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**POPULATION GROWTH, POVERTY AND ENVIRONMENTAL DEGRADATION IN INDIA**

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**ABSTRACT**

*India accounts 18 percent of the world population on 2.4 percent of its land area has great deal of pressure on its all natural resources. The pressure on land is increasing day-by-day while agricultural productivity is not keeping pace with the population growth. The poverty and rapid population growth are found to co-exist and seems to reinforce each other and also contributes to environmental degradation through over exploitation of natural resources. The increasing population pressure on land depleting natural resources and degrading the environment. The relationship between population growth, poverty and environmental degradation has been a matter of debate for decades. The objective of the study to examine the changes in trends of population growth from 1971-2011 and incidence of poverty from 1973-74 to 2009-10 in India. The study also examines the changes in land use pattern and environmental degradation in India and their relationship. The result of the study finds that magnitude of environmental degradation is not uniform in India. For example, poverty has been the major cause of depletion of natural resources and environmental degradation in India, and both rapid population growth and continued economic development are found to be the major causes of environmental pollution. Thus the forgoing analyses represent the relationship between population growth, poverty land use pattern and environmental degradation in India and analyze the challenges of sustained development without harming the environment.*

**KEYWORDS**

population growth, poverty, environmental degradation.

**INTRODUCTION**

The world population is nearly one billion and population projection suggest that world population will fall somewhere between 7.5 and 10.5 billion by 2050. India accounts 18 percent of the world population on 2.4 percent of its land area has great deal of pressure on its all natural resources (Bremner, J., López-Carr, D., Suter, L. and Davis, J, 2010). The pressure on land is increasing day-by-day while agricultural productivity is not keeping pace with the population growth. The poverty and rapid population growth are found to co-exist and seems to reinforce each other and also contributes to environmental degradation through over exploitation of natural resources. According to Asian Development Bank (1993) "it is generally accepted that environment degradation, rapid population growth and stagnant production of agriculture are closely inter linked with fast spread of acute poverty in many Asian countries". The increasing population pressure on land depleting natural resources and degrading the environment. The relationship between population growth, poverty and environmental degradation has been a matter of debate for decades. The relationship is complex, population size and growth tend to expand and accelerate these human impacts on the environment. The number of population and number of poor rise will increase to such an extent in future that it will cause overall scarcity for resources. The effects of environmental degradation on human beings, it appears that if we want to exist on earth, it is high time to give top priority to control population growth, reduce poverty and minimize environmental degradation. Thus the forgoing analyses represent the relationship between population growth, poverty land use pattern and environmental degradation in India and analyze the challenges of sustained development without harming the environment.

**OBJECTIVES OF THE STUDY**

The specific objectives of the present study are following:

1. To examine the changes in trends of population growth from 1971-2011 in India.
2. To examine the incidence of poverty from 1973-74 to 2009-10 in India.
3. To examine the changes in land use pattern and environmental degradation in India and their relationship.

**DATA AND METHODOLOGY**

The present study was based on secondary sources of data. The data related to demographic of India is taken from Census publications (Registrar General of India) form 1971-2011. The data on poverty is taken from the planning commission estimates during the 1974 to 2009-10. The land use classification data is compiled from various issues of statistical abstract of India from 1971-2011. Simple percentage method was used to draw the results.

**REVIEW OF LITERATURE**

Various studies have been done to assess the link between population growth, poverty and environment degradation. It has often been a wide literature on local and global level. These studies aimed to find out the objective related to the present work and analyze the interrelationship between the three aspects. The main objective of the study is to find out the relationship between population growth, poverty and environmental degradation. The new dimension to link between poverty and environmental degradation was brought out in 1995 when (Reardon and Vosti) introduced the concept of 'investment poverty' and related the same to other measures of poverty and categories of environment change with particular focus on farm household income generation and investment strategies as determinants of the links. Finally, they opined that the links between poverty and environment in a given setting depend on the level, distribution and type of poverty and environmental problems (Reardon and Vosti 1995).

Ahluwalia in his study examined the trends in the incidence of poverty in rural areas for 14 years covering the period 1956-57 to 1973-74 for India as a whole as well as for the individual states and find the relationship between poverty and agricultural growth (Ahluwalia, 1977). Rao in his paper analyzed the trends of



agricultural growth, sustainability and poverty alleviation during reform period (Rao.H, 1998). Kumar 2001, Nayak 2004 and Ray and Ray 2011 authors examine the problems and suggestions of environmental degradation in rural areas and population change and its impacts on land, forest and water and energy resources. Population growth plays an important role in declining per capita agricultural land, forest and water resources. These analyses revealed that outcomes of high population growth rates are increasing population density and number of people below poverty line. Poverty still remains a problem at the root of several environmental problems and said to be both cause and effect of environmental degradation. These studies evaluated the relationship between population growth, poverty and environmental degradation and revealed that there is strong and positive relationship between these three concepts (Kumar 2001, Nayak, 2004, Ray and Ray, 2011, Saravanan et al., 2011)

## ANALYSIS

### TRENDS OF POPULATION GROWTH IN INDIA 1971-2011

India is the second largest populated country in the world. At the time of Independence India population was about 36.1% during 1951 but now the population of India is 121 million during 2011. The population increases after independence due to increase in health facilities and control on certain communicable disease. The reduction in death rate resulted in a significant raise in population growth. In this context, India's population from 1971 to 2011 can be classified below table-1.

TABLE 1: TRENDS OF POPULATION GROWTH IN INDIA 1971-2011

Year	Population in Million			Decadal Growth Rate of Population in percent			Density of Population
	Total	Rural	Urban	Total	Rural	Urban	
1971	548.2	439.1	109.1	24.8	21.86	38.23	173
1981	683.3	523.9	159.4	24.66	19.32	46.14	216
1991	846.3	628.7	217.6	23.85	20.01	36.47	267
2001	1028.7	741.7	285.3	21.35	17.97	31.11	312
2011	121.05	833.1	377.1	17.64	12.18	31.80	328

Source: Census of India, Various issues.

In the table-1 figures represent that during 1971 the total population of India was 548.2 million increased by 24.8 percent decadal growth rate and rural population (21.86) percent increase less than urban population (38.23) percent. During 1971 the density of population was 173 but in 1981 the density of population increased to 216 and growth rate of population was 24.66 percent. It is further noted that population has increased in 1991, with 846.3 million and 267 density of population. The population of rural India increased around one and half time from 439.1 in 1971 to 741.7 million in 2001, whereas urban population has grown up more than two and half fold during the same period, which is from 109.1 million in 1971 to 377.1 million in 2011. The density of population has increased from 173 in 1971 to 328 persons in 2011. Despite the fall in growth rate, the population is still high over the decades. According to the standard projection, India's population will increase from 1027 million to 1419 million during 2001-26, a total rise of 38 percent or 1.3 percent per year (Dyson, 2004). Thus, for India's population growth these projection figures clearly give an idea regarding future demand for various resources, population pressure on land and the consequences of current demographic trends in terms of environmental degradation.

### TREND OF POVERTY IN INDIA 1974 TO 2010

Most of India's poor live in rural areas and are engaged in agriculture. India, with a high density of population relative to resources, faces developmental challenges in alleviating massive poverty and deprivation, and in raising the quality of life of poor people. The growth performance of states has crucial implications in poverty reduction, which is an important objective of the economic policy. India's poverty reductions through the anti-poverty and employment generation programmes along with overall economic growth-planning efforts have helped to reduce the poverty ratio in the country (Population and Environment in India). In this context, India's poverty from 1973 to 2010 can be classified below table-2.

TABLE 2: PERCENTAGE OF BELOW POVERTY LINE PERSONS IN INDIA DURING 1973-74 TO 2009-10

STATE/UTs	1973-74	1977-78	1983-84	1987-88	1993-94	1999-2000	2004-05	2009-10
Andhra Pradesh	48.86	39.31	28.91	25.86	22.19	15.77	29.6	21.1
Arunachal Pradesh	51.93	58.32	40.68	36.22	39.35	33.47	31.4	25.9
Assam	51.21	57.15	40.47	36.21	40.86	36.09	34.4	37.9
Bihar	61.91	61.55	62.22	52.13	54.96	42.6	54.4	53.5
Goa	44.26	37.23	18.9	24.52	14.92	4.4	24.9	8.7
Gujarat	48.15	41.23	32.79	31.54	24.21	14.07	31.6	23
Haryana	35.36	29.55	21.37	6.54	25.05	8.74	24.1	20.1
Himachal Pradesh	26.39	32.45	16.4	15.45	28.44	7.63	22.9	9.5
Jammu & Kashmir	40.83	38.97	24.24	23.82	25.17	3.48	13.1	9.4
Karnataka	54.47	48.78	38.24	37.53	33.16	20.04	33.3	23.6
Kerala	59.79	52.22	40.42	31.79	25.43	12.72	19.6	12
Madhya Pradesh	61.78	61.78	49.78	43.07	42.52	37.43	48.6	36.7
Maharashtra	53.24	55.88	43.44	40.41	36.86	25.02	38.2	24.5
Manipur	49.96	53.72	37.02	31.35	33.78	28.54	37.9	47.1
Meghalaya	50.2	55.19	38.81	33.92	37.92	33.87	16.1	17.1
Mizoram	50.32	54.38	36	27.52	25.66	19.47	15.4	21.1
Nagaland	50.81	56.04	39.25	34.43	37.92	32.67	8.8	20.9
Orissa	66.18	70.07	65.29	55.58	48.56	47.15	57.2	37
Punjab	28.15	19.27	16.18	13.2	11.77	6.16	20.9	15.9
Rajasthan	46.14	37.42	34.46	35.15	27.41	15.28	34.4	24.8
Sikkim	50.86	55.89	39.71	36.06	41.43	36.55	30.9	13.1
Tamil Nadu	54.94	54.79	51.66	43.39	35.03	21.12	29.4	17.1
Tripura	51	56.88	40.03	35.23	39.01	34.44	40	17.4
Uttar Pradesh	57.07	49.05	47.07	41.46	40.85	31.15	40.9	37.7
West Bengal	63.43	60.52	54.85	44.72	35.66	27.02	34.2	26.7
Andman & Nekobar	55.56	55.42	52.13	43.89	34.47	20.99	3	0.4
Chandigarh	27.96	27.32	23.79	14.67	11.35	5.75	11.6	9.2
Dadra & Nagar Haveli	46.55	37.2	15.67	67.11	50.84	17.14	49.3	39.1
Daman & Diu	NA	NA	NA	NA	15.8	4.44	8.8	33.3
Delhi	49.61	33.23	26.22	12.41	14.69	8.23	13	14.2
Lakshadweep	59.68	52.79	42.36	34.95	25.04	15.6	6.4	6.8
Pondicherry	53.82	53.25	50.06	41.46	37.4	21.67	14.2	1.2
INDIA	54.88	51.32	44.48	38.86	35.97	26.1	27.2	29.8

Source: Planning Commission of India, 2011

The table-2 indicated the percentage of below poverty line persons in India from 1973-74 to 2009-10. The official estimates of percentage of BPL released by Planning Commission showed a marked decline in poverty level over the years 1973-74 to 2009-10. The poverty estimates during the time indicated that 55 percent more than the half of total population in the country was living in below poverty line. This percentage almost halved to 27.2 percent in 2004-05 and 29.8 percent observed in 2009-10. The percentage of poverty has decline in rural and urban areas. There has been doubt about the poverty measures for 1999-2000, the estimates for the periods are considered to be fairly robust. For instance, existing analysis has shown that there was no improvement in 1993-94 over that in 1987-88 all the India level irrespective of the poverty line used. The comparative analysis of poverty at state level indicated that Bihar (61.91), Madhya Pradesh (61.78), Orissa (66.18), West Bengal (63.43) and in Uttar Pradesh (57.07) have highest percentage of poverty ratio in India where the lowest poverty was observed in Punjab (28.15) and in Haryana (35.36) during 1973-74. There could be more than one factor which turns the measures of poverty. We find that there has been a consistently declining in trend of poverty during 2004-05 and 2009-10. The state Bihar has the highest percent of poverty (53.5) following Madhya Pradesh (36.7), Orissa (20.9) and West Bengal (37.7) where the state with lowest percentage states of poverty are Kerala (12), Punjab (15.9) and Haryana (20.1). The percentage of poverty in trends of below poverty line indicated that major states show the significant reduction in poverty. But the states Orissa, Bihar, U.P and Madhya Pradesh have consistently high percentage of below poverty line. The higher poverty in these areas seems a lack of access resources like agricultural land, farm inputs and environmental degradation in terms of reduction in forest cover.

#### LAND USE PATTERN AND ENVIRONMENT DEGRADATION IN INDIA

Land use is a kind of permanent or cyclic human intervention on the environment to satisfy human needs to support different types of land utilization under given cultural and socioeconomic conditions. The land use is important not only in agriculturally dominated, over populated developing regions but throughout the world because of its relationship was different with human. Increasing population growth adversely affects the environment and polluted with their day to day activities which causes environmental degradation. Environment degradation is a complex problem which is being increasingly faced with the passage of time. It has, in fact reached at an alarming stage at the turn of this century when ecological imbalances in agricultural practices have been adopted across the country, of course, at a differential level. The degradation of rural environment arises from two major sources from: deforestation and degradation of land on account of the loss of vegetative cover, resulting in low water table and loss of top soil. These have a direct bearing on the productivity of soil, its vulnerability to rainfall variations, scarcities of drinking water, fodder and fuel wood causing hardships to the rural poor. The second major source of environmental degradation in rural areas is the misapplication of yield increasing inputs like water, chemical fertilizers and pesticides, causing water logging, salinity and pollution of drinking water etc. On these two major sources, via; Deforestation and chemicalisation of agriculture, may raised a greater threat to rural ecology at present stage of agricultural development in India. This is because Indian agriculture has been operating at the extensive margin in large parts of the country even under the existing technology and over cultivation of resources without proper rotation of crops has resulted into severe environmental degradation (Nayak, 2004).

TABLE 3: LAND USE PATTERN IN INDIA 1971-2011 (IN MILLION HECTARES)

CLASSIFICATION	1970-71	1980-81	1990-91	2000-1
Geographical area	328.7	328.7	328.73	328.72
Reporting area for land utilization statistics	303.76	304.15	304.86	306.66
1.Forests	63.91	67.47	67.8	70
2.Not available for cultivation	44.64	39.62	40.48	43.56
(b). Non- agricultural uses	16.48	19.66	21.09	26.51
(b). Barren and unculturable Land	28.16	19.96	19.39	17.05
3.Other uncultivated land including fallow land	35.06	32.31	30.22	29.03
(a).Permanent pasture and other grazing land	13.26	11.97	11.4	10.31
(b).Land under miscellaneous tree crops and grooves not included in net area sown	4.3	3.6	3.82	3.20
(c). Culturable wasteland	17.5	16.74	15	12.65
4.Fallow land	19.88	24.75	23.36	24.58
(a).Fallow land other than current fallow	8.76	9.92	9.66	10.32
(b).Current fallows	11.12	14.83	13.7	14.2
(5).Net area sown	140.27	140	143	141.5
(6).Gross cropped area	165.79	172.63	185.74	198.9
(7).Area sown more than once	25.52	32.63	42.74	57.3
(8).Cropping intensity*	118.2	123.3	129.9	137.3
(1).Net irrigated area	31.1	38.72	47.78	23.59
(2).Gross irrigated area	38.19	49.78	62.47	86.30

Source: Statistical Abstract of Haryana, Various issues.

Table 3 shows the classification of land use pattern during 1970-71 to 2000-1. The total area of land under cultivation increased but land was not available for productive purpose and expansion of area under cultivation, less agricultural land is available to feed each person in India. A change in land utilization pattern implies shows the increase and decrease in proportion of area under different land uses at a point of time. Table describe the land utilization pattern in India from 1970-71 to 2000-01. Out of total geographical area of 328.7 Million Hectares only 306.6 million Hectares is reporting area. The land for non agricultural use was 16.48 during 1970-71 but it increased to 26.51 in 2000-1. The barren and unculturable land was 28.16 during 1970-71 but it was declined to 17.05 in 2000-1. The net sown area increases 140.27 to 141.5 during 2000-1. Mostly through reclamation of old fallow and Culturable wasteland diversion of groves, gross cropped area increases 165.79 to 198.9 during 2000-1. The land use pattern also affected by the cropping intensity of net irrigated area and gross cropped area, cropping intensity was 188.2 during 1970-71 and 137.3 during 2000-1. The classification of land use pattern directly affected by the agricultural intensification and extensification. But this leads to land degradation because of rapidly increasing population. The outcomes of high growth rate are increasing the density of population and poverty also. The poor person increases the pressure on natural resources. The poverty and rapid population growth contributes environmental degradation through over exploitation of resources.

#### POVERTY, POPULATION GROWTH AND ENVIRONMENTAL DEGRADATION

Poverty is amongst the consequences of population growth and its life style play major role in depleting the environment either its fuel demands for cooking or for earning livelihood for their survival. The unequal distribution of resources and limited opportunities cause push and pull factor for people living below poverty line that in turn overburdened the population density and environment get manipulated by manifolds. Most of India's poor live in rural areas and are engaged in agriculture. Rural poverty is inverse related with growth of agriculture. (Ahluwalia) India, with a high density of population relative to resources, faces developmental challenges in alleviating massive poverty and deprivation, and in raising the quality of life of poor people. On the other hand, poverty is said to be cause and effect of environment degradation.

It is in this context that the first report on Human Development mentions, "Poverty is one of the greatest threats to the environment" (UNDP 1990). Moreover, degraded environment can accelerate the process of impoverishment, again because the poor depend directly on natural assets. It also contributes to environmental degradation through over exploitation of natural resources like land and water. The poor are the victims of environmental degradation and too are the agents, the perpetrators of the degradation. They are basically short-run maximizers; they try to meet the needs of the present at the cost of the future. Poor and hungry often destroy their immediate environment for their survival. They cut down forests; their livestock overgraze grasslands; they overuse marginal lands; and they crowd into congested cities in growing numbers. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge.

Environmental degradation is a result of the dynamic inter-play of socio-economic, institutional and technological activities. Environmental changes may be driven by many factors including economic growth, population growth, urbanization, intensification of agriculture, rising energy use and transportation. Poverty still remains a problem at the root of several environmental problems. Thus growth performance of states has crucial implications in poverty reduction, which is an important objective of the economic policy. India's poverty reductions through the anti-poverty and employment generation programmes along with overall economic growth-planning, efforts have helped to reduce the poverty ratio in the country (Nayak, P,2004).

## CONCLUSION

The relationship between population growth, poverty and the environment has become part of global concerns. In fact, sustainable development is impossible without efficient environmental management. In the same vein, poverty alleviation is also impossible without tackling the problem of environmental degradation. Poverty reduction is the goal of economic development and thus the environment and the resources there in are important for the attainment of this objective. Rapid population growth, poverty and developmental efforts are the major factors contributing to natural resources depletion and environmental pollution. However, the magnitude of environmental degradation is not uniform in India. For example, poverty has been the major cause of depletion of natural resources and environmental degradation in India, and both rapid population growth and continued economic development are found to be the major causes of environmental pollution.

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