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## Overpopulation and its environmental effects

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### Abstract

Increasing population growth and continuous economic development have caused serious environmental problems in the world. However, the recent experience is that the pace of environmental depletion and degradation is much faster in developing countries like India than the developed countries. Due to his technological and scientific advancement, man has made rapid development in all the sectors of economy, but unfortunately in this process of development, there has been much disruption of the functioning of surrounding natural environment. The present paper deals with general analysis of causes and impact of population growth on environment in India. The rapid economic development and expansion of urbanization in recants decade's leads environmental degradation in northern, southern and western parts of the country. Environment is degraded mainly due to the rapid population growth in the eastern, north eastern and central regions of India. India is the second most populous country in the world having 2.4% of global land and 17.5% of the world's total population. This rapid growth of population will lead more serious problems like environmental pollution, desertification, global warming, ozone depletion, if serious steps will not be taken to control the growing population of India.

**Keywords:** Population, environment, growth, development

### Introduction

In India, due to rapid growth of population and expansion of development activities, environment is adversely affected. Natural environment is degrading through uncontrolled growth of urbanization, industrialization, intensified agricultural activities of human being. The average change in the population resulting the difference of births over deaths and the balance of emigration and immigration is termed as population growth. The population growth is a factor in determining that how much pressure of the population on environment and natural resources. India is the second most populous country in the world having over 1.271 billion population (17.5%) of world's total population. In India the annual and decadal growth of population was very high up to 1991, after that there is a little decline in the annual growth rate and decadal growth of population but due to high absolute growth, population still remain high that put pressure on environmental resources and cause serious environmental problems.

The three fundamental demographic factors of births, deaths and migration produce changes in population size; composition, distribution and these changes raise a number of important questions of cause and effect. Population Reference Bureau estimated the 6.14 billion world's population in mid 2001. Contribution of India alone to this population was estimated to be 1033 millions. It is estimated that the country's population will increase to 1.26 billion by the year 2016. The projected population indicates that India will be a first most populous country in the world and China will be second in 2050.

The increase of population has been tending towards alarming situation. India is having 18 percent of the world's population on 2.4 percent of its land area has great deal of pressure on its all natural resources. Water shortages, soil exhaustion, deforestation, air and water pollution afflicts many areas. If the world population continues to multiply, the impact on environment could be devastating. As the 21st century begins, growing number of people and rising levels of consumption per capita are depleting natural resources and degrading the environment. The poverty-environmental damage nexus in India must be seen in the context of population growth as well. The pressures on the environment intensify every day as the population grows.

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The rapid increase of human numbers combines with desperate poverty and rising levels of consumption are depleting natural resources on which the livelihood of present and future generations depends. Poverty, is amongst the consequences of population growth and its life style play major role in depleting the environment 3 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 in urban areas and environment get manipulated by manifolds, consequently, urban slums are developed in urban areas.

### **Population in India**

There are various reasons for this variation in the trend of population growth rate in various censuses. The increase in population has been due to the improvement in health conditions and control of diseases. The density of population has gone up from 117 in 1951 to 312 persons in 2001 and it always shows an increasing trend over the census years in persons per square kilometer. Several push and pull factors are presumed to be operative towards distress out migration from rural to urban areas. This might be due to the declining resource availability per capita and shrinking economic opportunities in rural areas, and better economic opportunities, health and educational facilities etc. in urban areas, providing opportunities for higher level of human capital development could be the underlying factors for rural out migration.

### **Poverty and Environment**

It is generally accepted that environmental degradation, rapid population growth, and stagnant productivity are the causal factors for acute poverty in many countries of Asia. Most of India's poor live in rural areas and are engaged in agriculture. The efficacy of government intervention through various schemes implemented under Five Year Plans to eradicate poverty and provide employment is a matter of debate. Nevertheless, the poverty ratios in India have been reduced over time. Traditionally the problem of poverty and unemployment was rampant in rural India but conditions in urban India were better; hence, due to rural influx into cities during recent decades, there has been a continuous rise in urban population and further it is accumulating in class I cities. The rural-urban migration is mainly a result of rural failure and urban success: increased urban growth has resulted in uncontrolled migration into cities, which has created an unhealthy growth of cities. Further, the poor quality of urbanization has led to land degradation and air and water pollution in urban areas. Against this background, environmental damage due to overuse of natural resources is more acute in the central and eastern parts, followed by the western, southern, and north-eastern regions of the country. In fact, the northern region has experienced a lower degree of environmental degradation attributable to total poverty, unlike other regions.

overpopulation has greatly altered India's environment, India's forests in particular have been drastically affected. In 1951, the amount of land used for cultivation in India was 118.75 million hectares of land, but in 2001 that number increased to 142.82 million hectares of land (Nagdeve 6). Most of the land that became available in this 50-year span

was because of forests being chopped down. While deforestation has created more opportunities for people to engage in agriculture, it ultimately has had a negative impact on poor farmers because they need the resources that the forest provides in order to survive. For instance, farmers typically use forests for hunting and gathering food while their crops grow (Nagdeve 5). In addition, farmers often use wood as their main source of fuel because they cannot afford gasoline. However, as deforestation has become more widespread, it has become more difficult for farmers to sustain themselves on forest resources (Nagdeve 7). Today, forests have become the primary cause of conflict between the Indian Ministry of Environment and Forest and other companies whose goal is to cut down forests and use the land for economic purposes ("Degradation," 2010). The Indian Ministry of Environment and Forest is aware that forests are essential to the poor, which is part of why they are fighting so hard to protect them. However, this has not slowed the deforestation process that occurs throughout India. The root of the deforestation problem is overpopulation because forests have to be cleared so that the consistently increasing population has places to live and more land can be dedicated to agriculture.

A large amount of land in India is exclusively agricultural and there are so many poor people working on farms, it has created an overexploitation of the land that has even affected the soil. Soil degradation initially began in the middle of the 20th century when India experienced the Green Revolution. During this time, India was facing a grave food crisis because they were unable to grow enough food to support their large population. However, the Green Revolution introduced specialized seeds that produced high crop yields as well as pesticides and fertilizers to increase plant growth. Although the food crisis of the time was averted, the use of pesticides, herbicides, and fertilizers has had many long-term effects on the environment. For instance, pesticides often come into contact with large bodies of water when it rains, which ultimately contaminates them.

In addition, the regular and heavy use of pesticides kills micro-organisms that live in the soil. These soil micro-organisms are vital to the productivity of crops because they decompose carbon in the soil and create many nutrients that plants need to grow. Without sufficient soil micro-organism activity, the fertility of the land is quickly reduced. The process of soil degradation in India is currently having a large effect on the nation. Of the 328.7 million hectares of land in India, approximately 175 million hectares have been deemed as land and soil degraded. This only makes it more difficult for the poor farmers because not only are the resources they need to sustain themselves constantly being cut down, but the total amount of fertile land that they can work with is relatively very low.

In recent years, the creation of SEZ and population growth have resulted in diversion of huge tracts of agricultural land for non-agricultural purposes like construction of new industrial estates, peripheral roads, dams, railway lines, and residential use (Table 3). Diversion of considerable agricultural land for SEZ in the name of promoting exports through increased industrial development threatens biodiversity, and causes eco-degradation in the countryside. At present there are about 762 SEZ throughout the country at various stages of completion, and for this purpose vast

tracts of agricultural land have been acquired by the government.

The total land area of India is 2,973,190 km, of which about 1,620,388 km<sup>2</sup> (55%) is currently used for agriculture. The area allocated to SEZ is about 2061 km, i.e., 0.12% of the total land area. This particular aspect has resulted in overexploitation of natural resources in the country. Shrinking of agricultural land has several adverse consequences, apart from environmental damage and ecological imbalance. Its ill-effects could manifest in various ways such as declining food production, movement of agricultural laborers into manufacturing and construction industries, decline in net sown area, etc. The high priority accorded to promotion of exports through increased industrial development has often resulted in the diversion of agricultural land to industrial and other purposes, and this has been to the detriment of agricultural production and food security. The possibility of serious food shortages in the future cannot be ruled out, and such shortages could cause several environmental problems in addition to the apparent human misery.

Efforts of reducing population growth rate have been effective and impressive in India as shown by the declining trend of population growth. But it has not however been coupled with environmental conservation. The degree of environmental degradation varies across regions in accordance with characteristics such as poverty status, growth rate, economic development, industrialization and urbanization. There is much regional variation in the economic development and reduction in population growth across India. This unequal status of economic development in different regions of India leads inequality in socio-economic development which have grave implication for environmental issues .the central .eastern and north eastern parts of India still having large population which caused higher level of poverty (40% in central and 35% in eastern regions ) and exploitation of the resources such water, forest, land etc. Higher population, low living standard of people, inadequate level of socio-economic development are the main challenges faced by India regarding conservation of natural environment and natural resources. On the other side comparatively low population growth rate and high level of economic development leads environmental degradation in southern and western India.

### Conclusion

In India, all six regions have been experiencing environmental degradation to various degrees. The extent of environmental decay has been directly related to the physical characteristics of the region in question. For example, the north-eastern region has the highest growth of population, but due to its unique physical characteristics such as small population, low population density, and larger forested area, it has experienced a lower degree of environmental degradation. Though the eastern and central regions have higher population, they are however endowed with a larger geographical area and therefore have experienced relatively low levels of environmental degradation (excluding Kolkata). The same trend is visible in the southern and western regions. In contrast, environmental degradation is severe in the northern region due to overpopulation.

The urbanization effect on natural resource degradation and resulting environmental pollution in the western and northern regions are much higher than in other regions. Even the north-eastern region has experienced environmental degradation due to urbanization, though at a relatively lower level. The degree of environmental degradation due to urbanization is relatively moderate in the central and eastern regions, and comparatively low in the north-eastern and north regions. The huge shrinkage of agricultural land coupled with increase in population in the central and eastern regions has had a greater impact on their natural environment, as manifested in the reduction of biodiversity in these regions.

Rapid population growth is directly responsible for higher environmental degradation in the central, eastern, and northern regions as compared to the other regions. On the other hand, economic development (ultimate cause) was found to be the main cause of environmental degradation in the western, northern, and southern regions. However, both proximate and ultimate causes are behind environmental degradation in the western region, which is the highest, followed by the southern and central regions. However, the situation is fairly well under control in the eastern (excluding Kolkata) and north-eastern regions. In view of the above observations, this study strongly suggests that policy makers take note of the situation and initiate appropriate remedial action. The current need is to take immediate steps through policy prescriptions to halt environmental damage and reverse these trends wherever possible.

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