WDP**

District	Phase	Agriculture		Livestock		Total	
		Small farms	Large Farms	Small farms	Large Farms	Small Farms	Large Farms
Banda	Pre	14688	45195	9968	17472	24656	62667
	Post	16580	68575	10866	20048	27446	88623
	% ch	12.88	51.73	9.01	14.74	21.89	66.47
Hamirpur	Pre	15854	48248	11763	21951	27617	70199
	Post	19083	69169	11632	22702	30715	91871
	% ch	20.37	43.36	-1.11	3.42	11.22	30.87
Jalaun	Pre	19711	64236	10929	19557	30640	83794
	Post	24228	88742	11152	19541	35380	108284
	% ch	22.92	38.15	2.04	-0.08	24.96	38.23
Jhansi	Pre	17241	59780	7922	14973	25163	74753
	Post	21268	72088	9097	16352	30365	88440
	% ch	23.36	20.59	14.83	9.21	38.19	29.80
Lalitpur	Pre	19593	59245	10596	18114	30189	77359
	post	22083	82986	12067	18553	34150	101539
	% ch	12.71	40.07	13.89	2.42	26.60	42.50
Mahoba	Pre	17081	70536	7435	17864	24516	88400
	post	20079	84621	9667	17021	29746	101642
	% ch	17.55	19.97	30.03	-4.72	47.58	15.25
Overall	Pre	17361	57873	9769	18322	27130	76195
	post	20554	77697	10746	19036	31300	96733
	% ch	18.39	34.25	10.0	3.90	15.37	26.96

**Table 7: Employment Generation in Farm and Non- farm Activities in DPAP Watersheds (days/hh)**

District	Phase	SMF				LMF				Total			
		Agri		Non-agri		Agri		Non-agri		Agri		Non-agri	
		M	F	M	F	M	F	M	F	M	F	M	F
Banda	Pre	37.1	23.5	67.4	22.7	170.0	68.9	68.1	13.5	72.5	35.6	67.6	20.3
	Post	39.9	25.3	77.4	25.2	182.9	74.3	78.7	15.0	78.0	38.4	77.8	22.5
	% ch	7.5	7.7	14.8	11.0	7.6	7.8	15.6	11.1	7.6	7.9	15.1	10.8
Hamirpur	Pre	39.8	21.3	80.7	26.1	150.8	82.0	81.1	13.2	74.5	40.3	80.8	22.1
	Post	42.8	22.9	92.5	29.6	159.4	86.5	93.4	14.8	79.2	42.8	92.8	25.0
	% ch	7.5	7.5	14.6	13.4	5.7	5.5	15.2	12.1	6.3	6.2	14.9	13.1
Jalaun	Pre	38.5	18.4	82.4	27.2	165.1	73.2	93.5	8.8	76.1	34.7	85.7	21.8
	Post	43.0	20.4	94.1	30.2	176.5	78.1	106.7	9.8	82.7	37.6	97.9	24.1
	% ch	11.7	10.9	14.2	11.0	6.9	6.7	14.1	11.4	8.7	8.4	14.2	10.6
Jhansi	Pre	41.0	20.4	65.2	22.7	157.9	65.0	72.7	10.3	70.3	31.6	67.1	19.6
	Post	44.7	22.2	74.9	25.5	167.6	69.8	83.5	11.6	75.5	34.2	77.0	22.0
	% ch	9.0	8.8	14.9	12.3	6.1	7.4	14.9	12.6	7.4	8.2	14.8	12.2
Lalitpur	Pre	50.8	22.5	64.0	21.6	196.6	84.6	89.0	10.3	108.5	47.1	73.9	17.1
	Post	55.0	24.4	76.6	24.4	213.0	91.8	102.6	11.6	117.5	51.0	85.1	19.3
	% ch	8.3	8.4	19.7	13.0	8.3	8.5	15.3	12.6	8.3	8.3	15.2	12.9
Mahoba	Pre	34.4	28.7	69.5	22.4	216.1	97.6	70.0	13.0	91.6	50.4	69.6	19.4
	Post	37.2	31.0	79.8	25.4	233.6	105.4	82.1	14.8	99.1	54.4	80.5	22.0
	% ch	8.1	8.0	14.8	13.4	8.1	8.0	17.3	13.8	8.2	7.9	15.7	13.4
Overall	Pre	39.7	22.9	70.3	23.5	180.6	79.7	78.2	11.6	82.4	40.1	72.7	19.7
	Post	43.1	24.8	80.7	26.3	194.0	85.7	90.3	13.1	88.9	43.3	83.6	22.3
	% ch	8.6	8.3	14.8	11.9	7.4	7.5	15.5	12.9	7.9	8.0	15.0	13.2

Note: ' % ch ' stands for percentage change

**Table 8: Average Wage rate in the Watershed Area (in Rs. per day)**

District	Phase	NRM		Agriculture		Non-agriculture	
		Male	Female	Male	Female	Male	Female
Banda	Pre	100.0	100.0	62.50	55.50	68.50	57.50
	Post	120.0	120.0	92.30	80.25	105.00	90.25
	% ch	20.0	20.0	47.68	44.59	53.28	56.96
Hamirpur	Pre	100.0	100.0	60.50	50.25	65.50	58.25
	Post	120.0	120.0	98.75	88.00	115.25	100.70
	% ch	20.0	20.0	57.33	49.45	57.95	52.48
Jalaun	Pre	100.0	100.0	60.70	50.45	70.75	60.50
	Post	120.0	120.0	95.50	75.40	111.75	92.25
	% ch	20.0	20.0	57.33	49.45	57.95	52.48
Jhansi	Pre	100.0	100.0	60.30	55.25	65.33	59.60
	Post	120.0	120.0	90.50	80.00	102.30	90.75
	% ch	20.0	20.0	50.08	44.80	56.59	52.27
Lalitpur	Pre	100.0	100.0	65.00	55.00	73.25	62.50
	Post	120.0	120.0	95.25	82.50	108.75	95.0
	% ch	20.0	20.0	46.54	50.00	48.46	52.0
Mahoba	Pre	100.0	100.0	63.50	57.25	69.75	60.50
	Post	120.0	120.0	96.75	81.50	100.50	90.50
	% ch	20.0	20.0	52.36	42.36	44.09	49.59
Overall	Pre	100.0	100.0	62.08	53.95	68.85	59.81
	Post	120.0	120.0	94.84	81.27	107.26	93.24
	% ch	20.0	20.0	52.77	50.64	55.79	55.89

## Efficient Use of Water in Agriculture and Rain Water Harvesting

Balraj Singh and Ravindra Singh\*

### Introduction

Water is a prime requirement for all aspect of life. It is imperative to make certain that adequate, supplies of water of good quality are maintained for all the needs of entire population, while preserving the hydrological and biological function of ecosystems. Innovative technologies, including the improvement in the indigenous technologies, are needed to fully utilize limited water resources and to safeguard these resources against pollution. Water is essential for sustaining all forms of life, food production, economic development, and for general well being. It is impossible to substitute for most of its uses, difficult de-pollute, expensive to transport and it is truly a unique gift to mankind from nature. Water is also one of the most manageable of the nature resources as it is capable of diversion, transport, storage and recycling. The surface water and ground water resources of the country play a major role in agriculture, hydropower generation, livestock production, industrial activities, forestry, fisheries, navigation, recreational activities etc. Accordingly to National water policy in as (1) drinking water (2) irrigation (3) hydropower (4)ecology (5) agro industries and non agricultural industries, and (6)navigation .

### Ground Water

The annual natural groundwater recharge potential from rainfall is about 342.43 km<sup>3</sup>, which is 8.56% of total, the annual rainfall in the country. The annual potential groundwater recharge augmentation from canal irrigation system is about 89.46 km<sup>3</sup>. Thus, total replenishable groundwater in the country is assessed as 431.89% after allocating 15% of this quantity for drinking and 6 km<sup>3</sup> for industrial purpose, the balance can be utilized for irrigation purpose. Thus, the available utilizable groundwater for irrigation is 361 km<sup>3</sup>, of which utilizable quantity is 325 km<sup>3</sup>.

### Water Demand

India primarily is an agrarian economy. Development of irrigation therefore aims to increase the agricultural production and productivity for making the country self-sustained while alleviation of poverty has been the main focus. Thus, the irrigation sector was accorded a very high priority in all the five year plans to increase the irrigation potential and boost agriculture production. It needs long terms planning to account for the growth of population. The food grains production has increase around 50 million tonnes by in the fifties to about 203 million tonnes by 1999-2000. The

estimated population by according to the National Commission for Integrated Water Resources Development (NCIWRD) is expected reach 1333 million and the total annual demand for water for various sectors has been estimated as given table-1 (annexure). With the increasing population and sectoral development the utilization of water has also been increasing in the country.

### Water Requirement of Crops

Water requirement of different crops ranges between 300-2500 mm depending on nature of the crop and cropping season (Table 2 and 3-annexure).

### Irrigation

The world resources 2000-2001 has assessed that out to total 3414 Km<sup>3</sup> of annual water withdrawals in 1990 the Asian continent alone withdrew 58.8% of the total annual withdrawals and 15 % of renewable water resources. Among different countries the three largest water users in 1990 are China, India and USA as can be seen from in table 4 (annexure). It indicates that India and China account for one third of global withdrawals, while India, China and USA together constitute nearly a half of global withdrawals. In the context of renewable water resources, India uses 40% renewable water resources while china and USA together uses less than 20% of their renewable water resources of the total withdrawals agriculture alone consumes over 92% in India. Thus agriculture is the predominant water consumer in the country. Since the scope for expending irrigation is limited there is greater need for appropriate management of irrigation with suitable strategies.

The country occupies 3.29 million km<sup>2</sup> geographical area, which forms 2.4% of the world land area and support over 15% of the world's population. It has about 15% of the world population, 1/50<sup>th</sup> of world's land and 1/25<sup>th</sup> of worlds water resource. It also has a livestock population of 500 million, which is about 20% of the world's total livestock population and over half of them are cattle, forming the backbone of Indian agriculture. Our water resources developed in the country is 644 billion cubic meters, which constitute about 57% of the ultimate utilizable potential of 1,122 billion cubic meter "Augmenting the supply beyond this level is going to be difficult because of investment bottlenecks, environment concerns, political and legal issues. Therefore meeting the increasing water demand in the next few decades will be great challenge in the country. The Ministry of Water Resources of Government of India has projected the total demand by 2010 at 694-710 bcum by 2025 784-850 bcum and by 2050 it raises to 973-1850 bcum.

Water is the most manageable natural resources capable diversion, transport, storage and recycling. The surface water and groundwater resources of the country play a major role in agriculture, hydropower generation, livestock production, industrial

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activities, forestry fisheries, recreational activities, etc. The National Water Policy advocated that in the planning and operation systems, water allocation priorities should be broadly as: (1) drinking water (2) irrigation (3) hydropower (4) ecology (5) agro industries and non agro industries, and (6) navigation. India receives annual precipitation of about 4000 km<sup>3</sup>, including snowfall. Out of this, monsoon rainfall is of the order of 3000 km<sup>3</sup>. Besides water available in the various rivers, the groundwater is also an important source for drinking, irrigation, industrial uses, etc. which accounts for about 80% of the domestic water requirement and more than 45% of the total irrigation of the country. According to the international norms, of per-capita water availability the countries with less than 1700 m<sup>3</sup> per year are categorized as water stress country and less than 1000 m<sup>3</sup> per capita per year are classified as water source country. The per capita surface water availability in India during 1991 and 2001 were 2309 and 1902 m<sup>3</sup> which are projected to decrease 1401 and 1191 m<sup>3</sup> by 2025 and 2050 respectively. Hence, there is urgent need for appropriate planning, development and management of water and land resources for enhancing the standards of living of the millions of people, in the country.

Irrigation is considered as one of the major factors for increasing crop productivity. Increased water use efficiency and improved technology, as well as introduction of cultivation system such as no-till, offer the prospect of significant water saving. Water use efficiency in Indian irrigation system is rather low compared to developed countries due to more areas under flood irrigation. One of the more promising areas to utilize more water for irrigation is to increase the water and nutrient use efficiency through the implementation of micro irrigation system (MIS) and fertigation. Modern micro irrigation systems are much more efficient in terms of water use efficiency (WUE). Fertigation is the application of solid or liquid fertilisers via pressurized irrigation system. The total irrigation efficiency in major or even small irrigation projects by surface methods has dwindled about 30 to 35 per cent as compared to 95 per cent and 80 per cent in drip and sprinkler irrigation methods, respectively. The water saving of drip irrigation ranged about 60 to 70 per cent depending on soil types and crops in addition to increase in the yield to the extent of 40 to 50 per cent as compared to recommended water management packages by surface irrigation methods. This has necessitated adopting the micro-irrigation system, which irrigates the plant root zone rather than the entire field. Water application efficiency was highly specific to land topography and soil types. Since, these methods need water under pressure, they are classified as pressurized irrigation systems. Pressurized irrigation system is a well established efficient method for saving water and increasing water use efficiency as compared

to the conventional surface method of irrigation (Table 5-annexure).

### **Pressurized Irrigation System**

Indian Council of Agricultural Research (ICAR) has established 34 centres of Coordinated Research Programme on Water Management to study efficient irrigation methods under variable soil and climatic conditions for the crops and scheduling of irrigations. The need for efficiency and adoption of micro-irrigation system was examined by these centres. The results and recommendations of micro-irrigation research systems comprising drip/trickle, mini sprinkler and sprinkler have become pivotal elements of integrated water use system, with many agro-ecological, socio-economic and environmental advantages. Micro-irrigation has emerged as a tool for effective management of resources, which saves water and nutrients.

### **Low Pressure Drip Irrigation Technology**

A new innovation has been made in the field to run the drip irrigation system in the small land holding with gravitational energy rather than commonly used electrical energy. It has been named as low pressure drip irrigation technology. In this system, gravitational energy is used by placing the water supply tank at the minimum height of 1.5 meter. The platform of locally available materials like brick, stone, wood, plank is made of minimum 1.5 meter height to place the water tank of 500 to 1000 liter over it. Normally 1000 liter tank is sufficient to irrigate 1000 square meter area of different types of horticultural crops. The lateral or bed length used in this system is not more than 20 meter. The lateral pipe of 12-16 mm fitted with dripper of discharge 1 liter per hour is commonly used in this system. The hydraulics of low pressure drip irrigation system has been studied through different experiments, which suggest the optimum use of water and nutrients in this particular model. The major advantage of this system is the simplification in the use of fertigation. In the pressurized irrigation system there is a need of extra pump, venturi or tank for the supply of fertilizers. This requires additional money and energy to be used in the system. Low pressure drip irrigation technology has another major advantage in this area of fertigation as the same water supply irrigation tank is used for supply of fertilizers and other micro-nutrients. Normally the commonly used fertilizers and micro-nutrients are directly used in the irrigation tank and supplied to the crops. Thus, we can see that low pressure drip irrigation technology has simplified and economized the pressurized drip irrigation technology. This system is now particularly suitable for Indian villages and Indian farmers. Low pressure drip irrigation technology is getting into the villages due to its advantage over pressurized drip irrigation technology for the use of the



system without electricity as many Indian villages have erratic and unassured electricity supply. The system is very popular in the farming community as it is technically simple and easy to use in the field. The system can be installed, used, maintained and replaced by one small family. Therefore, it is sometimes also known as family drip irrigation system. We all know that land holding area is decreasing in our country due to increasing population and there is a shift towards use of protected cultivation and use of horticultural crops. In all these scenario low pressured drip irrigation technology is extremely suitable and beneficial for Indian farmers. Low pressure drip irrigation technology is particularly suitable for protected horticulture and greenhouse farming, where the land holding is small and there is a precise need of water and fertilizers.

### **Status of Micro Irrigation in India**

India ranks among the top 5 nations across the globe in terms of food grains, fresh vegetables and fruits production. However, productivity of most of the crops is poorer compared to world average. Fragmented land holding and out dated traditional methods of cultivation, are some of the factors for low productivity in agriculture. Micro irrigation is a boon for enhancement as well as better quality produce toward higher returns for the poor farming community across India. Micro irrigation system is panacea for most of our irrigation related issues. With this technology only the close vicinity of root zone of crops get irrigated instead of entire field. This significantly reduces water loss occurring through evaporation, conveyance and distribution resulting higher water use efficiency. The un-irrigated and rainfed cropped area also could be irrigated using the water saved. In India, the technologies covered under the name micro irrigation (MI) include drip irrigation, micro sprinkler irrigation and over head sprinkler irrigation. Micro irrigation (MI) Technology needs no introduction as it is in use for over 40 years in India. Sprinkler irrigation was introduced in India more than 40 years back but initially its use was limited to tea and coffee plantations. In real terms adoption of both drip and sprinkler irrigation system got accelerated in late 80s onwards due to support from central and state Governments and as an important component of plasticulture intervention in the country. The area under micro irrigation system in the year 1992 was estimated to around 7000 ha which has touched around 49 lakh ha in 2010 and it is likely to grow by 30 to 35% every year. Among various states, Maharashtra has covered area of 8.99 lakh ha, Andhra Pradesh 7.61 lakh ha, Haryana 5.045 lakh ha, Rajasthan 8.096 lakh ha, Karnataka 5.095 lakh ha, Tamil Nadu 1.80 lakh ha and Gujarat 4.07 lakh ha (Anonymous, 1998 and Anonymous, 2000). Recently, government of India has launched a micro irrigation mission in order to bring awareness about MIS and cover large area under MIS

by providing financial assistance/subsidy to the tune of 50 to 90% to the farmers. Out of 49 lakh ha under MIS, 18.79 lakh ha is under drip irrigation where fertigation needs to be adopted. There is tremendous potential for enhancing the yield and quality of the produce through fertigation and foliar application by using water soluble fertilisers. It is assumed that the potential for fertigation would also be growing rapidly.

### **Potential for Micro Irrigation in India**

Recognizing the vast scope/ of potential coverage under micro irrigation to the tune of 69.5 m ha and its role in enhancing productivity, diversification and sustainability a Task Force Committee on micro irrigation was constituted in 2004 which indicated a theoretical potential of 69.5 m ha under drip (27 m ha) and sprinkler (42.5 m ha) irrigation system. Various advantages such as increased yield, improved quality, saving in fertiliser, energy and labour, better disease and pest management, use of saline and brackish water and feasibility for undulating terrains etc. are well documented. Realising the vast potential under micro irrigation a centrally sponsored scheme on micro irrigation was launched in 2005 in 18 states. The year wise and component wise breakup under CSS on MI are given in Table 6 (annexure).

### **Types of Micro Irrigation System (MIS)**

1. Drip system
2. Micro sprinkler/sprayers
3. Mini sprinkler
4. Regular sprinkler
5. Gun sprinkler

### **Precision Irrigation**

Day by day water is becoming a scarce resource. Many parts of the country experience crop failure due to paucity of irrigation water. Still, over-irrigation is rampant in different pockets of the irrigated ecosystem. In India, irrigation scheduling is made by the farmer depending either on the crop growth stage or on his own perception of soil moisture content which mostly leads to over-irrigation inadvertently. A huge share of irrigation water could be saved through variable rate application. Unlike computerized sensor based irrigation system of western precision agriculture, India may opt for simple instruments to measure in-field soil moisture for prescribing time and quantity of irrigation. Government initiatives to popularize sprinkler and drip irrigation systems for fruits and plantation crops are in the right direction of precision water management. However, efforts should be made to introduce these controlled irrigation systems in sugarcane, maize and vegetable crops.

Though, India has the largest irrigated area in the world but the coverage of irrigation is only about 40 percent of the gross cropped area as of today. One of the main reasons for the low coverage of irrigation in

India is the predominant use of flood (conventional) method of irrigation which is having only 50-60 per cent irrigation efficiency. Micro-irrigation is introduced primarily to save water and increase the water use efficiency in agriculture. However, it also delivers many other economic and social benefits to the society. Reduction in water consumption due to drip method of irrigation over the surface method of irrigation varies from 30 to 70 percent for different crops. Undulating topography causes major disparity in water availability. Therefore, management of landscape variability for the crops irrigated by flood irrigation system is a pre-requisite for precision water management. The traditional land levelling by animal or tractor drawn scrapers leaves wide variability in the landscape. To address this problem precision land levelling through laser-guided scrapers has to be adopted, which has recently been introduced and reported to perform satisfactorily in many parts of country. The grain yield of wheat was increased from 4.3 t/ha under traditional levelling to 4.6 t/ha through precision levelling by laser leveller. It was further reported that the yield advantage of laser levelling in upland paddy (0.67 t/ha) was more than that in wheat. The results of on farm investigations in Western Uttar Pradesh showed an average increase of 5.45% in rice productivity and 25% in water productivity in the first year of laser land levelling compared to traditional levelling. zero tillage technique, furrow irrigated raised bed planting (FIRB), wider beds, residue retention, drip fertigation are some of the resource conserving techniques can be used for successfully growing of seed spices in the semi arid region. In FIRB technique in which the field is divided into narrow strips of raised beds separated by furrows. The crops are planted on the bed surface and irrigation water is applied through the furrows. The bed surface remains almost dry and the lateral water movement fulfils the crop water requirement. In bed planting systems, crops are planted on the raised beds in ridge-furrow system and irrigation water is applied in furrow. This system is often considered more appropriate for growing high value crops that are more sensitive to temporary water logging stress. On the raised beds, two/three rows of cumin, coriander, fenugreek, fennel may be grown as pure crop stand.

### **Fertigation**

Fertigation is a method of fertilizer application in which fertilizer is incorporated within the irrigation water by the drip system. In this system fertilizer solution is distributed evenly in irrigation. The availability of nutrients is very high therefore the efficiency is more. In this method liquid fertilizer as well as water soluble fertilizers are used. By this method, fertilizer use efficiency is increased from 80 to 90 per cent.

## **Technologies for Higher Water Productivity in Agriculture**

### **Protected Cultivation**

The kind of protective structures for crop production range from simple provisions such as rain shelters, shade houses, mulches, row covers, low tunnels, cloches to greenhouse structure with passive or climate control. While it would not be possible to describe each of the above detail, a brief description of some of these is given below.

### **Greenhouses**

A greenhouse is quasi-permanent structure, covered with a transparent or translucent material, ranging from simple homemade design to sophisticated pre-fabricated structure, where in the environment could be modified suitable for the propagation of growing of plants. Material use to construct a greenhouse frame may be wood, bamboo and steel or even aluminium. Covering can be glass or various rigid or flexible plastic materials. Depending on the covering materials, different terminology has been used in the context of greenhouse structures as mentioned below:

*Glasshouse:* A greenhouse with glass as the covering material is glasshouse.

*Polyhouse:* It is a greenhouse with polyethylene as the covering material.

A plant grows best exposed to an environment that is optimal for that particular plant species. The aerial environment for the plant growth can be specified by the following four factors: Heat or temperature (2) Light (3) Relative Humidity and (4) CO<sub>2</sub>.

Environmental condition inside the greenhouse can be modified suiting the potential growth of plants. The extent of climate modification will, however depend on the design of the greenhouse is generally related with its cost. Higher the capability of greenhouses to modified its climate, higher is the cost of construction. While plant has precise optimum environment condition for best growth, most are tolerant to variations in these condition within some limits. However, permanent damage would occur when they are exposed to condition outside these limits. At the same time, plants are attack by pest and diseases.

Greenhouse crop production provides protection against adverse environment conditions and allows pest and disease to be exclude or controlled. Besides providing a protective enclosure, a greenhouse also act as a 'heat trap'. It admits solar radiation and converts this energy into heat by raising the temperature of the greenhouse air. While this is the basis of the greenhouses ability to perform its tasks, it also affects other environmental factors.

### **Shade Net Houses**

Shade nets are perforated plastic materials used to cut down the solar radiation and prevent scorching or

wilting of leaves caused by marked temperature increase within the leaf tissue from strong sunlight. These nets are available in different shading intensities ranging from 25% to 75%. Leafy vegetables ornamental greens are recommended to be grown under shade nets whose growth are significantly enhanced compared to unshaded plants when sunlight is strong.

### **Insect-proof Net Houses**

Shade house and net house are often synonymously used but more correctly a net house is enclosed with perforated screen primarily to act as a barrier for the entry of insect and pest. Insect proofs nylon nets are available in different intensities, ranging from 25 mesh to 60 mesh. Nets to 40 or higher mesh are effective means to control entry of most flying insects and save crops from disease. These structures permit early planting of tomatoes and capsicum without the risk of vector. Higher mesh size, however reduces the air exchange of the structure. Now-a-days, UV-stabilized nets are available much have a longer life.

### **Plastic Low Tunnels/Row Covers**

These structure are laid in open field to cover rows of plants with transparent plastic film stretched over steel hoops of about 50 cm height spaced suitably along the rows. Polyethylene film of 30-40 micron thickness, without UV stabilization, is used which is perforated in situ as the season gets hotter. Row covers used in vegetable production have different purpose in temperate and tropical regions. In cold condition, they are used to conserve warmth, stimulated germination and early growth, protect plant from frost injury and improve the quality of the crops. Other beneficial effects, such as maintaining soil structure and protecting crops from the attacks of birds and pest, can also be expected.

The main advantages of these covers in northern India are to grow vegetables, especially cucurbitaceous crops, ahead of normal season of winter. Experiments on muskmelon have proved it a highly profitable proposition. The muskmelon seeding could be transplanted under such covers in the last week of January. The crop growth was sustained during the cold period. Temperature profile inside the cover indicated a difference of about 7°C averaged over 24-hour cycle. This rise in temperature provided warmth to sustain the growth of plants.

In hot season, however material used as row covers need to have adequate permeability to air and moisture, to prevent the accumulation of excessive heat inside the covers. The covering materials used in summer are woven polyester wind-break nets, cheese-cloth and insect-proof screens. These type of cover are generally laid over the planted rows without the support of steel hoops, and are also called as floating covers, to provide adequate space the seedling are planted in the

furrows and the covers are laid over the ground. But such planting should only be adopted in light texture soils high infiltration rates.

### **Mulching**

Mulching is done to cover the soil around plants with a protective material, which may be organic or synthetic. Organic mulches, like leaves, sawdust etc. Add nutrients and humus to the soil as they decompose, improving its tilth and moisture holding capacity. Synthetic or plastic mulches have various beneficial effects on crop production. Transparent polyethylene mulch raises the soil temperature. This effect derives mostly from the suppression of latent heat loss through evaporation. The mean difference in soil temperature between transparent film mulched and bare soil in early February in Delhi was observed to be 5°C in the 7 cm of soil where most of the root zone of young muskmelon existed. It increased the plant growth by about 15% during the same period.

Mulching conserves the soil moisture and fertility. The former is higher with black plastic than under the transparent plastic. Mulching prevents the leaching of fertilizer, because it acts as a physical barrier to rainfall, thereby conserving the fertility. Black polyethylene film also gives effective weed control by cutting down solar radiation by more than 90% resulting in etiolated growth and the eventual death of weed control unless the film is coated with herbicides. Plastic mulch is also effective in the control of pests and disease. Silver coloured film is used as mulch to suppress the increase in soil temperature and to control pests and disease. The silver colour acts as a repellent to aphids, which transmits viruses. On the other hand, yellow coloured mulches attract insects, which could be killed easily. Muskmelons, tomatoes, cucumbers, squash, eggplant, watermelons and okra are vegetable crops that have shown significant in earliness, yield and quality when grow on plastic mulch.

### **Laser Land Levelling**

Precision land levelling enhances water use efficiency and consequently water productivity. It is also helpful in practicing aerobic farming using raised bed planters. Water saving by precision land levelling and raised bed planted wheat and rice compared to conventional practice and found distinctive results. Total water use by wheat crop as 5270 m<sup>3</sup>/ha and 3525 m<sup>3</sup>/ha on traditionally levelled field and laser levelled field respectively effecting a water saving of 26 through laser land levelling.

### **Rain Water Harvesting**

Water covers more than 70% of Earth's surface and hence the Earth's is called blue planet. Water resources are divided into two distinct categories: the Rainwater, the surface water & the ground water resources. Rain is

the prime source of all water and is the purest form of water in nature. Physically it is clear, bright, and sparkling. Chemically it is very soft containing only traces of dissolved solids. Much of the world's fresh water is consumed by the agriculture, industrial and domestic sectors. Increasing water demands and the inadequacy of these sectors to effectively manage this resource, has lead to crises situation in many parts of the world – especially crises over the availability of adequate and appropriate quality water. The major factor for this water stress are change in water demands due to increased population pressure, Rapid urbanization, pollution, climate change, land use change and depletion of aquifers. In almost all developing countries, still the major practice is to drain off of the untreated waste water into rivers. 80% of the Russian rivers have dangerous levels of bacterial and viral load. Due to increased urbanization, land use pattern has changed which leads to low infiltration rate and in turn poor groundwater recharge. All these factors together worsen the situation of water stress affecting each and every aspect of human life.

After realizing all the above and many more problems, we need to find out the options for conserving this precious resource. There are different ways by which we can contribute in preserving the water for e.g. rivers can be combined to mitigate the occurrences of droughts and floods, implementation of government policies effectively to manage the water resources and there is an urgent need of paradigm shift in management of water resources, improvement of water resources, separation of potable line and non-potable water line, recycling and reuse of waste water, by using various techniques for purifying water like reverse osmosis, distillation, membrane filters, rainwater harvesting etc. All these methods are feasible but require time and money and labor, which may restrict their adoption by the people. But rainwater harvesting emerges out as the most feasible method which could be adopted for conserving water. "Rainwater Harvesting" means capturing rainwater for future use taking measures to keep that water clean so that it is not polluted. One solution for augmenting the depleting ground water levels is practicing "Rainwater Harvesting". Water harvesting can be under taken by capturing runoff water from rooftops or from local catchments, capturing seasonal flood waters from local stream and conserving water through watershed management. It is globally accepted that RWA practice saves energy, reduces water shortages, replenishes ground water and prevent flooding.

Rainwater harvesting is has been advocated by the central and state government for infiltration of rain water during monsoon thereby raising the groundwater levels. The design specifications for construction of rainwater harvesting structure are also provided for implementation in the habitation. Rainwater harvesting measures are to some extent implemented by the urban

bodies for conservation of rain water enabling the groundwater recharge serving the household meeting their water requirements. Some of the benefits of rain water harvesting structure are increase in water availability reducing the declining water table, enhancement of quality of groundwater, prevention of soil erosion and flooding in urban areas. The rainwater harvesting measures are require to be undertaken on massive scale in rural and urban areas providing solution to the drinking water particularly for human habitation and livestock. The urban bodies may undertake statutory measures for strict implementation of the rainwater harvesting structure to tackle the growing domestic water needs of the urban population.

### **Water Harvesting Structures**

If rainwater seepages and snowmelt wastages are minimized, more area could be irrigated and productivity enhanced by overcoming moisture stresses, especially during critical growth stages. Water productivity improves if cold water coming from kuhls are impounded for some time to warm it up before application. The major sources of water supply are springs and small rivulets with limited discharges ranging between 2-20 lpm. In higher reaches discharge is still less (0.5 – 5 lpm). Some of the water harvesting structures and practices employed are as follows:

- 1) Hill Spring Outflow Harvesting: Storing spring water in plastic lined tanks can enable the farmers irrigate their crops at critical stages.
- 2) Diversion and Harvesting of Spring Water: Water from perennial springs can be diverted through field channels and underground pipes which in turn could be stored in plastic lined or pucca tanks.
- 3) Inter-terrace Runoff Harvesting: at suitable sites, small dug outs with plastic lining and pucca tank can be constructed and stored water used for protected irrigation and bringing additional area under irrigation.
- 4) Harvesting Sub-surface Streams: Sub-surface water streams keep on flowing in the valley in the upper portion of the watershed round the year, which can be harvested in ponds/tanks and stored water used for irrigation. Flow from such sources is about 0.01 – 0.1 cumec.
- 5) Contour Bunds: Earthen bunds on contour, 5-10 m apart, with inward slope can conserve rain water.
- 6) 'Zing' Water Harvesting Structures: Water harvesting in cold desert of Ladakh can be done by constructing 'Zing' (small pond or reservoir, diversion channel, and artificial glaciers).
- 7) Earthen Check Dams: The earthen check dams of small dimensions can be utilized for storing and recharge of ground water.
- 8) Non-Perennial Streams: Such streams can be diverted and water stored in sealed water harvesting

structures and water can be utilized during water stress periods.

- 9) Roof Water Harvesting: Rain water harvested from roof can be utilized for domestic as well as irrigation purposes.

- 10) LDPE Dykes: Low cost LDPE dykes can be constructed at a number of places to retain run off flow for use in irrigation.

- 11) Moisture Conservation Techniques: Gully plugging structures, contour trenches, organic mulching, bunding etc., help in insitu water conservation, and ground water recharge.

### Annexure

S. No	Uses	WR-2010	%	WR-2025	%	WR-2050	%
1	Irrigation	557	78	611	72	807	68
2	Domestic	43	6	62	7	111	9
3	Industries	37	5	67	8	81	7
4	Power	19	3	33	4	70	6
5	Inland navigation	7	1	10	1	15	1
6	Environment- Ecology	5	1	10	1	20	2
7	Evaporation Losses	42	6	50	6	76	7
	<b>Total</b>	<b>710</b>	<b>100</b>	<b>843</b>	<b>100</b>	<b>1180</b>	<b>100</b>

Sources: Report of the National Commission for Integrated Water Resources Development, Ministry of Resources, New Delhi, 1999.

**Table 2: Water Requirements of Different Crops (mm)**

S. No	Crop	Water requirements (mm)
1.	Rice	900-2500
2.	Wheat	450-650
3.	Maize	500-800
4.	Soyabean	450-700
5.	Tomato	600-800
6.	Pea	350-500
7.	Potato	300-600
8.	Onion	500-600
9.	Cauliflower	300-450

**Table 3: Water Requirement of Some Important Fruit Crops in Hilly Regions**

S. No.	Crops	Water requirement (mm)
1.	Apples	900
2.	Almond	880
3.	Cherries	600
4.	Peaches	600
5.	Pears	600
6.	Strawberries	300
7.	Grapes	530

**Table 4: Three largest water users 1990**

Country	Annual withdrawals (km <sup>3</sup> )	% World withdrawal	% of Renewable water utilization	Per capita (cum)
China	525	18.3	19	439
India	500	14.6	40	588
USA	448	13.1	18	1677
Sub Totals	1473	46.0	-	648

**Table 5: Irrigation efficiencies in pressurized irrigation system**

<b>Factors</b>	<b>Sprinkler irrigation system</b>	<b>Drip irrigation system</b>	<b>Surface irrigation system</b>
Overall irrigation efficiency	50-60%	80-90%	30-35%
Application efficiency	70-80%	90%	60-70%
Water saving	30%	60-70%	NA

**Table 6: Area covered under drip/sprinkler irrigation**

<b>Financial year</b>	<b>Drip irrigation (ha)</b>	<b>Sprinkler irrigation (ha)</b>	<b>Total (ha)</b>
2005-06	42311	13117	55431
2006-07	154416	144119	298535
2007-08	207451	231891	439342
2008-09	250748	324323	575071
2009-10	277518	319332	596850
2010-11*	149886	237363	387248
Total	1082330	1270145	2352477

## Economic Appraisal of Watershed Projects: A Case Study of 50 Watersheds in Uttar Pradesh<sup>1</sup>

D. K. Nauriyal<sup>2</sup> and S. P. Singh<sup>3</sup>

### 1. Introduction

India has great potential to increase agricultural output if productivity of rain-fed agriculture, with 60 percent of total NSA contributing about 40 percent to the total output, is improved through interventions in terms of investment in soil and water conservation and water harvesting activities. Towards attaining the same, the Government of India has initiated rain-fed area developmental programmes through DPAP, DDP, IWDP etc. in the dry-land and arid and semi-arid regions of the country. The DPAP was launched in 1973-74 to tackle the problem of drought in the drought prone areas with the objective to minimize adverse effects of drought on crop agriculture and livestock and improve socio-economic conditions of resource poor and disadvantaged households residing in the programme area. The thrust of the programme is on capacity building and empowerment of the local communities and PRIs so that they may effectively and productively participate in the planning, management and implementation of the programme at grassroots level and ensure equitable sharing of benefits of the scheme. The IWDP was launched in 1989-90 to treat the wasteland and prepare it for agriculture. The major activities initiated under the programme are related to soil and water conservation, including planting and sowing of multi-purpose trees, shrubs, grasses, promotion of agro-forestry, horticulture, and regeneration of natural capital. While these programmes may have differed in their objectives and coverage, the common ground is to develop and manage land and water resources for sustainable agricultural development.

It may be mentioned here that the watershed cannot be restricted to the administrative boundary of revenue village and therefore development of watershed requires an integrated approach and inter-village and inter-farmer cooperation and equitable sharing of benefits across upper and middle-reach and tail-end farmers as well as across SMF and LMF. For this purpose, assessment of existing institutional framework and extent of people's participation in planning and management of watershed development programmes is essential. Keeping these aspects in view,

Government of India commissioned a Comprehensive Study of Impact of Investment in Watersheds in major states of India to the National Institute of Rural Development, Hyderabad. For this purpose, Indian Institute of Technology Roorkee was identified as one of the nodal agencies to assess the impact in 50 watersheds of Uttar Pradesh. This paper is based on the analysis and interpretation of data and information collected from these watersheds and makes the economic appraisal of investment made in these watersheds through estimation of BCR, IRR and NPV.

It may be appropriate to mention here that despite the increasing significance of watershed projects in the context of rural development and natural resource management, there appears to be a dearth of studies on their impact. These studies are important not just to find out the impact that the projects under question might have generated for the target groups but more for using the experiences in order to evolve improved strategies for better development, execution and monitoring the projects in future (Kerr and Chung 2001).

### 2. Methodology

The sample districts for this study have been chosen from five administrative divisions of the state namely Chitrakoot (Banda, Hamirpur and Mahoba districts), Jhansi (Jhansi, Jalaun and Lalitpur districts), Kanpur (Kannauj and Auraiya districts), Allahabad (Kaushambi district), and Saharanpur (Saharanpur and Muzaffarnagar districts). In total, the study encompasses 11 districts and more than half of them form a major part of the Bundelkhand region. These all divisions widely differ in terms of geographic terrain, economic conditions and other attributes. For instance, while average per-capita domestic product for U. P. stood at Rs.4142.13, it was estimated to be only Rs. 615.54 for Bundelkhand region in 2003-04. Further, the density of population for U. P. stands at 690 per sq km, while it is found to be 280 per sq km for Bundelkhand region. Similar kinds of diversities can be seen with regard to the resource base, levels of development and technological advancements. For instance, while Saharanpur and Muzaffarnagar fall in the category of high-medium developed districts, Auraiya, Lalitpur, and Kaushambi are part of low-medium developed districts. Out of the all, Banda has been characterized as the most impoverished districts (Govt. of Uttar Pradesh, 11th Five Year Plan).

The study is based on the primary data collected from the 50 watersheds spread across 11 districts of the State of Uttar Pradesh. Out of these, 38 watersheds are under DPAP and remaining 12 watersheds are under IWDP. All the DPAP watersheds covered under the study belong to six districts of Bundelkhand Region of the State. The methodology to conduct the study is prepared by the NIRD and is common to all the states wherever the study is carried

<sup>1</sup> This study is part of the 'Comprehensive Study of Impacts of Investment in Watershed Projects in Uttar Pradesh' undertaken by the authors in 2010-11 for NIRD, Hyderabad.

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out. The study examines only those watersheds which were sanctioned and executed from financial year 2002-03 to 2004-05. In order to maintain uniformity in the study report and consolidate the findings at the NIRD level, a common format of the report was prepared. As per the common methodology adopted in the study, 75 beneficiary households, giving due representation to SMF and LMF, were selected from each selected watershed. Thus, a total of 3750 households were selected from 50 watersheds for the detailed analyses. Further, 10 households from each sample watershed (total 500 households) were further selected to estimate the cost-benefit ratio and internal rates of return.

### 2.1 Research Instruments

First and Second schedules out of six sets of questionnaire schedules, prepared by the NIRD, was used to collect the primary data. First Schedule (Beneficiary Schedule) was used to collect information from the individual beneficiaries on various variables, including agricultural productivity, change in land use and cropping pattern, soil and water resources development, water and fodder availability to livestock, institution-building, increase in employment, incomes and improvement in livelihood support system, etc. Second Schedule was used to collect data from 10 households out of the 75 sample beneficiary households of each sample watershed on costs and returns from the economic activities taken up by them. The purpose was to estimate the cost-benefit ratio and rate of returns on investment.

### 2.2 Selection of Individual Beneficiaries

From each selected watershed, 75 beneficiary households were selected randomly. However, due care was taken to ensure proper representation of both SMFs and LMFs in the sample. A total of 3750 households were interviewed to collect the relevant data and information. Out of selected 75 beneficiary households from each sample watershed, 10 households were further interviewed to collect data for the purpose of estimation of costs and returns from the agriculture and other activities performed by the sample households. Thus, a total of 500 households were selected for this purpose. The field work started in the month of April, 2011 and completed by the end of May, 2011.

### 3. A Brief Description of NPV, IRR and BCR

The Net Present Value (NPV), Internal Rate of Return (IRR), and Benefit-Cost Ratio (BCR) are widely used financial and economic appraisal tools for projects and are particularly useful when the project involves a stream of benefits and costs over time, covering more than one year. In this regard, it would be appropriate to provide a brief description of these three techniques.

NPV is the difference between present value (PV) of benefits and PV of costs and denotes the net

worth of the project. It reflects how much the project will earn. The project with a positive NPV value would be accepted. A negative NPV suggests that the costs outweigh the benefits and the project is not economically feasible. NPV with a zero value would make the investor indifferent. The rationale behind accepting investments with a positive net present value is that the actual rate of return on investment is greater than the discount rate (opportunity cost) used in the calculations (Khan and Jain 2007). A second explanation is that the investor can afford to pay more for the investment and still achieve a rate of return equal to the discount rate used in calculating the net present value (Pandey 2010). It can also be expressed as:

$$NPV = \left[ \sum_{t=1}^n CF_t (1-T) * PVIF_{t,k_a} \right] - IC$$

The Internal Rate of Return (IRR) is the discount rate that equates the projects NPV to zero and benefit-cost ratio to one. In other words, IRR is the rate with which the discounted costs equal the discounted benefits, that is, it would be just break-even at that particular rate. Thus, IRR is the 'r' that can make NPV zero (Chandra 2007). The IRR can then be compared with a base line or standard rate, for example the current interest rate, or a certain minimum rate, and if the IRR is higher the project would be profitable. The formal selection criterion for the IRR measure of project worth is to accept all independent projects having IRR equal to or greater than the opportunity cost of capital except for mutually exclusive projects. IRR could also be interpreted as the maximum interest rate that a project could pay for the resources if the project is to recover its investment and operating costs and still break-even. Consequently, IRR expresses the revenue generation power of a project. It can also be expressed as:

$$\text{Find } k_a \text{ such that } NPV = \left[ \sum_{t=1}^n CF_t (1-T) * PVIF_{t,k_a} \right] - IC = 0$$

The IRR suffers from certain problems, most important one being the assumption of reinvestment at the rate of IRR which has been often contested in project evaluation literature. In fact, as the returns from watersheds are accrued to a host of beneficiaries, the absence of reinvestment option is most likely. However, the criterion has been adopted as such without any modification.

The Benefit-Cost Ratio (BCR) or Profitability Index (PI) is similar to the NPV. Thus Benefit-Cost Ratio (BCR) is the ratio of the present worth of the benefits to the present worth of costs.

$$BCR = \frac{PV \text{ of cash Inflows}}{PVs \text{ of Cash Outflows}}$$



A project is viable and worth taking up when the BC ratio is more than 1.

#### **4. Issues Involved in Estimating an Appropriate Discount Rate**

When the fundamental objective of a programme is to reduce poverty and improve livelihood of the people living in the watershed area through the improvement in the production and productivity of agricultural lands, natural resource base, conversion of non-arable lands into arable ones, and create alternate livelihood options for the vulnerable population, choosing an appropriate discount rate becomes a contentious issue. The selection of a discount rate with these kinds of objectives become complex where public funding and private benefits, non-correspondence between those who incur costs and those who benefit are the major issues. The problem is further compounded by the fact that the user of such an investment may not only generate an income solely private to her/him but may also generate some other resources which could be of public consumption as well. For instance, a pond dug-up with public money under a watershed development programme, may not only help the farmer to irrigate his farms but may also recharge the ground water which may benefit many others living nearby.

Besides providing direct benefits in the form of increased production of food-grains, other crops and livestock related items via soil and moisture conservation, rainwater harvesting etc., such programmes provide far more indirect / intangible benefits such as life support (fuel wood, fodder etc.), flood moderation, carbon sequestration and health of soils and water regimes, protection of biodiversity, nutrient cycling etc which can not always be fully translated into monetary terms so as to account for when choice for discount rate is made. Under these circumstances, the NPV and BCR calculations can not simply be made on the assumption by looking at the opportunity cost of the capital/alternatives uses of the investible funds. Here the basic question reflecting on the utility of the project is: What would happen if the watershed development programmes were not implemented? The projects/programmes could only be justified if the targeted groups/population is better-off with the programmes than without them and whether the projects proposed and implemented provide the best solution to a problem of a target population/region.

In view of the fact that the benefits, some private but most of the public nature as they regenerate and augment the natural resource base, and that the benefits are long term nature most of which are of intangible nature, the choice of an appropriate discount rate becomes a subjective but informed assessment, guided by the political or administrative considerations with some long term developmental goals. It is against this background that two discounts rates viz., 5% and 10% were chosen for this study.

#### **5. Estimation Process**

The income per household (per hectare) for each district was calculated by adding up the net incremental monetary benefits from agricultural operations and allied activities (mainly milk production), presumably arising out of watershed interventions. The income thus arrived was projected for the next four years with the assumption of benefits accruing every year for four scenarios where rise in incremental income per household per annum is taking place at the rate of 2% / 3% / 4% / and 5%. Which scenario of income growth rate would hold valid depends upon the adequacy of rainfall in a given year. However, the growth rate can not be presumed to be higher than 5% for the fact that a considerable amount of private investment would be required for land leveling, and developing irrigation facilities, which is difficult to come by, given the fact that a vast majority comprises marginal and small farmers. Besides, it would also take time to do away with 'Anna Pratha' that puts a lid on the efforts of other farmers to raise more than one crop in a year.

Since investment in each watershed was Rs.30 lakh for 500 hectares, it was divided for one hectare which comes to Rs.6000. It was followed by accounting done for the time when the funds are released. As per the guidelines, the fund release would be 15%, 30%, 30%, 15%, and 10% each year for the five years subject to certain conditions. Thus the investment of Rs. 6000 was assumed to be spread over 5 years. For the purpose of calculating NPV, BCR and IRR, it was presumed that PRI shall fulfill all conditions so that the release of the fund is in time. The PVs and IRR were calculated with the presumption that 15% funds would be released in the beginning of the first year, while 30%, 30%, 15% and 10% shall be released in the beginning of remaining each financial year.

#### **6. Analysis of the Results**

The results are presented in Tables 1 and 2 (annexure). The NPV estimates undoubtedly show that investment undertaken in all the watersheds, irrespective of the discount rate, was highly feasible and economically viable.

The results, presented in Tables 1 and 2 demonstrate that if expected full benefits are realized, the benefits derived from the watershed projects are quite high, with NPV ranging from Rs. 2146.24 to Rs.10, 422.43 with the assumption of discount rate at 5%. The Benefit-Cost Ratio also stands positive for all the districts with highest for Banda and lowest for Kaushambi. With the assumptions of 2%, 3%, 4% and 5% growth rate of incremental income, the investment of Rs.6000 spread over 5 years was more than recovered in the first two years in case Banda, Jalaun, Muzaffarnagar and Saharanpur. Similarly, benefit cost ratios for all the watersheds were also considerably higher than unity. The results of IRR also indicate

towards the same. However, the results also indicate that Kaushambi, Auraiya, Mahoba were at the lowest ladder of the gains. In this regard, it may be mentioned that although the actual rainfall has been less than the normal across all the sample districts during 2004-2010, as is displayed by Table 3 (annexure), it has been found to be less than 55% in all districts except for Saharanpur during 2006-08.

It may be further mentioned here that there are wide inter-districts variations in regard of the average rainfall. However, it has been found to be much wanting for Mahoba (2008-9 being an exceptional year with rainfall being 78.59% of the normal), Kaushambi (with the exceptions of the years 2004-05 with rainfall being 72.75% of the normal), Kannauj and Auraiya throughout the study period. For Auraiya, the situation, in particular, had been dismal as it received actual rainfall less than 15% of the normal during 2004-06, less than 32% during the successive two years with the exception of 2008-9 when it received actual rainfall 89.65% of the normal. Districts Saharanpur and Muzaffarnagar, Hamirpur, and Lalitpur appear to be better placed with average rainfall much healthier than other districts. In the event of continuous drought over a period of time, such projects may not be able to yield the desired results as there may not be any water to conserve.

The poor performance of the DPAP and IWDP in regard of Kaushambi, Auraiya, and Mahoba, on account of poor rains, does also reflect by following facts:

1. District-wise data show that the percentage of small farmers reported to have all-seasons migration was highest in Hamirpur (11.5%), followed by Kaushambi (8.9%), Mahoba (4.8%) and Auraiya (4.6%) in the pre-project period. Except for Hamirpur and Lalitpur, in all other districts, the percentage of such farmers did not change in the post-project period, implying that the phenomenon of all seasons' migration for small farmers' category (SMF) has not registered any change in the post-project period. For LMF category, the percentage of farmers reported to have all-time migration was found to be the highest in Kaushambi (28.6%), and unchanged for Auraiya, both in the pre and post-project periods. It is interesting to note that Saharanpur and Muzaffarnagar districts, not even a single respondent reported to have any case of all seasons migration from their families. Comparing the findings of IWDP watersheds to that of DPAP watersheds, it can be deduced that the intensity of all-time migration is higher in DPAP than in the IWDP watersheds, largely due to absence of any all-time migration from Muzaffarnagar and Saharanpur districts.
2. Even in the post-project period, the percentage of respondents feeling shortages of fodder is highest in Mahoba, followed by Jhansi, Auraiya, Hamirpur,

Kaushambi and Lalitpur. The percentage is observed to be the lowest in Muzaffarnagar, followed by Saharanpur and Kannauj. According to the responses of SMFs, the shortages of fodder increased in the post-project period.

3. In five districts, namely Hamirpur, Jhansi, Kaushambi, Lalitpur and Mahoba, number of functional wells/tube-wells on small holdings showed no change in the post project period, while the remaining districts evince a moderate change. On large holdings, net change in number of functional wells/tube-wells do not show any change in Kaushambi, Lalitpur and Saharanpur, while net change in the remaining districts varies from 0.05 to 0.27 wells/tube-wells per household. As far as net change in the percentage of farmers owning Tube-well is concerned, three districts, namely, Kaushambi, Lalitpur and Mahoba did not report any change in the number of tube-wells after the execution of the project. In the remaining districts, there has been some positive change in the number of tube-wells in the post-project. The change is found to be the highest in Kannauj, followed by Saharanpur and Muzaffarnagar.

However, a note of caution shall not be out of place here in regard of the relatively poor NPV, BCR, and IRR in districts namely Kaushambi, Auraiya and Mahoba. Even if the performance of Muzaffarnagar and Saharanpur is attributed to the better access of the farmers to the irrigation water due to better level of ground water owing to the proximity of both the districts to Ganges and Yamuna rivers there are the instances of districts Banda and Jalaun where despite having same climatic conditions, the returns appear to be quite substantial, almost comparable to Muzaffarnagar and Saharanpur districts. There is a need to carry out in-depth study as to why the watershed programmes have performed so poorly in the above mentioned three districts.

While, the above analysis has clearly highlighted the larger benefits generated by the project, an in-depth study requiring more inputs from the qualitative research on the different aspects of economic appraisal, would be far more desirable given the socio-economic context specific conditions and technical complexity involved in the precise economic appraisal. Given the fact that benefits and costs are unevenly distributed, it poses further difficulty in evaluation. Further, besides, agro-climatic conditions, the success of a watershed development project also depends on the willingness and ability of all the stakeholders to work together to devise arrangements to generate and share benefits and costs, available infrastructure and market based incentives. All of these factors are difficult to capture either as part of the benefit or the costs, without incorporating qualitative information alongside the quantitative data.

## Conclusions and Suggestions

The findings of this study suggest that watershed development projects initiated to improve the economy and ecology of the dry and semi-arid regions of U. P. are economically viable and socially desirable. All the three criteria taken for evaluating the projects show consistency in results.

However, a deeper analysis, incorporating qualitative information, would be further required to have a conclusive understanding of the effectiveness, efficiency, reach and sustainability of the benefits claimed.

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## Annexure

**Table 1: NPV, BCR and IRR for per hectare investment of Rs.6000**

District	With the assumption of 2% rise in the incremental income per annum					With the assumption of 3% rise in the incremental income per annum				
	NPV ar 5%		NPV at 10%		IRR	NPV ar 5%		NPV at 10%		IRR
	NPV	BCR	NPV	BCR		NPV	BCR	NPV	BCR	
Auraiya	2572.84	1.58	2265.18	1.59	28%	2706.91	1.61	2376.671	1.62	29%
Banda	10,422.43	3.37	9123.21	3.38	183%	10707.43	3.43	9360.23	3.45	185%
Hamirpur	6,441.09	2.46	5644.78	2.48	98%	6649.53	2.51	5818.14	2.52	99%
Jalaun	8,500.61	2.93	7444.15	2.95	140%	8748.66	2.99	7650.44	3.00	142%
Jhansi	6,835.98	2.55	5989.80	2.57	106%	7052.02	2.60	6169.47	2.61	107%
Kannauj	6,253.07	2.42	5480.52	2.43	94%	6457.91	2.47	5650.87	2.48	96%
Kaushambi	2146.24	1.49	1892.46	1.50	21%	2272.1	1.51	1997.13	1.52	23%
Lalitpur	5,260.19	2.20	4613.06	2.21	75%	5445.93	2.24	4767.53	2.25	77%
Mahoba	3,351.22	1.76	2945.23	1.77	41%	3500.25	1.80	3069.17	1.80	42%
M. Nagar	10259.40	3.03	8980.77	3.35	179%	10541.26	3.40	9215.19	3.41	181%
Saharanpur	10,114.20	3.30	8853.91	3.31	176%	10393.28	3.36	9086.01	3.37	178

**Table 2: NPV, BCR and IRR for per hectare investment of Rs.6000**

District	With the assumption of 4% rise in the incremental income per annum					With the assumption of 5% rise in the incremental income per annum				
	NPV ar 5%		NPV at 10%		IRR	NPV ar 5%		NPV at 10%		IRR
	NPV	BCR	NPV	BCR		NPV	BCR	NPV	BCR	
Auraiya	2843.57	1.65	2490.28	1.65	31%	2982.88	1.68	2606.02	1.68	33%
Banda	10997.97	3.50	9601.75	3.51	186%	11294.12	3.57	9847.82	3.57	188%
Hamirpur	6862.02	2.56	5994.78	2.57	101%	7078.62	2.61	6174.75	2.61	103%
Jalaun	9001.52	3.04	7860.64	3.05	144%	9259.27	3.10	8074.81	3.11	146%
Jhansi	7272.25	2.65	6352.54	2.66	109%	7496.74	2.70	6539.07	2.71	111%
Kannauj	6666.71	2.51	5824.45	2.52	98%	6879.55	2.56	6001.30	2.57	99%
Kaushambi	2400.40	1.54	2103.79	1.55	24%	2531.18	1.57	2212.45	1.57	26%
Lalitpur	5635.27	2.28	4924.93	2.29	78%	5828.28	2.32	5085.29	2.33	80%
Mahoba	3652.17	1.83	3195.46	1.83	44%	3807.03	1.86	3324.13	1.87	46%
M. Nagar	10828.61	3.46	9454.05	3.47	183%	11121.5	3.53	9697.41	3.53	184%
Saharanpur	10677.77	3.43	9322.50	3.44	179%	10967.77	3.49	9563.46	3.50	181%

**Table 3: Average Rainfall in the Sample Districts (in mm per annum)**

Sample Districts	2004-05		2005-06		2006-07		2007-08		2008-09		2009-10	
	N	A	N	A	N	A	N	A	N	A	N	A
Saharanpur	901	818	901	1185	901	423	901	562	901	724	901	535
Muzaffarnagar	753	589	753	1159	753	467	753	414	753	295	753	480
Kannauj	810	443	810	82	810	342	810	337	810	372	810	498
Auraiya	792	106	792	83	792	212	792	259	792	710	792	408
Jalaun	862	668	862	542	862	92	862	271	862	493	862	586
Jhansi	850	613	850	545	850	545	850	360	850	717	850	571
Lalitpur	1044	790	1044	952	1044	542	1044	443	1044	824	1044	752
Hamirpur	864	708	864	784	864	439	864	466	864	889	864	794
Mahoba	864	324	864	448	864	444	864	366	864	679	864	488
Banda	902	635	902	707	902	411	902	303	902	661	902	511
Kaushambi	954	694	954	362	954	279	954	332	954	499	954	295

N= Normal A= Actual

Source: Compiled from District Statistical Handbooks

## Impact of Water Scarcity on Food Production

Surender Singh\* and Suparn Sharma\*\*

### Abstract

Water is essential for socio-economic development as well as for maintaining healthy ecosystems. Water use has been growing at more than twice the rate of population increase in the last century. About 1800 million people will live in countries or regions with absolute water scarcity and two-thirds of the world population could be under stress conditions by the year 2025. The demand for food is expected to increase by a rate of 1.4 per cent per annum especially in developing countries which requires an increase in the crop production by 100 to 400 per cent. Resultantly, additional 500-3000 million people will be under water stress by 2050. The demand for food is expected to be 55 percent higher by the year 2030 and to meet the same the production of food crops in developing countries needs to be increased by 67 percent. There is a need to produce as much as 325-350 million tonnes of food grains by the year 2025 to meet the food, feed, fodder and fiber requirements of India. The agriculture pattern needs to be changed in order to produce more production with less water and provision of some incentives for adopting water-saving devices. The rationing of groundwater is inevitable to check its indiscriminate use because the availability of water for agricultural sector is expected to decline by 20-25 per cent by the year 2025. Promotion of better water management techniques especially desired especially in arid and semi arid areas. Efficient water management and governance in agriculture holds the promise to fulfill the future food needs of India.

### 1. Introduction

Water requires not only mere survival of flora and fauna but also social well-being and economic growth. Water is required for food, sanitation, energy, and production of goods, transport and the biosphere as such. Water is a renewable, non-exhaustible and cannot be substituted for other resources. FAO (2007) forecasted 40 per cent shortfall between forecast demand and available supply of water by the year 2030. Consequently, the water resources have to support such agricultural systems so as to feed and create livelihoods for an additional 2.7 billion people. The world is on the verge of a new and more serious water scarcity era, which can be foreseen as a result of a combination of climatic changes, demography and demand for bio-fuels. Water scarcity at the same time can be both climate-driven and human-induced. As population

increases and development calls for increased allocations of groundwater and surface water for the domestic, agriculture and industrial sectors, the pressure on water resources intensifies, leading to tensions, conflicts among users, and excessive pressure on the environment. The increasing stress on freshwater resources brought about by ever rising demand and profligate use, as well as by growing pollution worldwide, is of serious concern. Climate change will accelerate global water circulation with increased precipitation. The process of climatic change will further increase water shortage which will put more stress on water resources, enhances competition between irrigation agencies and cities needing to satisfy the needs of their rapidly growing populations (Johnson et al., 2002).

The world receives 110,000 cubic kilometers ( $\text{km}^3$ ) of precipitation on the land surface annually out of which 40,000  $\text{km}^3$  is converted into surface runoff and aquifer recharge (blue water) and an estimated 70,000  $\text{km}^3$  is stored in the soil (green water). It is estimated that crop production takes up 13 percent (9,000  $\text{km}^3$  per year) of the green water delivered to the soil by precipitation and the remaining 87 percent being used by the non-domesticated vegetal world. Irrigation currently withdraws about 2,300  $\text{km}^3$  of freshwater per year from rivers and aquifers and only about 900  $\text{km}^3$  is effectively consumed by crops. The surface water resources potential of India is estimated at 1 869.37  $\text{km}^3$  (cubic kilometers), of which only 690.31  $\text{km}^3$  are considered utilizable given the topography, uneven distribution of the resource over space and time, geological factors and the contemporary technological knowledge. Annual internal renewable surface water resources (IRSWR) have been estimated at 1 446.42  $\text{km}^3$ , of which 1 404.42  $\text{km}^3$  surface water, 432  $\text{km}^3$  groundwater and 390  $\text{km}^3$  overlap. The IRSWR have been estimated by deducting the inflow from the total renewable surface water resources. India despite the high average annual rainfall and largest irrigation infrastructure is unable to tap and utilize its vast water resources for meeting its requirement especially in the agricultural sector. In this background the present study is an attempt to analysis the dimensions and scarcity of water resources and its future impacts on food production.

The paper continues as follows. The Section 2 highlights the incidence of virtual Dimensions of water scarcity in the world while section 3 presents a picture of water resources in Indian. Section 4 captures the impact of water scarcity on food production while conclusions and suggestions are made in section 5.

### 2. Dimensions of Water Scarcity

The water used in the production process of an agricultural or industrial product is called the virtual water (Blue and Green Water). Blue water scarcity visible in the form of water supply collapses, crop failure on irrigated fields, closing river basins etc. The

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increasing costs of infrastructure for making water accessible for economic use, stakeholder's disputes, increasing water pollution etc. also contribute towards creating scarcity of the virtual water. Blue water scarcity is resulting from consumptive and depletive water use and population has been increasing so fast leaving no water surplus (Falkenmark & Lannerstad 2003). Many rivers of the world are going more or less dry in the downstream end and more than 15 percent of the rivers were already over appropriated (Smakthin et al 2003).

Water is the most important limiting factor for food production. Water in itself is the most essential food of all. 1100 million people do not have access to clean drinking water today. Agriculture uses 85 percent of fresh water withdrawals in developing countries, and irrigated agriculture accounts for about 40 percent of the value of agricultural production in the developing world. Without irrigation, the increases in yields and output that have fed the world's growing population and stabilized food production would not have been possible. Demand for water for both agricultural and nonagricultural uses is rising, and water scarcity is becoming acute in much of the developing world, limiting the future expansion of irrigation.

The water available for irrigated agriculture in developing countries is not expected to increase because of competition from rapidly growing industrial sectors and urban populations. New sources of water are expensive to develop, limiting the potential for expansion, and building new dams often imposes high environmental and human resettlement costs. Approximately 1.2 billion people live in river basins with absolute water scarcity; 478 million live in basins where scarcity is fast approaching; and a further 1.5 billion suffer from inadequate access to water because of a lack of infrastructure or the human and financial capital to tap the available resources. The Middle East, North Africa and Asia face the greatest water shortages, although there are pockets of severe water scarcity in all other regions as well. Large areas of China, South Asia, and the Middle East and North Africa are now maintaining irrigated food production through unsustainable extractions of water from rivers or the ground. The groundwater overdraft rate exceeds 25 percent in China and 56 percent in parts of northwest India. The predicted impact on water resources is outlined as under:

- Increase in Global Mean Temperature between 1.0-1.7°C may lead to degradation in water quality due to high temperature well as increased intrusion of saltwater into coastal aquifers. The warming further increases flood damage losses due to more intensive precipitation events as well as increase in drought frequency. High global temperature also results in shifts in peak river flow from spring toward winter in basins where snowfall is an important source of water.
- Increase in Global Mean Temperature 1.8-3.2°C may cause water quality degradation due to high

temperature. Simultaneously the demand for water for drinking as well as agriculture increased many folds.

With continues rise in the use of ground water, often driven by subsidized or free electricity, the degradation of groundwater aquifers from over pumping and pollution is certain to become more severe. Sub-Saharan Africa and Latin America have large untapped water resources for agriculture. But even in Sub-Saharan Africa, almost a quarter of the population lives in water-stressed countries, and the share is rising. With productivity growth and a modest growth in irrigated area of 0.2 percent annually, irrigated production is projected to account for nearly 40 percent of the increased agricultural production in the developing world by 2030.

Most of the water used to produce food or other crops comes from rain that is stored in the soil (green water), where it is captured by crop roots. Green water is the water in the soil conventionally treated as a sort of soil. Although it originates from the rain and determines rural life form in rain-fed areas and is available in the root zone that controls plant growth, including crop and bio-fuels production. Green water may be scarce for several reasons, some climate-related, others human related prominent among are the little or no rain, infiltration, water-logging etc.

**Table1: Virtual Water Content of Selected Products**

Product	Litres of Water Per Kilo of Crop
Wheat	1150
Rice	2656
Maize	450
Potatoes	160
Soyabeans	2300
Milk	865
Cheese	5288

Source: Compiled from Hoekstra, 2003

Producing goods and services generally require water and the water used in the production process of an agricultural or industrial product is called the virtual water.

As revealed by Table 1 for producing 1 kg of wheat 1150 to 2 m<sup>3</sup> of water is required. Producing livestock products requires even more water: producing 1 kg of cheese requires about 5 m<sup>3</sup> of water, and it takes about 16 m<sup>3</sup> of water to produce 1 kg of beef. The perusal of this table suggest that arid and semi-arid countries should be concentrate on the production of crop which requires less water and having countries abundant water resources should focus on crops which needed more water.

Globally, 1.4 billion people live in river basins with absolute water scarcity; 490 million live in basins where scarcity is fast approaching; and a further 1.6 billion suffer from inadequate access to water because of a lack of infrastructure or the human and financial

capital to tap the available resources. With productivity growth and a modest growth in irrigated area of 0.2 percent annually, irrigated production is projected to account for nearly 40 percent of the increased agricultural production in the developing world by 2030 (FAO 2007). By virtue of that additional 500-3000 million people will be under water stress by the year 2050.

### 3. Water Resources in India

As indicated by Table 2 the annual internal renewable surface water resources (IRSWR) have been estimated at 1 446.42 km<sup>3</sup>, of which 1 404.42 km<sup>3</sup> surface water, 432 km<sup>3</sup> groundwater and 390 km<sup>3</sup> overlap. The IRSWR have been estimated by deducting the inflow from the total renewable surface water resources. It is estimated that in 2010 total water withdrawal is 761 km<sup>3</sup> of which 91 percent, or 688 km<sup>3</sup>, is for irrigation purposes. About 56 km<sup>3</sup> are for municipal use and 17 km<sup>3</sup> for industrial purposes. In 2010, primary surface water withdrawal accounted for 396 km<sup>3</sup>, primary groundwater withdrawal accounted for 251 km<sup>3</sup>, and reused agricultural drainage water accounted for 113 km<sup>3</sup>.

Land availability for agriculture is extremely limited in India and 8.53 million hectare is affected by waterlogging and another 22.5 million hectare land is degraded by floods, water and wind erosion. India's water resources haven't been utilized optimally for the development of agricultural and other sectors Brahmaputra basin, which accounts 60 percent of India water resources is the apt example. Further, Agriculture in India stands to face the stiff competition for water from other sectors. Agricultural water withdrawal is expected to reduce to 70 percent of total withdrawal, against 90 percent at present by the year 2025. The per capita availability of water resource is expected to reduce to 1335 cubic meter per year by the year 2025. Most of the tanks and wells used earlier for irrigation are in the state of utter neglect and most of them have become non-operational

**Table 5: Present State of Ground Water Aquifers in India.**

States	Ground Water (%)	Overexploited Aquifers (%)
Punjab	92	58
Haryana	72	38
Rajasthan	70	39
Tamil Nadu	59	24
Gujarat	44	18
Uttar Pradesh	40	6
Maharashtra	36	6
Bihar	32	4
Karnataka	33	9

West Bengal	31	3
Andhra Pradesh	24	2
Madhya Pradesh	18	2
Orissa	16	2

Source: World Bank 2003.

Note: 1. Groundwater developed is a percent of all available groundwater in a state.

2. Overexploited Aquifers is a percent of administrative block in which groundwater extraction exceeds recharge.

Table 5 indicated that three states in India; Punjab, Haryana, and Rajasthan, has developed more than 70 per cent of their ground water resources, but the overdraft rate is very high again in these states. For instance, Punjab overexploits its ground water by 58 per cent every year, Haryana's rate of overexploitation of its aquifers is 38 per cent whereas in the state of Rajasthan this rate is 39 per cent causing serious threat to agriculture in the years to come. So, for India situation is very grim in terms of exploitation of water resources particularly in the agriculturally developed states.

### 4. Impact of Water Scarcity on Food Production

Demand for water for both agricultural and nonagricultural uses is rising and water is the most important and crucial factor for increasing food production. Water scarcity is becoming acute in much of the developing world, limiting the future expansion of irrigation. Agriculture uses 85 percent of fresh water withdrawals in developing countries and irrigated agriculture accounts for about 40 percent of the value of agricultural production in the developing world. The agriculture sector is facing challenges in terms of producing more food of better quality while using less water per unit of output and providing rural people with resources and opportunities to live a healthy and productive life. Adoption of clean technologies is urgently required to ensure environmental sustainability and contributing in a productive way to the local and national economy. Water use has been growing at more than twice the rate of population increase in the last century, and, although there is no global water scarcity as such, an increasing number of regions are chronically short of water. By 2025, 1 800 million people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under stress conditions. The daily drinking water requirement per person is 2-4 litres, but it takes 2,000 to 4,000 litres of water to produce one person's daily food. Further, there are domestic water requirements for personal and household hygiene and related requirements, which are quantified at 30 to 300 liters per person per day depending on diet and climate differences and the efficiency of local food production systems. The situation will be exacerbated as rapidly



growing urban areas place heavy pressure on neighboring water resources.

The demand for food is expected to be 55 percent higher by 2030 and to meet the same the production of food crops in developing countries needs to be increased by 67 percent. The extent of land under irrigation in the world is 277 million hectares, (18 percent of all cropland) and is estimated to produce 40 percent of all crops. Rain-fed agriculture is practiced on the remaining 80 percent of the arable land. The yields from rain-dependent agriculture could be down by 50 percent by 2020 (IPCC, 2007) due to the process of climatic change. Himalayan which provide vast amounts of water for agriculture in Asia, are expected to decline by 20 percent by 2030 due to the climatic change. Irrigation increases yields of most crops by 100 to 400 percent, and irrigated agriculture currently contributes to 40 percent of the world's food production. Poor drainage and irrigation practices have led to water logging and salinisation of approximately 10 percent of the world's irrigated lands. The same may further leads to degradation in water quality; increases flood damage losses and drought frequency. While the increased water productivity/efficiency could reduce the water use for agriculture by 14 percent.

To respond to this demand, global food production should increase at an annual rate of 1.4 percent. This growth would occur mostly in developing countries, where about 80 percent of the projected growth in crop production will come from intensification in the form of yield increases (67 percent) and increased cropping intensity (12 percent). The remaining 20 percent will come from cropland expansion in some countries of sub-Saharan Africa, Latin America and East Asia that still have land potential (FAO, 2003).

In India water resource availability is replete with severe uncertainties in line with the monsoons. There is a need to produce as much as 325-350 million tons of food grains by 2025 to meet the food, feed, fodder and fiber requirements of India. To meet this estimate of food grain requirement it is assumed that the overall irrigation efficiencies will be in the order of 50 percent for surface water systems and 72 percent for groundwater systems, compared to the present level of 35-40 percent, and that the national average food grain production yields are expected to increase to a level of about 3.5 tons per hectare for irrigated areas and 1.25

tons per hectare for rained areas, compared to the present levels of about 2 tons/ha in irrigated areas and one tons per hectare in rained areas. In the wake of the development of large-scale irrigation facilities, several serious problems of degradation of soil, water, and environment cropped up threatening the sustainability of agricultural production.

## 5. Conclusions and Suggestions

Water is essential for socio-economic development as well as for maintaining healthy ecosystems. Water use has been growing at more than twice the rate of population increase in the last century. The agriculture sector faces a large number of challenges, producing more food of better quality while using less water per unit of output; providing rural people with resources and opportunities to live a healthy and productive life. The demand for food is expected to increase by a rate of 1.4 per cent per annum especially in developing countries. This requires an increase in the crop production by 100 to 400 per cent and irrigation contributes to around 70 of this projected increase in cereal production resulting from increased cropping intensity. The arid countries should follow the policies of producing such crop which require less water as compared to other crops. The impact of climate change on food prices at the global level is predicted to be small through 2050. Agricultural GDP in Sub-Saharan Africa could contract from 2 to 9 percent even if there is no climatic change. The regions which possess least adaptive capacity (developing countries) are going to be worst affected by the climate change, which ultimately results in regional disparities in terms of crop yield and income too. Regional disparities in crop yields can be alleviated by trade and transport of food. The widening disparities between north and the south may further tilt the terms of trade in favor on the developed nations. There should be change in agriculture pattern to produce more with less water, provide incentives to farmers that adopt water-saving devices and scientific irrigation scheduling, combat water logging and salinity built up in irrigation command areas, rationing of groundwater to its indiscriminate use. Promotion of better water management techniques especially in arid areas and ensure environmental protection of water resources could be very handy in future for saving this vital resource.

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## Managing Water Resources through Watershed Development Programmes in India

Rajiv Pandey\*

### Abstract

Water is a vital resource, necessary for the survival of human and ecosystem. In recent years new alarms have been sounded about growing water scarcity and contamination and the likely inability to meet the water requirements of rapidly growing population. Although the earth is often called the “water planet” because of the vast amount of water present on it, these water resources are unevenly distributed in space, time and type. Ninety-seven percent of all water is saline, unfit to drink and grow crops. The vast amount of remaining three percent is locked up out of practical human reach in the vast icecaps of Greenland and Antarctica and in deep ground water aquifers. The small fraction of fresh water accessible to us is so unevenly distributed that billions of dollars are spent every year to move water from wet areas to drier areas, to store it in wet seasons for coming dry periods or to clean otherwise undrinkable sources. These characteristics of freshwater use and distribution lead to a wide range of water related problems, including inter-state conflicts over access and quality, competition between urban, rural and environmental uses, severe health problems and constraints on economic development.

Therefore, water management and conservation of it has become the demand of the day. Water management includes rain water harvesting, ground water recharge, maintenance of water balance, preventing water pollution, economic use of water etc. The rain water collected can be recharged into the ground. Roof top water harvesting, diversion of perennial springs and farm ponds etc. are the major subjects to use the rain water harvesting. Water related problems can effectively be tackled through the holistic development of the watersheds.

For the success and sustainability of watershed development, creation of awareness among people, their participation in planning and implementation of the programme and building of local institutions for future management is required. The present paper emphasizes the need for watershed management programmes to tackle the problem of water crisis in India and suggests key measures for the success of these programmes.

### Introduction

Water is a vital resource, necessary for the survival of human and ecosystem. In recent years new alarms have been sounded about growing water scarcity and contamination and the likely inability to meet the water requirements of rapidly growing population. Although

the earth is often called the “water planet” because of the vast amount of water present on it, these water resources are unevenly distributed in space, time and type. Ninety-seven percent of all water is saline, unfit to drink and grow crops. The vast amount of remaining three percent is locked up out of practical human reach in the vast icecaps of Greenland and Antarctica and in deep ground water aquifers. The small fraction of fresh water accessible to us is so unevenly distributed that billions of dollars are spent every year to move water from wet areas to drier areas, to store it in wet seasons for coming dry periods or to clean otherwise undrinkable sources. These characteristics of freshwater use and distribution lead to a wide range of water related problems, including inter-state conflicts over access and quality, competition between urban, rural and environmental uses, severe health problems and constraints on economic development.

### Water Resource Scenario in India

There are three main sources of water in India—the surface water (rivers), ground water (wells, springs) and wetlands (waterbodies). Surface flow takes place through 14 major river systems namely Brahmani, Brahmaputra, Cauvery, Ganga, Godavari, Indus, Krishna, Mahanadi, Mahi, Narmada, Perriar, Sabarmati, Subarnarekha and Tapi. They share 83% of the drainage basin, account for 85% of the surface flow and house 80% of population of the country. Apart from these, there are 44 medium and 55 minor river systems which are fast flowing, monsoon-fed and originate in the coastal mountains of the major rivers, Brahmaputra, Ganga and Indus basins along with Godavari covering more than 50% of the country. Only Brahmaputra, Ganga, Mahanadi and Brahmani are perennial, with a minimum discharge of 0.47 M m<sup>3</sup>/km<sup>2</sup>/year. During dry season there is water scarcity in places like Cherrapunji and Konkan receiving heavy rainfall. Due to unequal distribution of rainfall, problems of flood and famine are faced in some parts of the country every year.

Ground water resources are abundant only in the northern and coastal plains of the country. In other parts its supply is not adequate. Ground water is roughly 210 billion m<sup>3</sup> including recharge through infiltration, seepage and evapo transpiration. In addition to rivers, the entire sub-continent is covered with a large number of water bodies: reservoirs, lakes, wetlands, ponds etc. These water bodies are the lungs of our country that regulate both the quality and quantity of water in addition to supporting the various life forms. Unfortunately many of such water bodies are either shrinking or disappearing as many lakes in Rajasthan or being converted to wastelands due to their misuse.

No doubt, there is a large network of rivers and water bodies in India; even then people are facing problems of availability of drinking water. Assam is worst hit with hardly 10% of population having access

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to drinking water, while Kerala, Mizoram, Meghalaya, Punjab, Sikkim, Tamilnadu and Tripura have 50-60% of their population with drinking water facility. The coastal regions of India, about 7515 km long, are facing problems of contaminated discharges of the rivers flowing through a number of densely populated regions of the country, as most of the rivers end up in oceans. Many coastal areas face problems of water quality due to urban waste discharge produced by different activities (Table 1).

The subject of water management is a matter of urgent attention and is under the purview of nine agencies / deptts. (Table-2). Unfortunately, none of these agencies gave much priority to the conservation of water except to some extent only by Central Water Commission.

### **Watershed Development**

A Watershed is the area of land where all of the water that is under it or drains off of it goes into the same place. Watershed may be defined as a geo-hydrological unit draining to a common point by a system of drains. Watershed may contain natural eco-systems like grasslands, wetlands, mangroves, marshes, waterbodies etc. In other words, watershed is a biological, physical, economic and social system and involves the judicious use of all natural resources with active participation of institutions and organizations in harmony with the eco-system. All lands on earth are part of one watershed or the other. Watersheds come in all shapes and sizes. They cross county, state and national boundaries. Figure 1 is in the annexure.

Watershed development refers to the conservation, regeneration and rational use of all natural resources (like land, water, forestry etc.), human beings and animals within the watershed area. Watershed management tries to bring about the best possible balance in the environment between natural resources on the one hand and men and animals on the other. Since it is the man who is primarily responsible for degradation of environment, regeneration and conservation can only be possible by promoting awakening and participation among the people who inhabit the watersheds.

Watershed management may be defined as “the process of creating and implementing plans, programmes and projects to sustain and enhance watershed functions that affect the plants, animals and human communities within a watershed boundary.” There are three main components of Watershed Management: Land Management, Water Management and Bio-mass Management. Land management is the process of managing the use and development of land resources in a sustainable way. It includes Structural Measures, Vegetative Measures and Protective Measures. Structural measures include contour bunds, stone bunds, earthen bunds, graded bunds, contour terrace walls, field bunds, check dams etc. Vegetative Measures include vegetative cover,

plant cover, vegetative hedges, grass land management, agro-forestry etc. The production measures include mixed cropping, strip cropping, cover cropping, crop rotations, cultivation of shrubs and herbs, land leveling, use of improved variety of seeds, horticulture etc. Protective measures include landslide control, gully plugging etc. The second one is Water management which includes rain water harvesting, ground water recharge, maintenance of water balance, preventing water pollution, economic use of water etc. The rain water collected can be recharged into the ground. Roof top water harvesting, diversion of perennial springs and farm ponds etc. are the major subjects to use the rain water harvesting. The third one is Biomass management; it includes eco-preservation, forest conservation, plant protection, eco-friendly life style of people, better living standards, increased productivity of animals etc.

### **Why Watershed Management**

Watershed management is necessary for the social and cultural well being of the watershed dwellers, for livelihood and economic welfare of the people, to increase productive potential of resources and for improvement in bio-diversity. It can improve the availability as well as quality of water for agricultural, domestic, business and other purposes by providing a neutral platform to multi-stakeholders to foster dialogue, raise the level of awareness, explore and capture opportunities for mutual cooperation in the water sector. Watershed management primarily involves harmonizing the use of soil and water resources between upstream and downstream areas within a watershed towards the objectives of natural resource conservation, increased agricultural productivity and a better standard of living. To achieve its objectives in a sustainable manner, it is required to identify and address the significant externalities associated with watershed area. Thus, for the economic development and improved livelihood of the inhabitants a sustainable water management is crucial. In India, a number of watershed management programmes including the Confederation of Indian Industries and the World Economic Forum are in progress to combine their existing network and convening power to benefit development in India.

For the success and sustainability of watershed development, creation of awareness among people, their participation in planning and implementation of the programme and building of local institutions for future management is required.

### **Suggested Key Factors for Success**

➤ For optimum utilization of available resources, a study should be conducted regarding local resources, indigenous skills, availability of inputs, market availability, infrastructure support etc. On the basis of this study, project should be designed for the conservation, development and sustainable

utilization of natural resources by the community of the area concerned.

- More and more participation of local people should be encouraged for making it people's programme. Their involvement at all stages – from planning and designing to implementation and also post project management should be ensured.
- For smooth and effective management of watershed projects, project management team should consist of such members who possess adequate technical know-how and managerial skill. Such personnel should be adequately trained and retained for at least 3-5 years to understand the project and be effective in the field.
- For building up sufficient social capital, micro projects (at sub-watershed level or micro watershed level) should be planned for at least 5-8 years.
- Capacity building is crucial for sustainable outcomes. Therefore apart from motivating the target groups, technical know-how and managerial skills of the individual families and members of implementing team should be enhanced.
- By identifying local problems and priorities of the community, need based programmes should be implemented for ensuring people's participation. For this an entry point programme should be initiated where all members of the community come together for a common cause and solve their immediate problems.
- For the sustainability of the project, problems of weaker sections of the society particularly the women, the poor and vulnerable groups should be taken into consideration. Moreover, they should be included in decision making process of the project.

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- Networking and linking the project area with local development agencies (govt. / non-govt) is vital for value addition as well as for continued accessing of additional resources in the post-project period.
- NGOs having requisite technical and managerial expertise and good track record should be engaged to mobilize and build capacities of the villagers. They should be given entire task and be held accountable for outcomes. This would leave project authorities free to focus on monitoring the project.
- Family based programme should be implemented to ensure benefits of the project to poor, illiterate and backward families. Such families should be trained and given adequate financial assistance on priority basis to harness benefits of the project.

## Summary

To sum up, the success story of watershed management programmes in India has been a mixed experience. In fact, a very little concrete information is available regarding the success or failure of various projects run by different government and non-government organizations. No doubt, Government of India and some State Governments together with International Organizations are working a lot for the success of watershed management in India, even then much more is required to be done. There can be no sustainable natural resource management unless it involves all inhabitants of the affected areas in an active manner and development plans are formulated and executed by them. Apart from systematic planning, project designing and capacity building of locals for future sustenance, integration of indigenous technologies with latest technological advancements and other external resources may achieve desired results.

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**Annexure**

**Table-1: Main Activities along the Indian Coastal Zones**

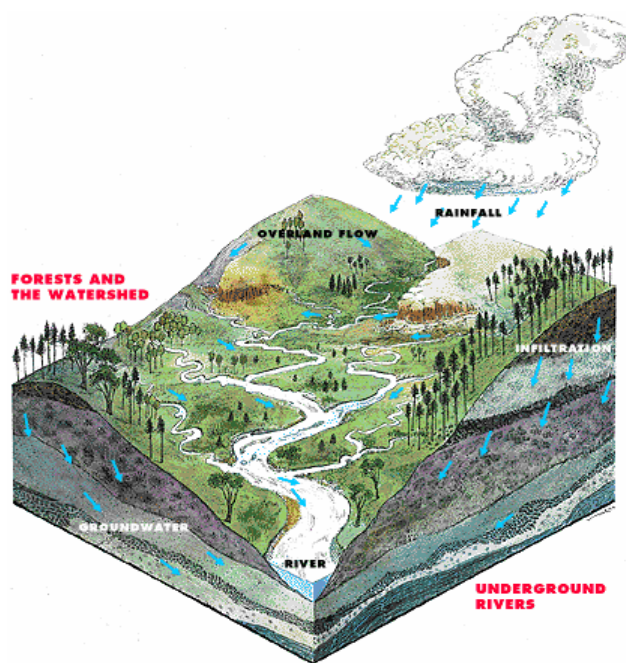
<b>Land based</b>	
<b>I</b> Coast dependent	Ports and harbours; oil terminals; paper and pulp mills; metallurgical plants; fish processing, power plants etc
<b>II</b> Coastal preferring	Urban, commercial and residential development tourism and beach recreation, agriculture
<b>III</b> Coastal independent	Defence
<b>Water based</b>	offshore oil and gas, offshore placer mining, navigation, ..... naval defence, water sports, fishing dredging and land ..... reclamation

Source : Govt. of India, (1995); (Ministry of Environment and Forests)

**Table-2: Agencies / Deptts. Concerned With Specific Aspects of Water Resource Management in India**

1. Central Water Commission	- Surface water
2. Central Ground Water Board	- Ground water
3. Indian Meteorological Department	-Precipitation
4. Central Pollution Control Board	- Water quality
5. Ministry of Agriculture and ICAR	-Water use for agriculture
6. Department of Environment, Forests and Wildlife (Ministry of Environment and Forests)	- Environmental Impact Assessment
7. Central Public Health and Environmental Engineering (Ministry of Urban Development)	-Water supplies, sanitation and sewage disposal
8. Department of Power	- Hydro-electric power
9. Department of Forests	- Watershed Management

**Figure 1**



# ***ABSTRACTS***

## **Involvement of Children in Firewood Collection and their Educational Outcomes: Some Empirical Evidence from Firewood Deficient Watersheds in Jammu & Kashmir**

Prakash C. Antahal<sup>1</sup>

Although the state of Jammu & Kashmir is adequately endowed with various types of coniferous and non-coniferous forests to fulfill the timber and energy needs of the people, but there are many pockets especially in Jammu and Ladakh where the extent of scarcity of firewood is so high that people especially women and children need to walk many miles to bring head load of firewood for cooking and other related purposes. The interventions by the government to regenerate the forests under different schemes/programmes, have failed to address the problem. The quality of firewood available to people in these areas has also deteriorated over the period with many households seen using leaves and roots of the shrubs. Incidentally, these are the areas where people especially those belonging to Scheduled Castes and Scheduled Tribes communities are in the first stage of fuel switching with very little penetrations of modern commercial fuels like LPG, which makes their reliance on biomass almost complete. Although the main responsibility of collecting firewood lies with the women, the children of school-going age are also involved either in firewood collection or substituted for women's time in home production like looking after small children while the women of the households are away, fetching water, caring of animals, collecting fodder etc. and thus deprived of the childhood they deserve. This has adversely affected the enrolment rate in such areas and also the performance of those enrolled in schools, because being involved in firewood collection and other household chores reduce the likelihood of a child attending school. The present study using cross-sectional data collected from three firewood deficient watersheds of Udhampur District of Jammu province presents empirical results of the level of involvement of school-going children in firewood collection and their educational outcomes.

## **Political Economy of Crisis in the Power Sector Reforms in India**

Surinder Kumar<sup>2</sup>

Manmohan Singh government at the centre has announced a number of economic initiatives like further opening up of retail trade, insurance and pension funds to foreign companies, reduction in subsidy to diesel and debt restructuring of electricity distribution companies (DISCOMs) etc. to overcome the charge of 'policy paralysis' and expedite restructuring of the economy. These measures may provide some immediate relief but their long term implications need a serious consideration as the path appears to be hazy and has a potential of compromising the national sovereignty.

To further power sector reforms, Government of India has approved a Scheme for Financial Restructuring of Electricity DISCOMS on 25 September, 2012. It has been stated that accumulated financial losses of the state DISCOMs were about Rs. 1,90,000 crores as on 31 March 2011. State governments will take over half of the liability and issue special bonds. The other half of the loans will be restructured with a moratorium on immediate principal repayment and the centre will incentivize efficiency measures. The state which opts for this scheme will be entitled to capital reimbursement from the central government of 25% of the principal repayment by it. It may be noted that a similar relief was provided to the DISCOMs in 2002-03 under one time settlement scheme with central power sector undertakings. A general impression is being created in the public mind that the recent decision will bail out the DISCOMs, help them become efficient and in turn benefit the genuine consumers. But reality does not appear to be that promising and the recent scheme like the previous one has been designed to postpone the dooms day.

## **Re-examining India's Decades with Neo-Liberalism**

B. M. Baen<sup>3</sup>

The leaders who fought for India's independence were profoundly influenced by the ideas of democracy and socialism. After independence in 1947 and adoption of the independent India's constitution in 1950, Nehru, who became the first Prime Minister, began with a bang in ushering a Democratic Socialism and Mixed Economy. Part of the economy was under the state control and the other part was in the private citizens' hands in the name of public sector and private sector. Clearly, the economy did not grow to the expected level during the first three decades. The government's promises to remove poverty, illiteracy, ignorance and disease merely remained plain platitudes during Nehru, Indira Gandhi, and Rajiv Gandhi period. This failure to perform ultimately led to the inevitable and serious economic crisis in 1990 during V.P. Singh's period even to the extent of selling the gold reserve to meet the foreign

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exchange demands. P.V. Narasimha Rao, who became the Prime Minister in 1991, had to face the music of this pathetic economic situation. The LPG mantra was adopted to save India. The present Prime Minister, Dr. Manmohan Singh, interestingly was made the Finance Minister to take up cudgels against the crisis. It is more than two decades that we have openly accepted the so-called Neo-liberal policy. Fortunately, we have overcome the terrible economic crisis. What is important to note is that from a mere 2 or 3 per cent growth in the early decades, we were able to reach 9 per cent till recently. It was rather astonishing to the western world about India's economic growth. When the growth in the developed world ironically was plummeting to the extent of shock and dismay, India was standing behind China in its growth level. Today, however, China's growth stands at 10 per cent from the earlier 12 per cent whereas India's growth is at 6 per cent from earlier 9 per cent. This decline was not due to their failure but owing to the economic crisis in most of the developed world including the U.S. Europe, and Japan.

Although we feel proud that India's economy has achieved an extra-ordinary feat in so far as the growth is concerned unexpected either by India or the world, the question that we need to ask is whether this growth has evenly spread and benefitted all segments of the Indian society, or whether it has helped to remove poverty, disease, illiteracy, and ignorance? Regrettably, our answer is that the benefits of economic growth seem to have reached the business class, politicians, and the higher classes. The sufferers are certainly from the lower classes, particularly the workers, labourers, and farmers. It is unfortunate that the Indian state has failed to fulfil the ideals of the Preamble to the Indian Constitution, namely, justice- social, economic, and political; liberty of thought and expression; equality of opportunity, etc. The policies pursued by the state has, in fact, helped the business and the vested interests rather than the poor. Some of these policies include: 1. Public sector disinvestments, 2. PPPs, 3. SEZ, 4. Mining. 5. Alliance with the business, 6. Downsizing the bureaucracy, 7. Indirect encouragement to the NGOs. The consequences of such policies are evident for everyone to see and they include: 1. Increase in farmers suicide, 2. Labour migration towards cities and metropolis, 3. Expansion and entrenchment of the Maoists in the tribal belt, 4. Heightened problems of Relief, Rehabilitation and Resettlement of dams and SEZs oustees, 5. Nexus among the politicians, business, and bureaucracy leading to corruption, 6. Making India a crony capitalistic country, 7. Lack of Universal Health Care and emergence of private health industry, 7. Threat to independent foreign policy, 8. Failure of PDS system leading to malnutrition of the poor.

It is clear that the governments in the garb of liberalisation have for the last two decades thrown to winds all the ideals of the Indian constitution. Quite naturally this has resulted in the uneven economic growth leading to economic inequality. The present paper endeavours to analyse the afore-mentioned issues.

### **Politics of Development and Religious Violence in India**

Sarbeswar Sahoo<sup>4</sup>

Religious conflict, commonly known in South Asia as "communalism," has a long history in India. Religion and exclusivist religious identity have acted as sources of conflict in India during the post-colonial period. Although Hindu-Muslim conflict had been, what Varshney (2002) calls, the "master narrative" of Indian politics, it is observed that since the 1990s the Christian populations have increasingly become the targets of violence. What is interesting is that most of these atrocities have occurred in provinces that not only have a sizable tribal population but also are ruled by the Hindu nationalist Bharatiya Janata Party or its allies. The central question then is why has violence against Christians increased in the tribal-dominated, BJP-ruled provinces in particular? The paper argues that in order to explain this, it is important to understand the political economy of the tribal society as well as the politics of Hindu nationalism and Christian missionary activities during the post-colonial period. Drawing on fieldwork in the tribal dominated regions of south Rajasthan, the paper concludes that economic "backwardness" and contested cultural identity of tribals on the one hand and the competing projects of "conversion" by Christian missionaries and Hindu nationalists on the other are responsible for this increasing anti-Christian violence in India.

### **Neo-Liberal Policies in India and their Impact upon the Quality of Employment**

Anupama<sup>5</sup>

The global economic landscape has undergone immense changes in recent decades. The economic trends experienced during this period also had an impact on the ideas of 'the trickle down' thesis of the growth. Earlier it was generally assumed that the informal part of the economy would decline or disappear with modern industrialized growth. If this were true, then informalisation should decline with economic growth and development. But the recent research has suggested that informal employment has grown in many countries during the past several decades even

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after experiencing respectable rates of per capita GDP growth. The neo-liberal regime has replaced the universalist welfare states (with extensive public provision and spending programmes) by selectivist welfare systems in which the state plays a greatly reduced role and the private capital becomes the driving force. This process has destroyed the protective institutions in the developing world, where these were already scanty for majority of poor workers. Recent worldwide trends indicate that globalisation and growing insecurity among workers are moving hand in hand.

If we have a look at the history of the working conditions of the workers in the informal sector, it seems that economic security had always remained a mirage for them. It was an illusion that they will get the rights of a decent job and a decent living as the economy will progress but later during the wake of globalisation in most of the developing economies as the economic progress became a reality, the 'flexibility' or deregulation of labour market shattered all their hopes. So, first the under development and then the need for faster development turned the idea of 'decent jobs' a mere hallucination.

The propaganda at the world level has also played its part through its pseudo research analyses e.g. World Bank *Doing Business Project* (launched in 2004) often blames developing countries' rigid labour market policies for poor labour market performance (low productivity, high unemployment, and informal employment) and associates a flexible regulatory framework with increased growth and employment creation. Such studies have an inclination to popularise the idea of labour market deregulation and flexibility. These studies argue that there is a negative relationship between job security regulations and new job creation and that fewer regulations regarding workers' rights are associated with not only a higher employment rate but also higher values of output and value added per worker. In this context, this paper is an attempt to explore the validity of such relationships in a neo-liberal regime. Present paper is an attempt to throw a light on the increasing plight of the working masses in India during the neo-liberal regime. Using NSSO data on employment and unemployment situation in India, this paper tries to highlight the widening decent work deficit in India during the last two decades.

### **Political Economy of Foreign Direct Investment in Tamil Nadu**

Sojin Shin<sup>6</sup>

This study examines the politics of various stakeholders in the process of foreign direct investment (FDI) inflows in the state of Tamil Nadu in India. Based on the case study of two FDI projects in the manufacturing sector in two different districts of Tamil Nadu, the study tries to understand the relations between the state, society, and foreign capital that are involved in the process of FDI in Tamil Nadu. The two cases examined here are Hyundai Motor India (HMI) in the district of Kanchipuram and Michelin India (MI) in the district of Thiruvallur. Data for this study were collected for four months from December 2011 to March 2012 during an intensive fieldwork in Chennai and Delhi. During this time, I conducted interviews with different groups of informants such as political leaders, bureaucrats, activists, village inhabitants, domestic industrialists, and foreign investors.

Drawing on these two cases, I argue that the process of FDI inflows in the state of Tamil Nadu has been tacitly but aggressively pursued by a tripartite alliance between the state, bureaucrats, and foreign capital. In Tamil Nadu, capital rather than labour has been a primary beneficiary in the process of industrialisation. More specifically, domestic capital both in the big business and small and medium industries have been encouraged by this state in participating in the process. Foreign capital has also been another beneficiary that could expand its business in different sectors with the strong support of the state. Not only various incentive schemes but also the strong control of labour by the state has helped the foreign investors to more easily deal with labour disputes in their companies.

The paper consists of three parts. In the first part, the backdrop of Hyundai Motor Company (HMC)'s growth both in the global market and the Indian market is explained. As one of the worldclass automobile companies, HMI holds the second place of India's car market share following Maruti Suzuki. The automobile market of India has significant meanings for this HMI as it has contributed to its rapid growth in the last fifteen years. The growth has been based on HMC's strategy on the globalisation of production by expanding its value chain especially in the emerging markets such as Turkey, China, and India.

This globalisation of production of HMC has an impact on the relations between capital and labour in the South Korean market as well as the global market. Discussion of this part covers the impact. As part of the global expansion, HMI was established in the state of Tamil Nadu in 1998. Tamil Nadu had several advantages compared with other states in terms of geographical proximity with ports, low labour costs, attractive incentives, and affluence of skilled labour. In addition, interestingly, some South Korean investors observed the nature of labour in Tamil Nadu as milder and docile than the one in North India. This observation was in fact related with the strong control of

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labour by the state and the societal structures of Tamil Nadu, which are discussed in detail in the second and third parts of this paper.

In the second part, the relations between foreign capital, domestic labour, and the state are closely examined through the case of HMI in Tamil Nadu. For this, I interviewed the South Korean management of HMI, domestic workers on the shop floor of HMI, leaders and members of several trade unions, activists, leaders of political parties, and bureaucrats in the state of Tamil Nadu. By discussing the roles of management in changing labour process, the different orientation between management and trade unions towards political affiliation, and the failure of recognising trade unions from management, I emphasise conflicts between foreign capital and domestic labour. In order to demand higher wages and oppose the exploitation of labour, the trade unions usually pursue collective actions like strikes in their work places. The automobile industry of India, including HMI and Maruti Suzuki, has experienced such strikes frequently. To prevent and to pacify such strikes, the management of companies gives disadvantages to workers who are involved in the strikes and apply strong disciplines such as transfer and dismissal.

When these conflicts become severe and uncontrollable, the state intervenes the disputes. The conciliatory intervention of the state however is likely to go in favour of either the domestic labour or the foreign management. One could argue that those who have a greater access to the political power of the state and institutions would gain. In this process, the state of Tamil Nadu has been strong in controlling trade unions in favour of management. Such strong regulation has contributed to the weakening of trade unionism in Tamil Nadu, even though some cities like Madras and Coimbatore had sizeable members affiliated with unions from the early 1920s. In addition, political leaders and domestic industrialists in this state have also had important roles in contributing to it.

In the third part, the political and industrial relations between the state, bureaucrats, and foreign capital of Tamil Nadu are discussed. By exploring the FDI project embarked in the village of Thervoy Kandigai by MI and the anti-Michelin agitations deployed by the village inhabitants and activists, this part aims to understand the politics of conflicts and opposition to foreign capital. For this research, I interviewed with the French management of MI, village inhabitants, activists, and leaders of political parties in Tamil Nadu. Based on the primary data on the anti-Michelin agitations, findings are discussed. The findings include the double-faced state strategies of Tamil Nadu in pacifying anti-FDI agitations and the absence of political parties' participation in the societal agitations.

**Keywords:** *foreign direct investment (FDI), state and society, foreign capital, business in Tamil Nadu, India*

### **Decade with Neo-Liberalism: The Case of Chhattisgarh** Anupama Saxena<sup>7</sup>, Devendra Kumar Sahoo<sup>8</sup> and Raghvendra Pratap Singh<sup>9</sup>

In contemporary world, policies of Liberalization, Privatization and Globalization were adopted according to neo-liberal ideas which emerged in 1980's. The basic assumptions of the neo-liberals were to have minimum interventions in economic activity of individuals by any state; it means to formulate minimum regulations. Neo-liberals recommend 'Rolling Back' of the states responsibilities of taking various kinds of activities. According to them state's role should be minimized and confined to only those socio-economic welfares works which are not performed by market forces. They believe free flow of goods, ideas, information from one part to other part of the world, unifications of transport and communication system, uniform style of living and subsequently help in evolving global homogenous culture. The supporter of neoliberals advised promotion of free market system, because it provides opportunities to everyone to make the most of their abilities and available resources. There are various versions of contemporary neo-liberalism. The Commercial liberalism advocates free trade and a market or capitalist economy as the way towards peace and prosperity. Today, this view is promoted by global financial institutions, most of the major trading states and MNC's. Third World states have failed to fulfill the basic needs of peoples because of economic inefficiency and corruption, and inefficient governance. These situations spread the idea that to increase the efficiency and production capacity of individuals, market forces are necessary to operate. In this consideration various states introduced Liberalization, Privatization and Globalization process in their respective states to strengthen their economic system, and subsequently deliver welfares schemes for common peoples.

Chhattisgarh is one of the newly emerged states of India, richly endowed with mineral and forest resources. Since its separation from Madhya Pradesh in 2000 the governments in Chhattisgarh decided to shift from agriculture and forestry based economy to Industry based economy that started exploitation of natural resources. It is evident from various new policies like Industry Policy, Water Policy and Mineral Policy that Chhattisgarh is witnessing the departure of state policy from Nehruvian socialism in favour of a free market economy. This shift has resulted in sustained higher rates of economic growth in the state. But at the same time according to the Planning Commission

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report on poverty in March 2012, Chhattisgarh was among those states in India that had reported an increase in poverty. In the present paper the authors seek to examine the impact of industrialisation based economic growth in reference to various social – economic development indicators in Chhattisgarh. On the basis of documented evidences the authors conclude that this industry friendly policy environment has not benefitted the poor people of the state of Chhattisgarh, specially the tribals.

### **Status of Watershed Programme in Dudu block**

Naushad<sup>10</sup>

Water has been the basic resource for the survival of all living beings. Its shortage has resulted into skirmishes between people, kings and kingdoms. And in the coming years it is estimated that the target of all countries would be water; not petrol. This basic requirement has always been a shortage in Rajasthan, the largest State of India. The Ministry of Rural Development has implemented special area development Programme for the purpose of water harvesting in drought prone, desert and rain fed areas. I have taken the study of the Dudu Block which is distributed in 56 Gram Panchayat and the distance of the watershed area being taken under study is covered in 7 villages of 4 Gram Panchayats. The areas include the high hilly and hard rock where the water flows in Nallas. Here the water level has decreased significantly due to increasing tube wells. Land degradation due to soil erosion, population increase, poor productivity of livestock and fodder shortage are the other problems looked into along with the development of pasture lands, bunding and ponds. Here the watershed programme has brought significant changes which are noteworthy.

### **Peoples' Participation in Collective Action Institutions of Integrated Watershed Management Programme (IWMP): A Study from Andhra Pradesh**

E.B. Uday Bhaskar Reddy<sup>11</sup> and Bishakha Ghosh<sup>12</sup>

Watershed is an area that drains to a common point, and watershed development is a strategy to optimize the use of soil, water and vegetation in a watershed subject to agro climatic and topographic conditions, all for the purpose of strengthening the natural resource base, supporting more productive agriculture, and improving livelihoods. Watershed development programme works through regulating movement of water within eco-system as rainfall, sub-soil & surface water and water stored in biomass. In India, watershed development is the focal point of Ministry of Rural Development's poverty alleviation programme. Many states have been implementing watershed development programme with emphasis on micro watershed programme covering 500 hectares but the common guidelines for watershed development projects issued by Government of India in 2008, called for implementation of watershed at meso scale called Mega-watersheds under Integrated Watershed Management Programme (IWMP). Each mega-watershed consists of a cluster of micro-watersheds and each micro-watershed has its' own institutions.

The IWMP programme is mainly intended for developing dry land agriculture through increasing productivity of rain-fed/degraded lands across India, since a significant population living in these areas is poor. The objective of the programme is to enable for checking of land degradation, sustainable and increased productivity of land based on watershed concept with peoples' participation. Key features include of IWMP include delegating powers to the state, dedicated institutions with professional teams at central, state, district and at project implementing agency level. Duration of the project is 4-7 years divided into three phases; Preparatory phase (1-2 years), Watershed works phase and (2-3 years), Consolidation and withdrawal phase (1-2 years).

Very little is known about how far in the second phase of the programme, institutions could influence better participatory attitude among people under the programme.

Major objectives of the present paper is 1) to understand status of the programme at its' second phase in terms of developing peoples' involvement in initiating collective actions 2) to explore how far the institutions of the programme influence the attitude of the people to participate in collective action institutions, 3) to suggest few relevant policies for better institutional activities.

Geographical area of study will be confined at state of Andhra Pradesh. Secondary data like detail project reports (DPRs) available from IWMP will be used for this paper. Statistical tools like probability proportionate sampling, arithmetic mean, percentage, correlation will be used.

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**Impact of Watershed Development Intervention on Livelihoods of Tribal Communities: The AKRSP(I)'s  
Madhya Pradesh Experience**  
Janmejaya Mishra<sup>13</sup>

The paper discusses Aga Khan Rural Support Programme (India)'s strategies and interventions of watershed development initiatives and analyses its impacts on livelihoods of the marginalised tribal communities in the Nimar region of Madhya Pradesh. It showcases the successful efforts of the organization in reducing poverty through watershed development interventions in the rainfed central Indian region.

People's participation in identification and prioritization of their problems, promotion of community based organizations (CBOs), training and capacity building of community members and CBOs, role of CBOs including Panchayati Raj Institutions (PRIs) in planning, implementation and monitoring of watershed development programmes, inclusion of landless and poorest households through alternate livelihood activities, involvement of women through self help groups (SHGs), developing cadre of trained local human resources and linkages with various government agencies and development schemes are the major strategies that AKRSP(I) followed over last seven years.

Key interventions include management of common property resources (CPRs) through soil and water conservation measures, plantation and wasteland development activities, creation of durable assets enabling small and marginal tribal farmers to access irrigation facility, and watershed plus activities such as agriculture and horticulture development, saving and credit services through women self help groups (SHGs), dairy development, etc. have increased households income, enhanced agriculture productivity, improved food and nutritional security, increased households financial security, reduced distress migration and improved local governance system, thus improving quality of life of the tribal communities through enhancement in their livelihoods.

**Keywords:** *Watershed Development; Tribal Communities; Livelihood; AKRSP(I); Madhya Pradesh*

**Poverty in KBK<sup>14</sup> Region of Odisha State, India: A Gap of Knowledge  
System between the neo-Liberal State and Indigenous Tribals**  
Susanta Kumar Mallick<sup>15</sup> and Shiv Shankar Das<sup>16</sup>

Poverty, a major hurdle for India and the world, is considered as the biggest challenge to developmental planning in India. The high poverty level is synonymous with poor quality of life, deprivation, malnutrition, illiteracy and low human resource development. Poverty can be defined as a socio-economic phenomenon in which a section of the society is unable to fulfill even its basic necessities of life. India's adopted definition of poverty emphasizes on *minimum level of living* and not a *reasonable level of living* like the developed countries. When a society is unable to reach the minimum level living standards, it is under severe attack on mass poverty of which many states in India are suffering. Since India attained independence, the governments have undertaken many poverty alleviation programmes, for example, the famous campaign of "Garibi Hatao" ("eliminate poverty") by Indira Gandhi, the first lady prime minister in 1980s to provide food at controlled prices to the poor. However, such schemes and programs only had very limited success, or can be said that they are loaded with failures. If we look at some of the Indian states like Odisha, Bihar, Jharkhand and Uttar Pradesh which are severely affected by chronic poverty even today, *in spite of being highly rich in the natural resources*. The present paper deals with one of the poorest areas of KBK region of Odisha state in India where the condition of poverty is so grave that the people are eating even the black soil and mangoes' seeds. Why is the present day KBK so much a victim of poverty inspite of having immense

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<sup>14</sup> The undivided districts of Koraput, Bolangir and Kalahandi are popularly known as KBK districts. It has been divided into eight districts: Koraput, Malkangiri, Nawrangpur, Rayagada, Bolangir, Sonepur, Kalahandi and Nuapada. This region is one of the poorest regions in the country. The KBK districts account for 19.80% population over 30.60% geographical area of the state.

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natural resources? Broadly, the paper is divided into two parts in a dialectic way between *state knowledge-system* and local indigenous *tribal-knowledge-system*. The first part deals with the state's ideology of neo-liberalism, schemes and programs to overcome such problems, and the second part, focuses upon the meanings, causes, consequences, and possible remedies of poverty from the tribal people's perspectives which has a good history of richness but with the current problems of societal discrimination and nonparticipation in the economic activities due to interference of socially and politically dominant groups led the situation to worse. The main research question is- why is it that even after six decades of several developmental steps taken at various levels (local, national and international), a place like KBK still remains in pathetic situation of poverty? The main argument in the paper is that one of the most unnoticed problem behind this immense-poverty in KBK region is the gap in the knowledge-system between the local tribals and the state's ideology. The notion of development and its related schemes (largely adoption of the neo-liberal policies) by the state are contradictory to the understanding of tribal knowledge system which is based on social-relationship and local resources. Largely the studies supported by state institutions point the problems of corruption, communication gap, and lack of proper implementations of the schemes as reasons for under-development of the KBK region, while the other side of the problem is that the local tribals have a *different notion of development* which is very much critical to the notion of the development of the state. Thus, the tribal perspective argues that the notion of development and poverty in fact are the notions inscribed on them which is largely making the problem more intense day by day.

### **India, A Shift Towards New Paradigm to Create a Sound Business Environment for Inclusive Growth**

Rajeev Rana<sup>17</sup>, V.A. Bourai<sup>18</sup> and R .R. Nautiyal<sup>19</sup>

Indian remain an Agrarian economy and still today bulk of population engaged in primary activity of the economy, while its contribution is too low as compared to other sector in the GDP. From the last two decade the political approach has been changed and India now become the one of the leading economy as it has change composition of the Export which consist manufacturing, electronics goods and leading in services providing. This has changed the political environment in Indian industrial sector including (SME's) and small enterprises which has registered enormous growth, doing business in India rank (132) has been improved however still policy paralysis and political environment remain hurdle for the inclusive growth and remain major challenges as elucidate in the global competitiveness report mentioned that India has loose rank and now slip lower rank in 2012-13 in (59). The paper is going to analysis the policy and political approach required for creating sound environment for the inclusive development and what need to bring the competitiveness and efficiency to boot the growth

**Keywords:** *policy paralysis, global competitive report, doing business in India.*

### **Misplaced Priorities and Neglect of Public Health: Case Studies of Medical Tourism and Aarogyasri**

Sunita Reddy<sup>20</sup>

Globalization and progressively liberalize trade in health services in the ASEAN regions contributes to widening inequalities in health and health care, increasing disparities between urban and rural areas and between rich and poor, resulting in polarization of health care provision and health outcomes in relation to social, economic and geographical marginalization. Studies have also shown the undesirable consequences of rising costs, consumer exploitation and increasing inequity. Trade policy in health care cannot be considered in isolation from domestic health care policy. From economic perspective, opening health care markets promises substantial economic gains and benefit the tertiary level corporate sector. When this becomes underlying principle, the long cherished ethos of India being a democratic, welfare state, where health care is the state responsibility and accessibility, availability of health care services is the right of people often goes in the backdrop. Post liberalization, Indian state in each of its plans have promoted, Public Private Partnerships, where it is mostly public investment and private provisioning and partnership is skewed. This paper looks at some of the examples which show that the public investment is going in building private and corporate sector and does not reap back. Medical tourism, reproductive tourism, and state wise health insurance like Aarogyasri are some of the examples. They further give primacy to tertiary care at the cost of primary and secondary health care undermining Alma Ata Declaration and Bhore Committee recommendations.

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When we are talking of Universal Health Care, it is pertinent to see these process and dynamics more critically and the way forward.

### **Trends in Household Consumption Expenditure**

M. Mallikarjun<sup>21</sup>

There has been general euphoria that the Indian economy has witnessed phenomenal growth rate in recent times, and credited as success of the reform process initiated in 1990's. The debate on impact of these reforms on various facets of the Indian economy is still inconclusive. One of the proclaimed objectives of our planning and developmental effort has been to bring down poverty, through high rate of economic growth. Recently "Report of the Expert Group to Review the Methodology for Estimation of Poverty", Planning Commission, GOI (2009) observed that "While acknowledging the multi-dimensional nature of poverty, the estimates of poverty will continue to be based on private household consumer expenditure of Indian households as collected by the National Sample Survey Organization (NSSO)". It will be of relevance to have a comparative analysis of Household Consumption Expenditure over different time periods and across India. This paper is an effort towards analyzing trends in household consumption expenditure over last two decades using NSSO data.

### **Foreign Sector and Higher Education Services in India: A Development**

Pooja Sharma<sup>22</sup>

Last 50 years have seen tremendous increase in national income in India. Also, increase in national income has been accompanied by significant changes in its composition. In 1950-51 the contribution of primary sector to GDP was 57.7% which decreased in due course of time to 34.9% in 1990-91 and 14.6 % in 2011-12. This decrease is caused by the simultaneous growth of secondary and tertiary sectors. Comparing the relative contributions of secondary and tertiary sectors, we can clearly notice the increasing importance of tertiary sector in our economy. The contribution of tertiary sector to GDP continued to increase from mere 28% in 1950-51 to 40% in 1990-91, and 65.22 % in 2010-11. Thus it is evident that the growth in national income during the decade of 90's has been primarily due to expansion of tertiary sector comprising more than half of the contribution. Further the self declared importance of tertiary sector as a source of foreign exchange had, very early, been realized by the developed nations during 80's. The GATS was the first multi lateral agreement on trade in service. India is the among the basic signatories of GATS. Among the twelve services covered under GATS 'Education services' is the one.

This paper clearly witnesses the interest of foreign education providers in India. Assessing the magnitude of the market, the progress is meager. The most satisfying fact is that foreign Public Universities are showing more interest in Indian education market. But they are collaborating with private universities which are solely profit oriented. It is important to increase the participation of Indian Public education institutes. The collaborative programmes are in technical / vocational education which produces highly demanded Human capital necessary for India's growth and employability of youth in other nations for forex. It is encouraging to know that maximum collaborations are with UK and USA which are developed nations and have traditionally high demand among Indians for their degrees. This shows that the development is probably on the right way. There will be multiple expansion of foreign participation in coming future based on the optimism in the market due to high demand for education among Indian youth and demand for Indian employees among multi nationals . The efforts of the government are appreciable yet the pending approvals need to be fasten for effective monitoring and eliminating confusion in the Indian education system to avoid loopholes in the market.

### **On the place of business: Conflict between India and Pakistan**

Sresha Yadav<sup>23</sup> and Ishwar Kumar<sup>24</sup>

For more than 50 years both India and Pakistan have followed a "swing" model of relations between the two countries whereby the depressing investment climate has undermined at least 2 per cent of GDP growth rate in both the countries. The bilateral conflict between the two countries costs economic, socio-political, military, diplomatic and human damages. According to a Mumbai based agency report in 2004, Siachen conflict alone will cost India Rs. 7200 crores and Pakistan Rs. 1800 crores in the next five years. Now the question arises that if trade promotes peace as seen in the case of *Mercado Comun del Sur* (Mercusor) and the European Union (EU), why can't we see the same effect for the Indian-Pakistani conflict in South Asia? Although, both India and Pakistan are the two most potentially

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influential members of the South Asian Association for Regional Cooperation (SAARC) in terms of trade, ideas and culture, they have not been able to exercise their potential so far.

But now it is high time that we move beyond government-to-government talks and consider other channels of engagement to restore peace and improve relations or at least minimize distrust amongst each other between the inmates of both these countries. And the best option would be to intensify trade between the two countries. There could be various short and long term measures to handle the primary trade barriers like tariff and non-tariff barriers, inadequate infrastructure, bureaucratic inertia, excessive red tape, and direct political opposition. There could be a window of opportunity for peace and harmony if both countries agree for greater bilateral liberalization. At present, joint venture between the two countries is non-existent, and so is direct investment. There could be many areas where both countries can complement each other's needs and hence produce cost effective quality goods, exchange technology and skills and cooperate in many strategic business and non-business domains.

It is very demanding in the interest of the both countries and the world that peace be restored in the South Asian Region and increasing trade liberalization can well be the starting point for this objective. Such cooperation would not only promote economic liberalization but also increase people to people contact, enhance mutual confidence and save more and more money for human security and wellbeing by establishing facilities like schools, safe drinking water, public health services, roads, more equitable food distribution, immunization and employment opportunities so that people living in both these counties can feel more safer than before.

**Keywords:** *India-Pakistan conflict, International relations, business*

### **Global Financial Crisis**

G. Ramesh Babu<sup>25</sup>

After liberalization, privatization and globalization, the world is becoming a global market. In recent times we heard widely words "LPG" as policies of the several governments. There will be misbelieve that liberalization will exploit the common man. Privatization do harm to the society. Globalization may help to capture the wealth by the capitalists. However poverty is the main hurdle to the developing nations. The important developments of global markets are the resurgence of market forces importing tremendous impact on all spheres technological, economic, political and cultural. The national boundaries have become less significant with the interlinked effect of technology, information flows and foreign investment mobility. The entire globe is rotating on the movement of flow of funds in the digital era. Money is always traveling for profit as a destination within a stipulated period of time. The creation of wealth could be done through powerful weapons such as "TCM, (TECHNOLOGY, CAPITAL AND MANPOWER)". The money can be used as efficient weapon to counter the poverty. A well regulated modern financial sector is essential in digital economy. Modern economics is highly influenced by expansion and diversification. The economies of the world continue to integrate and there is now unwavering commitment to the principles and practices of a free market economy. The structural reforms may promote free markets. Crisis provides an enormous opportunity to rediscover our values. We need a moral recovery rather than economic recovery.

### **Corporate Governance for Sustainable Business Models: Towards the Enhanced Political Economies**

Anju Arora<sup>26</sup>

While corporate governance may not state the economic aspects of developing countries, it certainly takes part in shaping them. Good corporate governance is of vital importance because of its role in attracting investors to invest both in domestic and international markets. Investors primarily consider two variables before making investment decisions in companies-the rate of return on invested capital and the risk associated with the investment. Good corporate governance practices reduce this risk by ensuring accountability and enforceability in the capital market place. As a result, the investors expect the board and management in the companies to act in their best interests at all the times so as to earn a risk adjusted rate of return that is higher than the cost of capital. Hence, understanding the relationship between a good governance and economic growth become really important if we compare the growth track of companies having excellent corporate governance with the companies who don't have. This paper makes an attempt to explore such relationship empirically by analyzing the financial facts of the companies and give important implications for this growing concept of corporate governance.

**Keywords:** *Corporate Governance, Accountability, Accounting standards, Corporate Excellence, Investor Behavior, Corporate Social responsibility*

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