

India's Economic Development: Nexus Between Poverty And Environmental Degradation

Md. Firdos.Ahmad

Abstract :Now we have realized that our economic activities and zest for quick development are threatening the very survival of mankind over the earth. Our survival depends on the realization that we have to live in harmony with the various elements of environment which are interconnected. This realization of relationship between man and environment resulted into the dictum that poverty leads to environmental degradation. Further their ignorance towards limitations of resources use and consequences make them free to over exploit the natural resources and adversely affect the natural system of environment and put a question mark over the notion of sustainable development. The widely propagated notion about the positive relationship between poverty and environmental degradation may not be operative in India. The study clearly shows that poverty has to do nothing with environmental degradation

Introduction

Man has always interacted with natural environment in order to live (subsistence) and leads to extraction, processing and consumption of natural resources to prosper (economic development). In discharging these services of subsistence and economic development to mankind natural and environment have played three important roles

- 1) Supply of directly consumable life support goods and services and authentic amenities
- 2) Natural resources as inputs into production and
- 3) Waste disposal and automatic recovery.

Though nature has never negated any one to avail the above services, however some limitations are associated with it. Whether it is the consumption of directly life support goods and services or natural resources as inputs, there is some optimum level of consumption. When the use of the first two services exceeds to the optimum level, nature and environment failed in providing the third services i.e. waste disposal and automatic recovery services. This not only degrades the national and environmental quality but also reduced the available quantity of natural resources and ultimately, hampered the very process of economic development. Therefore, when we talk about sustainable development we mean to say that the level of utilization of environment and natural resources should be up to that optimum level which may not create any trouble of nature and environment in discharging the services of waste disposal and automatic recovery of natural resources and environment. Now we have realized that our economic activities and zest for quick development are threatening the very survival of mankind over the earth. Our survival depends on the realization that we have to live in harmony with the various elements of environment which are interconnected.

This realization of relationship between man and environment resulted into the dictum that poverty leads to environmental degradation. (S.S.P. Sharma 2004) This claim is made on the ground that poor people directly depends on the environment, involve in over exploitation of natural resources for their sustenance because this is the only preferred means they know. Further their ignorance towards limitations of resources use and consequences make them free to over exploit the natural resources and adversely affect the natural system of environment and put a question mark over the notion of sustainable development. But the face is not as clear as it seems. The other face of the coin states that the growing degradation of natural resources both in quality and quantity is making a negative impact over the poor people. (BinaAgarwal 1995). The development pressure over the economy brought a lot of structural changes such as increasing state control over national resources, encroachment of customary rights of local communities to resources unsustainable consumption pattern, choice of resources intensive technology and erosion of local knowledge have led to environmental degradation and vulnerability of widespread poverty. Because of this slowly and slowly, poorer and marginalized section of the society have been discarded from the very process of development. The exclusion of poor from the development process is a cause of concern in realizing the objective of sustainable development. In this paper, therefore an attempt will be made to investigate the relationship between poverty and environment and their impact of sustainable development.

Poverty and Emission of Co₂

In India majority of poor live in rural areas and depend directly on natural resources and ecological services. The dependence of poor natural resources is more as compared to the non-poor (Census 2001). It is blamed that poor people because of lack of access to quality and appropriate resources, increase the emission of Co₂ by two ways. Firstly, the large scale use of biomass to generate the appropriate amount of energy for their livelihood. Secondly, in hilly and forest areas, poor tribal practice shifting cultivation in which large forest areas is set a fire to get agricultural land. However, most scientists agree that all the

Md. Firdos.Ahmad
Department of Economics,
A.M.U. Aligarh, U.P
Email: mdfirdosahmad@gmail.com
Mob. No.-09410059122

smoke, fumes and exhaust that human activities generate could lead to greenhouse effect or global warming. The threat comes from CO_2 and other green house gases produced mainly by industries by burning of fossil fuels (UNDP 2000) other than these two (poverty and industrialization), population is also blamed for this. An expert panel convinced by the national Academy of Science considers that as more people are in world, the greater is the demand put on resources to provide food, energy,

clothing and shelter for them. All these activities necessarily involve emissions of green house gasses. Newell and Mareus in 1987 found a 99.8% correlation between world population growth and growing concentration of CO_2 in the atmosphere during the period 1958-85 and called it the nearly perfect correlation (Newell and Mareus 1987). We therefore, have three important propositions regarding the emission of CO_2 . In India, which particular notion is valid can be find out with the help of following table.

Table I

Year	No. of Industries	Value in Lakh output	CO_2
1990	107992	23004199	0.8
1991	110179	27056353	0.8
1992	112286	29919581	0.9
1993	119494	36861377	0.9
1994	121594	42574425	0.9
1995	123010	51798701	1.0
1996	134571	67051423	1.1
1997	1328194	74180838	1.1
1998	136012	83633644	1.1
1999	131706	78377081	1.1
2000	131558	89793835	1.1
2001	131268	92690185	1.1
2002	128549	96245663	1.2
2003	127957	113056111	1.19
2004	129074	128740055	1.2

Source: (i) government of India (2006), Annual Survey of Industries, New Delhi
(ii) www.en.wikipedia.org

Above the table clearly reflected the relationship between growth of industries and emission of CO_2 . Over the years India emerged as a industrial leader among the developing nations. With the growth of industries in the country as a result the quality of air deteriorated which created negative impact on health of people and ecological balances in the country. No doubt the poverty ratio has been declined with the increased of number of industries and value of output but also the emission of CO_2 has increased over the years. From the year 1993 to 2000, the poverty ratio declined from 39.6 percent to 26.1 percent. The growth of number of industries and value of output were registered 10.99 percent and 143.59 percent respectively but the emission of CO_2 increased from 0.9 percent to 1.1 percent during the same period. On the other hand, the poverty ratio increased from 26.1 percent in 2000 to 27.5 percent in 2004, the growth of number of industries and value of output were

registered 1.88 percent and 43.37 percent respectively but the emission of CO_2 also increased from 1.1 point to 1.2 point during the same period. It means that many industries did not follow the norms of central pollution control board. According to economic survey 2000 a total number of 2155 pre and post 1991 units of 17 categories of highly polluting industries have been identified by central Pollution Control Board, of these units, 1877 units have provided adequate facilities to comply with the standard 225 units have closed down and the remaining 53 units do not have adequate facilities to comply with the standards. Legal actions have been initiated against all the defaulting units. The main factors contributing to urban air quality deterioration are growing industrialization and increasing vehicular pollution. It has been aggravated by developments that typically occur as countries industrialize growing cities, increasing traffic, rapid economic development and industrial growth,

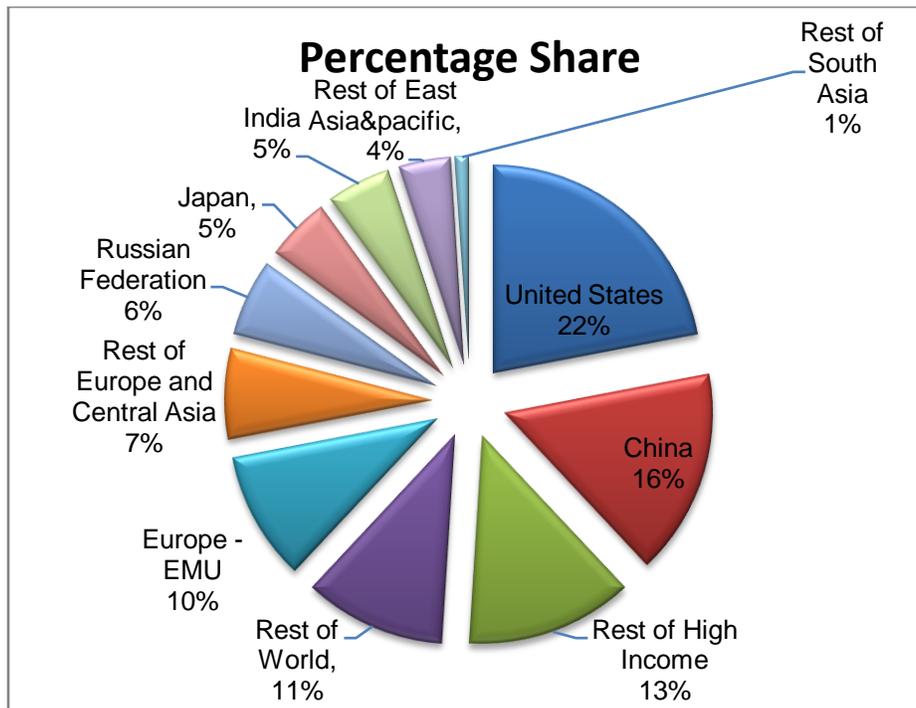
all of which are closely associated with higher energy consumption. Industrial pollution is concentrated in industries that petroleum refineries, textiles pulp and paper, industrial chemicals, iron and steel and non metallic mineral products. Small scale industries especially foundries, chemical manufacturing and brick making are also significant polluters. In the power sector, thermal power, which constitutes bulk of the installed capacity for electricity generation is an important sources of air pollution.

Global warming and Ozone layer depletion

The two great dangers threatening the balance of gases in the atmosphere that sustain life on earth are global warming and thinning of the ozone layer. Most scientists agree that all the smoke and fumes and exhaust that human activities generate will eventually alter the earth's climate. Those charges could be modest or they could lead to what is termed as the green house gases produced mainly in the industrial world by the burning of fossil fuels. It

is estimated that the total world wide manufacturing output increased from about \$2500 million in 1975 to about \$4000 billion in 1990 and the trend continues unabated. This relentless industrial growth places a heavy demand on world's non renewable resources particularly fossil fuels and minerals. The developed world generates nearly 10 times as much carbon dioxide from energy use as their counterpart in the developing countries. The US tops the list, with the former Soviet Union next. While the average American is responsible for between 4 and 5 tons of carbon per year, the average Indian or Chinese share is 0.4 and 0.6 respectively. However, other developed countries who are trying to imitate the western model of growth and their life style, are only compounding the problem. It is estimated that if per capita emission of greenhouse gases in china and India, for example, were to increase to reach the present level in France, then the emission world wide would jump nearly 70%.

Figure 1



Sources: World Development Indicators, 2007

From the above figure 1 we found that at present India's share in the carbon stock in the atmosphere is relatively very small in terms of per capita emission. India's per capita carbon emission average one twentieth of those of the U.S. and one-tenth of most countries in Western Europe and Japan.

Poverty and Forest degradation

Poverty, rapid population growth, economic stagnation, unemployment and environmental degradation are found to coexist and thus seem to be reinforcing each other. Poverty also contributes to environmental degradation in most of the agriculture based developing countries as for example farmers living in poverty may let the immediate need to produce food outweigh the long term benefits of conserving land. Over exploitation of natural resources like land, forest and water etc have often been held responsible for the

environmental degradation (PBR 1999). The enormity of forest stock scarcity in India can be judged from India's position in the world in terms of population and forest resources. India possesses around 16 percent of the world's population and 15 percent of world's livestock with only 2.4 percent of the world's land area and 1.7 percent of the world's forest stock. Obviously land and forest resources are not commensurate with the proportionate burden of population and livestock on India's soil. This report purports to highlights linkages between increasing population pressure and shirking forest resources in the

Indian context. The predominant causes for dwindling forest wealth have been identified as over exploitation, overgrazing illegal encroachments, unsustainable practices, forest fires and an indiscriminate sitting of development projects in the forest areas (GOI 1999). The growing global concern for conservation of the world's natural resources has resulted in the formulation of long term perspective plans for conserving forests. These forest facilitates the conservation of ecological balances, biodiversity, enhance the quality of environment by checking soil erosion, water

retention and conservation regulate water cycle, act as a carbon sink which balances the carbon dioxide and oxygen in the atmosphere and facilitate in reduction of the greenhouse gases effect etc. speculation pressure, poverty and weak institutional framework have often been viewed as the predominant underlying causes of forest depletion and degradation in developing countries.

TABLE -- II

States	Area of forest in million sq. kilometers			Poverty ratio			Percentage increase of population in decade 1991-2001
	1993	2005	Change in 2005	1993-94	2004-2005	Change in 2000-2005	
Andhra Pradesh	47.26	45.23	-2.03	22.19	15.77	-6.42	14.59
Bihar*	26.59	29.52	2.93	54.96	42.69	-12.36	28.62
Gujarat	12.04	14.60	2.56	24.21	14.07	-10.14	22.66
Haryana	0.51	1.60	1.09	25.05	8.74	-16.31	28.43
Himachal Pradesh	12.5	14.66	2.16	28.44	7.63	-20.81	17.54
Karnataka	32.34	36.20	3.86	33.16	20.04	-13.12	17.51
Kerala	10.34	17.28	6.94	25.43	12.72	-12.71	9.43
Madhya Pradesh**	135.4	133.65	-1.75	42.52	37.43	-05.09	24.26
Maharastra	43.86	50.66	6.80	36.86	25.02	-12.84	22.73
Orissa	47.15	48.75	1.60	48.56	47.15	-1.41	16.25
Panjab	1.34	1.66	0.32	11.77	06.16	-5.61	20.1
Rajasthan	13.1	16.01	2.91	27.41	15.28	-12.13	28.41
Tamil Nadu	17.73	23.31	5.58	35.03	21.12	-13.91	11.42
Uttar Pradesh#	33.96	38.83	4.87	40.85	31.15	-9.7	25.85
West Bengal	8.35	12.97	4.62	35.66	27.02	-8.64	17.77
All India	640.11	690.17	50.06	35.97	27.5	-8.47	21.54

Sources: Computed from Planning Commission & NSSO data 61st round, Census 2001, Forest Survey of States

Notes-* including jharkhand, **including chhattisgarh,# including uttarakhand

In above table, an attempt has been made here to intensify the relationship between poverty and deforestation. Forest is renewable resource and contributes substantially to the economic development by providing goods and services to forest dwellers, people at large and forest base industries, besides generating substantial volume of employment. Forest are playing main role in enhancing the quality of environment by influencing the ecological balance and life support system. It is general believed that the state in which large portion people living below the poverty depends upon forest resource for their survival, the deforestation have

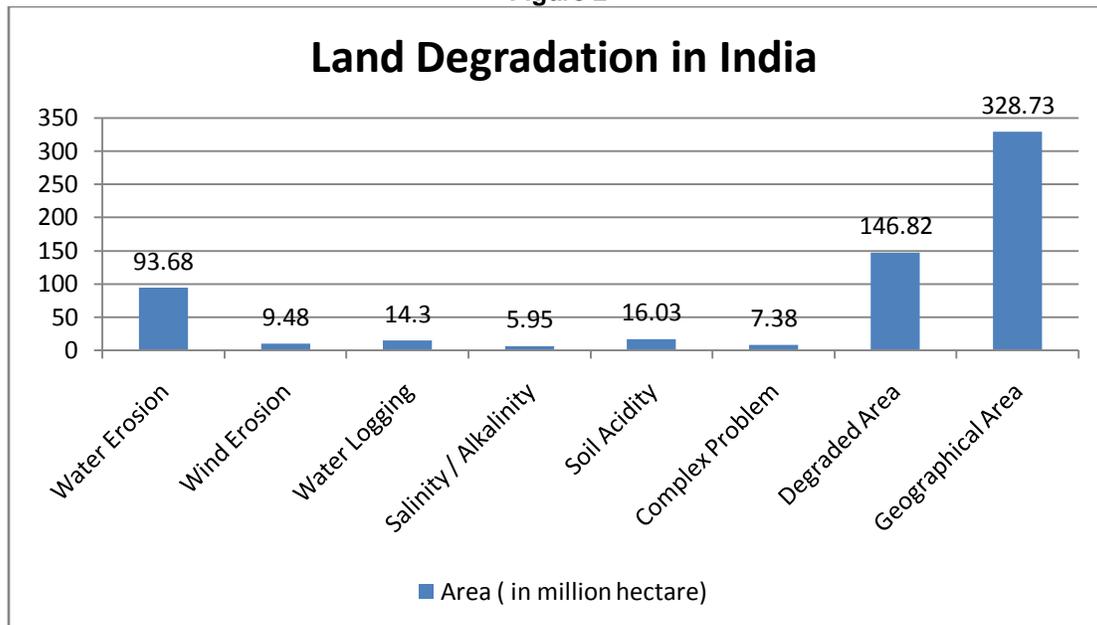
been taken place at high rate in these states. From the table we found that except Madhya Pradesh and Andhra Pradesh in all mention states the forest cover area has increased during 1993 to 2005. The highest deforestation has taken place in Andhra Pradesh i.e. 2.03 million square Kms while poverty ratio has declined only 6.39 percent despite population growth was low in compare to other states i.e. 14.59 during 1991-2001. Other state Madhya Pradesh where deforestation has taken place i.e. 1.75 million square Kms, poverty ratio declined by 4.22 percent and population growth registered 24.26 percent during the

corresponding years. On the other hand, Kerala witnessed highest growth in area of forest i.e.6.80 million square Kms, while poverty ratio has declined by 10.43 percent during the period 1993 to 2001 and only 9.43 percent of population growth was registered during 1991-2001. Environmental problems like air pollution, water pollution, soil degradation, deforestation, loss of bio-diversity etc are caused by such diverse factors population growth, poverty, industrialization , agricultural development, transport development, urbanization, market failure etc, such environmental degradation harms human health, reduce economic productivity and leads to the loss of amenities. Therefore the damaging effects of environmental degradation can be reduced by a judicious choice of economic and environmental policies and environmental investment.

Poverty and Land Degradation

India, being vastly agriculture oriented, historically has had policies in various phases for the development of agriculture with the expectation that development of agriculture would lead to overall development of the nation and help eradication of poverty. It has been of late recognized that the increasing efforts to raise agricultural growth has cost us deeply in the form of land and water degradation. Large scale ecological losses were reported in crop land, grass land and forest land, such as soil erosion, soil alkalinity and salinity, micronutrient deficiency, water logging and fast depletion and contamination of ground water. These factors limit future gains from the land and water resources.

Figure 2



Sources: National Bureau of Soil Survey and Land Use Planning, 2005

From the above figure we found that out of the total geographical areas of 328.73 million hectares, 146.82 million hectares are considered degraded area. Water erosion is the most important type of land degradation and accounted 93.69 million hectares with other factors like wind erosion accounted 9.48, and water logging accounted 14.3 million hectares. Soil erosion by rain and river in hill areas causes land slides and floods, deforestation, overgrazing, traditional agricultural practices, mining and incorrect setting of development projects in forest areas have resulted in opening up of these areas to heavy soil erosion. In the arid west, wind erosion causes expansion of desert, dust storms, whirl winds and destruction of crops, while having sand covers the land and makes it sterile. Alkali and saline soil lake together accounted 21.98 million hectares salinity and alkalinity problems are much more aggravated in areas where more than one sources of flow irrigation exists, low participation, unscientific use of water, improper cropping pattern and drainage facilities. When water use is excessive the underground water tables rises and brings with it dissolved salts from sub-starter. If the

water evaporates and leaves salts lakes on the surfaces, if finally makes the soil useless ergonomically, salts with poor internal drainage facilities are mainly responsible for accumulation of salt in the root zone. The theoretical studies highlight the fact that the soil erosion is a result of national farm decision making (Mc Connell, 1983). A rational producer, maximizing the discounted net revenue from land over time would not respond to soil loss until the present value of marginal private returns obtained from additional soil loss goes below the implicit marginal private cost of soil loss. The net value from land consists of two components, the private value of the revenue stream and the present value of the terminal value of the land soil erosion not only affects future productivity but also the terminal value (M Iranowski, 1984). The presence of large external cost is neglected in the private decision.

CONCLUSION

The widely propagated notion about the positive relationship between poverty and environmental degradation may not be operative in India. The study clearly

shows that poverty has to do nothing with environmental degradation. With the passage of time there has been a continuous fall in the poverty ratio. The poverty ratio has fallen from 35.97 in 1993-94 to 26.1 percent in 1999-00. However the pressure of Co_2 has not fallen, instead it has increased which shows negative relationship between poverty and Co_2 . This negates the dictum that poor are directly dependent on nature and use bio-fuel, agricultural waste and cow dung which increases the presence of Co_2 in the environment. At the same time it has been found that growth in Co_2 is positively related with number of industries and industrial output. In early days of 1990s though number of industries and output level both have played when important role in increasing the presence of Co_2 in the environment but in the later years output level seems to be more associated with Co_2 emission. Another claim which is made against the poor people is that they over exploit the forest resources and cause deforestation in the region. Evidences in India shows that this relationship holds good with few exceptions. Overall there is rise in forest cover with a fall in poverty ratio in most of the States. There are only two states where this relationship is not valid. In Andhra Pradesh and Madhya Pradesh despite this fact that poverty has declined, deforestation has occurred. No doubt a forestation has taken place in India with passage of time but as far as the case of soil erosion and land degradation is concern, there are some negative results. Slowly and slowly the soil erosion and land degradations has increased. The problem of water logging, alkaline soil, acidic soil and saline soil has aggravated. It can be therefore, said that poverty is no doubt a problem for forest cover but it may not be a cause for Co_2 emission, soil erosion, water logging and other environmental problems.

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