

Impacts of Climate Change on India: An Analysis

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Abstract: The well-known fact is that climate change puts forward a great challenge to sustainable development. Developed Nations need to look beyond their narrow self-interests and work jointly to combat all the enemies of sustainable development. There can be many factors responsible for this climate change and there can be many impacts of this climate change. Today we need to analyze the changes that climate is going through and we need to immediately take some steps to tackle the problem. We need to put the concept of Sustainable development into practice as it is only through sustainable development that we can utilize the resources wisely such that those resources will be available to the future generations also. Most of the Indian scholars assume the fact that the process of climate change has laid down many effects on the ecosystem of India in the form of environmental degradation and global

warming. Therefore, there is an urgent need to look into the matter and take the necessary steps in this direction.

Keywords: Climate Change, Sustainable Development, Rainfall, Desertification, Food Security.

Introduction: Changing climate has become a burning issue of debate throughout the world. Its impact can be clearly seen as water pollution, air pollution deforestation, soil erosion, ozone depletion etc. We urgently need a paradigm which is global inclusive co-operative, environmentally sensitive and above all scientific. All the Nations are facing this problem today. The world's current ecological demographic and economic trajectory is unsustainable and if we continue to follow it the end of the planet is near. It is important for all of us to collectively take the responsibility and



practice sustainable development. It is only through sustainable development that we can save the planet from any massive destruction in future.

Research Methodology: The present research paper is based on the secondary sources of data collection. Most of the study material has been taken from the articles published in reputed journals, reference books and official websites. The research is exploratory in nature. To pace the study, the researcher has also used some observational facts.

Research Objective: The present paper highlights the impacts of climate change on India. Therefore, main focus of the study is on this burning issue.

Climate Change: India is the second most populous country in the world with the population of more than 125 crore. India has seen industrialization boom after the implementation of economic reforms in 1991. But when it comes to sustainable development we have failed miserably. As a result, today we are facing the problem of environmental degradation. Climate has

changed to a great extent and this process is going on rapidly. It is affecting our ecosystem badly and its impacts are as under:

- **Rainfall Patterns:** Changing climate is adversely affecting the rainfall patterns. The annual rainfall data shows rising trend across Meteorological sub divisions of Punjab and Himachal Pradesh, Gangetic West Bengal, North and South interior Karnataka and Telangana. There is decreasing trends in Arunachal Pradesh, Kerala, Himachal Pradesh and Andaman Nicobar Islands, Assam, Meghalaya, Nagaland, Mizoram, Tripura and Manipur also indicate decreasing trends. The district level data indicates increasing trends in annual rainfall of 23 districts. There is also frequency of heavy rain during summer monsoon in Andaman and Nicobar Islands, Lakshadweep, West Coast, some parts of Central and North West India. There is decreasing trends in winter, pre and



post monsoon seasons over most part of the country. That has also been a significant reduction of rain Storms over the last 70 years. This is a dangerous situation in future including some of the other areas in India together with coastal areas.

- **Lack of Food Security:** Climate change has caused deforestation and desertification which contributes to the problem of food security. Desertification is degradation of land in arid, semi-arid and dry sub-humid areas resulting from various factors including climate variations and human activities. One third of the world's land area is dry land that is extremely vulnerable to over exploitation and inappropriate land use. Overexploitation of land without giving it time to recover leads to loss of vegetation and soil erosion. The shifting of monsoon variability in precipitation over the same year or years, drier soils and increasing heat also reduce crop

yields. Droughts, soil erosion by wind and water, increasing sterilization of soil, reduction in soil moisture retention, increase in surface runoff and stream flow variability, reduction in species diversity and plant biomass, increase in particular and trace gas emissions, increase in atmospheric dust, extreme social disruptions, migrations and famines are primary factors in the reduction of overall productivity in different parts of the country. The changing patterns of rainfall affecting our ecology and the heavy rains have disturbed the food chain. The rising sea levels and stress over water resources have changed the crop pattern in India. It has significantly affected the irrigation facilities and destroyed productive land near the coastal areas. In some parts of the country drought may occur in coming time due to no rainfall in time and farmers seed crops.



- **Flora and Fauna:** Climate plays a great role in the health of flora and fauna of any region. Any change in the climate can cause enormous loss of biodiversity affecting both individual species and their ecosystems in turn affecting our economic growth and well being. It is very difficult to estimate the overall result of Climate Change on animal and plant Kingdom. If the present scenario continues to exist, it can cause devastating effects on the native habitats of many plants and animals; and may lead to their extinction. Mass extinctions of the earth's flora and fauna have occurred before also, but it happened through natural process. However, if there will be extinctions of flora and fauna it will be only due to adverse impact of human activities. The exponential growth of human population around the world along with the increasing pollution and loss of habitat is setting the conditions for mass extinctions large scale alterations in the flora and fauna.
- **Desertification:** According to 'The National Environment Policy', 2006 Indian desert ecosystem occupies 38.8 percent of the country's geographical area and spreads over 10 states. The Indian desert's fauna is extremely rich in species, diversity of mammals and winter migratory birds. Many of the recent studies tell us that deserts have shown expansion thus leading to desertification. Changing climate patterns have changed the natural attributes of the desert region; for example the floods in the desert district of Barmer in Rajasthan in 2006.
- **Coastal Areas:** Global warming has caused melting of glaciers and ice caps which has contributed to a significant rise in the sea level. The US National Aeronautics and Space Administration states, "New satellite measurement reveals that the Greenland and West Antarctic ice



sheets are shedding about 125 million tons of ice per year- enough to raise sea level by 0.35 mm (0.01 inches) per year. Rising sea levels will in turn flood the rivers and coastal deltas displacing the millions of people who now live in low lying Delta regions. Many of the approximately 10% of the world's population who live in the coastal areas will also be particularly vulnerable. In addition, the temperature of the oceans will rise, causing disruptions in storm patterns such as the increased frequency and intensity of hurricanes. Most of the environmentalists and scientists say that as the climate is changing, it will make India's glaciers to melt rapidly and water level in all the rivers will rise high. It may cause floods in rivers. Its consequence will be that huge amount of water will enter into the rivers and seas around the India. It will cause a huge rise in the level of water and cities of coastal areas

will sink into the sea water leading to very harmful consequences in the coming years. Meanwhile a great damage for Mumbai, Chennai and other Metropolitan cities of coastal areas can be observed even today. Today, we can see the approaching disaster as sea water in coastal areas of Orissa and Andhra Pradesh entered recently in 2014. These states have observed this natural calamity as high level waves into water impacting the coastal areas and its habitants which resulted in various diseases and shortage of pure drinking water.

- **Air and Water Pollution:** The increasing population, vehicles, power plants and other industries have resulted into increasing air and water pollution. The increasing amount of harmful and toxic gases is increasing in the atmosphere, which is leading to problems like global warming. However, some of the states have drafted their policies to control the problem but they have

not been currently successful in their aim. In the same way water resources have been polluted by people who live in the cities around the rivers.

- **Ozone Layer Depletion:** One of the main reasons of ozone depletion is the increasing greenhouse gases in our environment. Ozone layer is a shield which protects us against the harmful UV rays of the sun which can cause diseases like skin cancer. Ozone depletion refers to both the slow decline of the total volume of ozone making up the ozone layer since the late 1970's and a seasonal decrease in the ozone layer over the globe polar regional during the period. Greenhouse gases include chlorofluorocarbons which are the biggest contributors to ozone depletion. CFC's are used in solvents and cleaners, refrigerators and aerosols. CFC's are released into the air and they rise up to the stratosphere. There, their molecules destroy the ozone molecules. It has

caused a hole in the ozone layer (which is roughly of the size of the US) over some part of Antarctica and New Zealand. Without the ozone layer the sun's unfiltered rays will penetrate into the atmosphere which will kill marine plankton and it will also lead to a host of other problems including skin cancer in humans.

Conclusion: We can clearly see that our climate is changing very rapidly and we all are responsible for this. If it continued to change with the same rate, it can lead to extinction of many species on the earth the excess of water or lack of water both are dangerous. Climate change has increased the possibility of melting of glaciers in Himalayan region. It can cause floods in rivers and rise in sea level. The harmful gases in the atmosphere have caused the depletion of ozone layer. Gases likes CO₂ have increased in the atmosphere which has increased the temperature of Earth. Climate change has caused the problem of global warming. This problem is indication of the approaching disaster. Therefore, we

all need to adopt protective measures to save the planet and its ecology. We all should collectively take the responsibility so that the resources are available to the future generations also. We need to take more and more measures for the better future of the next generations on the planet.

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