

Environmental Degradation in India: Causes and Consequences

Jatinder Kaur^{1*}, Amarpreet Kaur²

Abstract

In the present era where attaining the goals of sustainable development is a major concern for every economy; in such a situation, the concept of protection of the environment from degradation can no longer be ignored by any sector then it hardly matters whether it is the private sector or the government sector. The term “environmental degradation” describes how the environment of the planet is deteriorating as a result of excessive consumption of resources including air, water, and soil. There are other sorts of environmental degradation, such as habitat destruction and wildlife elimination. Environmental implications such as air pollution, water pollution, waste, and natural environment pollution have been caused by the ongoing degradation of the environment. In many developing countries like India pollution has turned out one of the major challenges and primary causes of diseases and health issues as it has an impact on the livelihood of homosepians for the long term. In order to tackle all these challenges of environmental degradation, numeral studies have been conducted in both developing and developed countries by using various methods with a common aim of improving environmental quality. Some of the most widely used tactics in this regard include reducing exposure to environmental risk factors by improving air quality, access to better sources of drinking and bathing water, sanitation, and clean energy sources, as all of these techniques significantly contribute to the achievement of environmental sustainability and development goals, which serve as the foundation for significant health benefits. The causes and effects of environmental degradation on a national and international scale are discussed in this essay. Additionally, the article shed light on a review of the literature on studies linked to lower environmental risk, with an emphasis on improved water quality, lower air pollution, and reducing climate change.

Keywords: Environment degradation, consequences, sustainable development, resources, protection

*Author for Correspondence

Jatinder Kaur
E-mail: jeetu.jazz@gmail.com

¹Research Scholar, MMIM (Maharishi Markandeshwar Institute of Management), Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India

²Assistant Professor, Department of Mathematics, South Point Institute of Technology and Management, Sonipat, Haryana, india

Received Date: November 22, 2019

Accepted Date: January 16, 2023

Published Date: February 25, 2023

Citation: Jatinder Kaur, Amarpreet Kaur. Environmental Degradation in India: Causes and Consequences. NOLEGEIN Journal of Operations Research & Management. 2022; 5(2): 8–15p.

INTRODUCTION

Environment refers to as the physical encompassing of man or lady of which he or she is a section and on which he or she is reliant for his or her existence like physiological working, creation, and utilization. Physical environment made from air, water, and land; moreover, it also include resources like soil and plants, creatures, and ecosystem. The connection between physical environment and the prosperity of people and societies is interconnected and depend upon each other. The accessibility and utilization of natural resources has eventually led to development of entire mankind. As far as urbanized society is concern, the environment over there is man-made.

The term “environment” is usually confined to surrounding environment; therefore, it include home, work place environment also.

In order to attain the goal of sustainable development, it is important to management the environment and natural resources, as all these play a very important role in growth of economic and well-being human. When the phrase “manage environment well” is used, it refers to the management of watersheds, productive landscapes, and seascapes. Proper management of natural resource make the base for sustained growth and along with this it also ensure continuous supply of food and other basic requirement of life and this finally lead to reduction of poverty [1]. For hundreds of millions of people, natural resources provide a source of income, and the government also receives a sizable amount of tax revenue from this single source.

When the idea of environmental degradation is considered, a number of other related ideas are also taken into account, such as pollution, biodiversity loss and animal extinction, deforestation and desertification, global warming, and a lot more. Environmental degradation is the term used to describe the depletion of resources such as air, water, and soil; the devastation of ecosystems; and the loss of wildlife. In simple words the environment degradation can be defined as any transformation or interruption to the environment which cause an undesirable harm to environment. According to United Nations, environmental degradation is one of the major threats out of ten threats officially declared by them. Environmental degradation is defined as “the reduction of the environment’s capacity to meet social and ecological objectives, and demands” in the United Nations International Strategy for Disaster Reduction. There are various types of environmental degradation like distortion of natural habitats; over depletion of natural resources as by all this environment is degraded. The only solution to this problem is to do protection of environmental by doing proper management of environmental resources [2].

OBJECTIVE OF STUDY

- To study the causes of environment degradation
- To highlight the various factor responsible for environment depletion
- To tell how environment degradation effect on human health and on ecosystem
- To highlight the mitigation measures to restore the environment from degradation effect

CAUSES OF ENVIRONMENTAL DEGRADATION

Degradation in environmental caused by various factor some of them are listed:

1. Urbanization
2. Industrialization
3. Over-population growth
4. Poverty
5. Deforestation
6. Economic growth
7. Intensification of agriculture
8. Increase in energy use
9. Increase in transportation
10. High environmental pollution

These are major cause of environmental degradation which human has caused and has created a disturbance in entire ecosystem [3].

These all factors affect the environmental in different ways as deforestation lead to loss of plants and animals habitat, environmental pollution lead to the degradation of quality and quantity despite the increased use of natural resources, the smoke produced by factories and automobiles as a result of expanding businesses and transportation services has ultimately increased the amount of toxic gases in

the air like chlorofluorocarbon, nitrogen oxide, carbon monoxide and other dust particles, which ultimately end up by making air polluted, moreover unplanned urbanization and industrialization has worked as catalyst in making the situation more worse as it caused water, air, and sound pollution. Growing population one of biggest problem as it created a never ending demand of resources, which ultimately lead to over extraction of limited natural resource like minerals and oil deposits and this hunger not only stop here it is also the main cause of deforestation as more and more forest are cut down to convert that land for agricultural use but after creating so much harm to environment the root cause of problem that is poverty still remains unchanged [4].

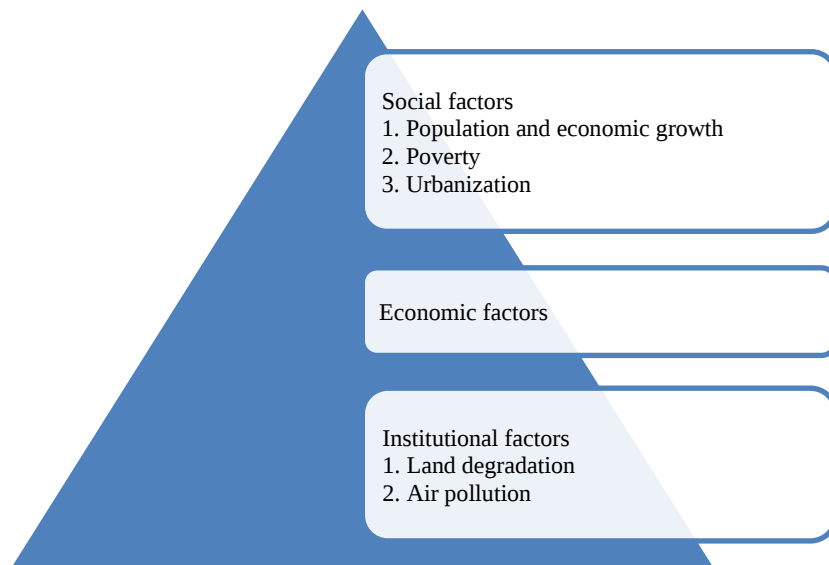


Figure 1. Various factors which are responsible for environment. To explain them these factors are broadly divided into 3 following categories.

Source: online.

SOCIAL FACTORS

Population and Economic Growth

Figure 1 the rapid growth in population and economic development of an economy are two of the major reason for environment degrading. As in order to achieve this goal of develop economy an uncontrolled growth of urbanization and industrialization took place and land for this expansion was gather by doing deforestation and this ultimately lead to destruction of natural habitats. As far as environmental degradation in India is concern some of its major causes and first in this list is alarming increase in population, which is unfavourably affecting the natural resources and environment as in order to fulfil demand of such a large population not possible without over exploitation of natural resources so the aim of sustainable development seem to be far way. As a result to it sustained development comes as a challenge for India because growing population and environmental deterioration makes it almost impossible to bring development without causing any damage to our natural resources and to our environment. More over absence or degradation of natural resources at a large scale could bring a pause to our economic development whose payback could be difficult. India's population which is a remark in itself is however a massive source of development but on other side it brings a massive damage to environment and natural resources because with increase in population there comes an increasing curve in utility of resources too. So solution to this problem are development programmes but it would be fruitful with an occurrence of equilibrium between growing population and life supporting system otherwise there will be no effect of such development programmes in India as rapid degradation of natural resources and environment due to increase in population causes various environmental stresses, massive wastage of natural resources, threat to biodiversity, water and air pollution and depletion of land [5].

Poverty

Another threat to environmental and natural resources is from poverty. Poverty is the second major causes to degradation of environmental and natural resources and can also be considered as an effect of environmental degradation. There is a composite relationship between poverty and environment which can also be considered as interlinked relationship between them. In country like India, inequality is being promoted by unsustainability because a large number of people living below poverty line are much more dependent on natural resources rather than the rich which in return causes depletion of natural resources at a higher rate without gaining any attention on the other type of resources. With the beginning of 21st century, an increase in population and rising levels of utilization per head are the main cause of environment degradation and depletion of natural resources. With increase in birth rate in India heap on extreme pressure on the environment. The massive increment in India's population related with anxious poverty and mounting levels of consumption results in depletion of natural resources on which our generation's present and future livelihoods relay on. Among consequences of increasing population, poverty is the major the consequence because it leads to depletion of natural resources. Poverty plays a vital role in environmental degradation either its energy demands or economic demands for survival.

Urbanisation

In India urbanization began to speed up after independence due to country's approval for mixed economy, which was responsible for the development in private sector. Urbanisation is digging its flaws deeper in India. India's population resides primarily in urban areas. In villages, shortage of lucrative employment opportunities and environmental stresses leads to stagnant increase in number of poor families moving to towns. This expansion of cities in an unplanned manner results to degradation of urban ecology in rapid manner. Due to movement of poor families to towns this has broadened slit between demand and furnish of infrastructural services like wise transportation, communication, education, supply of food and water, sewerage and recreational facilities, housing and in contrast to it depletion of valuable environmental resources occurs which are the base of the cities [6].

ECONOMIC FACTORS

The non-surviving or inadequately functioning markets for ecological goods and services results in environmental degradation at a large scale and often remarked as markets failure.

Lack of clearly defined property rights is one of the key causes of this market failure. In this perspective, the expenditure or production externalities replicated by variance between private and social costs and benefits have environmental degradation as its particular case.

Moreover, the distortions in market due to price controls and subsidies may make the achievement of environmental objectives more badly. The objectives of India's development constantly highlight the various programmes and policies for social welfare and economic growth. Introduction of manufacturing technology in industries has a bad impact on environment specifically on energy and resources due to continuous demand of its use. As the main source of industrial energy is fossil fuels and in similar manner many resources such as minerals, timber are used in industries as a source of energy but their massive usage causes depletion of natural resources at a rapid speed and causes various hazards like water, and, land pollution. In addition to this, polluting industries have contributed a high share in air pollution also. Another impact on environment which directly involved in its degradation is agricultural development. Where on one side, agricultural development brought Green revolution in India; there on other side, it puts a direct impact on environment, these impacts rises due to farming activities which add on the problems like soil erosion, loss of fertility of soil, and many more. Depletion of land and water resources is another effect of the growth of the green revolution. An important cause of land degradation is shifting cultivation and leaching due to excessive use of chemical fertilizers instead of manures, and in addition to it irrigation also contributes land degradation.

INDUSTRIAL FACTORS

The government's Ministry of Environment & Forests (MOEF) is in charge of protecting, developing, and maintaining the environment. A variety of Ministries, State Governments, Pollution Control Boards, colleges, non-governmental organisations, and other organisations cooperate together to safeguard the environment.

Environment management is governed by a number of laws, including the Wildlife (Protection) Act of 1972, the Forest (Conservation) Act of 1980, and the Environment (Protection) Act of 1986. But after having so many legislation and acts still environment is in miserable condition the reason behind this is limitation of the existing system lies in the enforcement capabilities of environmental institutions, at both level centre and state. There is need of an effective management at every level of Ministries or Institutions in order to achieve the target of sustainable development in environment and in order to do so every concern department need to do inception or planning at every stage of the project. Secondly, the concern minister must give proper training to personnel and make a comprehensive database to implement the various environment projects properly.

Land Degradation

Land degradation refers to any alleged unfavourable change or disruption to the land. Both natural and human-made factors, including the use of chemical fertilisers, soil erosion, altering farming practises, excessive irrigation, and extreme rains, are to blame. According to research, up to 40% of the world's agricultural land is severely affected by land degradation.

Climate change is one naturally occurring activity that degrades land. Man-made activities that degrade land include land clearing and deforestation, bad farming methods that deplete soil nutrients, overgrazing, and over-grafting. Increase in population and their demand for food, housing, energy have noticeably malformed land use practices and relentlessly degraded India's environment.

Air Pollution

India is the largest consumer of biomass, agricultural waste, and wood as fuels worldwide. About 90% of all home energy use in rural India is provided by traditional fuels such fuel wood, crop by products, and dung cake. This conventional fuel makes up roughly 24% of the total in metropolitan areas. Burning biomass like as wood, agricultural waste, and garbage emits more than 165 million tonnes of combustion products into the atmosphere each year. In India, these biomass-based home stoves are a major contributor to greenhouse gas emissions that cause climate change. All these practices cause air pollution in India. Air pollution is the one of the serious problem in India caused due to fuel wood and biomass burning, traffic congestion, and vehicle emission.

On per head basis, India emits less percentage of carbon dioxide greenhouses. In comparison with the United States' 17 tonnes per person and the global average of 5.3 tonnes per person, the IEA estimates that it emitted roughly 1.4 tonnes of gas per person in 2009. While China and the United States were the top two emitters of carbon dioxide globally in 2009, India came in third with 1.65 Gt annually (5.2 Gt per year). India, which makes up 17% of the global population, produced 5% of the carbon dioxide emissions that are caused by human activity, while China accounts for 24% [7, 8].

EFFECTS OF ENVIRONMENT DEPELITION

Environmental degradation adversely effects in different manner to every section of society and every resource of nature. The list below includes a few of these effects.

Impact on Human Health

The destruction of the environment has a significant impact on human health. It is not wrong to say that human is paying cost of environment degradation by losing its health. Some, the major health issues that human is facing in today's world is respiratory like pneumonia and asthma problems and it

is caused due to high exposure of human to toxic air pollutants. As environment depletion leads to various kinds of pollution and air pollution is one of the most dangerous kind of pollution as due to air pollution only millions of people have died every year in India because cities in India have the highest level of pollution. Today's scenario is so threatening that most of the metropolitan cities are suffering with the problem of high level of pollutants in the air because of which air in these areas has become highly polluted and has even exceeded the safe limit of pollution in air given by the World Health Organization (WHO) and therefore it is considered to be inappropriate for human to live in such condition as it leads to various life-threatening diseases. As far as India, the most polluted state is concerned, Delhi's name comes first, most as over here the level of pollution particulate is several times more as compared with recommended level which is specified by the World Health Organization (WHO). If the case of past 10 years in India is taken into consideration, the level of pollution specially in urban areas has grown to an alarming condition; therefore, it becomes mandatory for concerned ministry and natives of India to understand and become aware of the various major air pollutants which are causing this pollution. Some of them are, residual Nitrogen dioxides (NO_2), carbon monoxide (CO), lead, sulphur dioxide (SO_2), and other suspended particulates are examples. Some of the major reason because of which the air quality has deteriorated to such a high level and that specially in urban areas are, continuous increase in industrialization, high use of private vehicles instead of public vehicles to migrate from one area to other even within cities. As all these activities lead to burning of fossil fuels in high amount and pollutants are released in this process and all this element ultimately gets mixed up in air making air highly polluted, which ultimately leads to killing of thousands of people and not only this but also many more of them to suffer from respiratory damage, heart, and lung diseases. According to the latest survey, the children younger than the age of 3 years show signs of harmful exposure to lead in two of the most populated cities of India's that are in Mumbai and Delhi and the basic reason behind this health issue is alarmingly increasing level of polluting in these two big cities. Pollution is one of the other big reason behind the illness and pre-mature deaths of infants as a pollutant name as suspended particulate matter (SPM) is present in high ratio in the air of mega cities of India especially in cities like Calcutta, Chennai, Delhi, and Mumbai. In addition to all of these other types of air pollution, cooking, and heating with wood, crop leftovers, animal dung, and low-quality coal all produce smoke that contains harmful gases and particles, which is how indoor air pollution is created. Because of the gases that are released when these fuels are burned and the inadequate ventilation of these gases, many potentially fatal diseases, including tuberculosis, other serious respiratory conditions, and blindness, can result. Indoor air pollution is one of the four top environmental issues in developing nations, according to the World Bank.

Loss of Biodiversity

The idea of biodiversity was created in the process of preserving the ecosystem's balance in the form of clean air, replenishing nutrients, fresh water supplies, and stable climate. Deforestation, global warming, overcrowding, and pollution are the main causes of biodiversity loss. All of these causes of the lack of biodiversity are exclusively due to human activity, which has had a profoundly negative impact on the environment as a whole, altered the landscape, exploited species directly through fishing and hunting, altered biogeochemical cycles, and moved species from one area to another.

Ozone Layer Depletion

As we all know that Ozone layer is second most important reason after water because of which life was possible on earth, as it is only responsible for protecting earth from harmful ultraviolet rays of sun. The production and emission of chlorofluorocarbons (CFCs) is major reason for depletion of ozone layer as in those areas where ozone layer is depleted this major damage almost up to 80% is caused by this gas only though there are other substances also present which lead to depletion of ozone layer namely as hydro chlorofluorocarbons (HCFCs) and volatile organic compounds (VOCs). These compounds are produced as a result of vehicle emissions, industrial waste products, aerosols, and refrigerants. All of these ozone-depleting compounds are stable in the lower atmosphere, but when they ascend into the stratosphere, they are exposed to ultra violet radiation, which causes them to

break down and release free chlorine atoms, which then interact with ozone gas to cause ozone layer depletion. Another effect of environmental deterioration is global warming.

MITIGATION MEASURES

There are some ways by which environment degradation can be decrease. Some of these are listed below:

- Maximum use of recycled products
- Conservation of water by rain harvesting
- Proper disposal of waste product
- Conserver and use of renewable source of energy
- Make people more and more aware of the environment condition and make environment protection group.
- Talk more relevantly about the impacts of environmental degradation on mankind and entire ecosystem.
- The damage that we cause to the environment is currently not counted as a cost in economic and social terms.

The major reason behind environment degradation is lack of “environmental value” as the result of which human has over-exploit natural resources thing that they are “free” which are in reality are not free. All this ultimately led to over-production of cheap goods which have very short life and are liberally disposed off into the environment when ever wished and purchased of new one as the need of it arises again and this cycle goes on and no one think about capacity of planet to restore these environmental resources. Therefore, now it’s high time and human must understand that we certainly do not have the right to exploit and destroy the environment as we not its owner we must think about the future generations of humans and animal that will be here after us [9, 10].

CONCLUSION

First, the country’s rapid population growth coupled with economic expansion that leads to an overuse of natural resources, second, environmental catastrophes like habitat loss, deforestation, soil erosion, and biodiversity loss, and third, the country’s rapid economic expansion that has altered consumption patterns and increased demand for energy and other resources are the main causes of environmental degradation in India. In India, the main environmental problems are water scarcity, air, water, and noise pollution. In order to reduce environment degradation many methods has been highlighted like taking help of city and industry planners during urbanisation and setting up a new or expanding the existing industry, doing proper resource management with help of managers and give consideration toward the long-term effects of all these on the development of the environment. With careful planning, community involvement, and public knowledge, environmental deterioration can be avoided in the future.

REFERENCES

1. Ghosh B. (2010). Construction and analysis of regional variations of social development indices in India. Final Project Report submitted to the Ministry of Statistics & Programme Implementation. New Delhi: Government of India. [Online] Available at https://mospi.gov.in/sites/default/files/publication_reports/ssd_const_reg_var_7july11.pdf [Accessed on February 2023]
2. Lakshmana CM. Population, development, and environment in India. Chin J Popul Resour Environ. 2013; 11 (4): 367–374. doi: 10.1080/10042857.2013.874517.
3. Gogoi L. Degradation of natural resources and its impact on environment: a study in Guwahati city, Assam, India. Int J Sci Res Publ. 2013; 3 (12). Available at <https://www.ijsrp.org/research-paper-1213/ijsrp-p2459.pdf> [Accessed on February 2023]
4. Nagdeve DA. Population, poverty and environment in India. Population ENVIS Centre IIPS. Deonar Mumbai. 2006; 3 (3): 67–72.

-
5. Ray S, Ray IA. Impact of population growth on environmental degradation: case of India. *J Econ Sustain Dev.* 2011; 2 (8): 72–77.
 6. Saarangapani B, Sripathi K. Environmental degradation in India-dimensions and concerns: a review. *Prabandhan Indian J Manag.* 2015; 8 (4): 51–62.
 7. Tyagi S, Garg N, Paudel R. Environmental degradation: causes and consequences. *Eur Res.* 2014; 81 (8-2): 1491.
 8. Choudhary MP. (2023). Environmental degradation: causes, impacts and mitigation [Online] Academia.edu. Available at https://www.academia.edu/34004249/Environmental_Degradation_Causes_Impacts_and_Mitigation [Accessed on February 2023]
 9. Wikipedia Contributors. (2023). Environmental degradation. [Online] Wikipedia. Available at https://en.wikipedia.org/wiki/Environmental_degradation [Accessed on February 2023]
 10. Choudhary MP, Chauhan GS, Kushwah YK. (2015). Environmental degradation: causes, impacts and mitigation. [Online] ResearchGate. Available at https://www.researchgate.net/publication/279201881_Environmental_Degradation_Causes_Impacts_and_Mitigation [Accessed on February 2023]