

## **Environmental Issue and Challenges in India**

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### **Abstract**

The rapid growth of industrialization, urbanization, modern agriculture development, energy generation has resulted in indiscriminate exploration of natural resources for fulfilling the human desires and need, which have contributed in disturbing the ecological balance on which the quality of our environment depends. Deforestation is the conversion of forested areas to non - forest land use such as arable land, pasture, urban use, logged area or wasteland. The environment is made up of air, water, and land, technically known as atmosphere, hydrosphere and lithosphere respectively which together constitute the biosphere. In the biosphere, apart from human beings, plants, animals, birds, fishes, insects and microorganism (algae, bacteria and virus) also exist. "Acid Rain" is broad term referring to a mixture of wet and dry deposition (deposited material) from the atmosphere containing higher than normal amount of nitric and sulphuric acids. Pollution is any undesirable change in the physical, chemical or biological characteristics of air, water and land. Pollution, in addition to destruction of material and natural capital, can harm the health and threaten the survival of activities of human being and other living organisms.

**Key Words:** Acid Rain, Biodiversity, Deforestation.

### **Introduction:**

The rapid growth of industrialization, urbanization, modern agriculture development, energy generation has resulted in indiscriminate exploration of natural resources for fulfilling the human desires and need, which have contributed in disturbing the ecological balance on which the quality of our environment depends. Human beings in true sense are the product of their environment. Man-environment relationship indicates that pollution and deterioration of environment has a social origin. The modern new pollutants and in much abundant level which are above the self-cleaning capacities of environment. One of the major issues in recent times is the threat to the human life caused due to the progressive deterioration of the environment.

### **Status of Biodiversity in India:**

India is one of the 12 mega diversity countries of the world. India occupies only 2.4% of the world's land area but its contribution to the world's biodiversity is approximately 8% of the total number of species which is estimated to be 1.75 million (As per global biodiversity assessment UNEP of 1995 describes number of species so far is 1.75 million). Of these, 126,188 have been described in India. The species recorded includes flowering plants (angiosperms), mammals, fish, birds, reptiles and amphibians constitute 17.3% of the total whereas nearly 60% of India's bio-wealth is contributed by fungi and insects. Such a distribution is similar to that found in the tropics and the subtropics.

### **Biodiversity Hotspots:**

Biodiversity hotspots are areas that are unusually rich in species, most of which are endemic and are under a constant threat of being over-exploited. Among the 18 hot spots in the world, two are found in India. There are two distinct areas: the Eastern Himalaya and Western Ghats and also depicted in the National Forest vegetation map of India. Together these 18 sites contains approximately 49,955 endemic plant species or 20% of the world's recorded plants species, an area 746,400 sq.km. or 0.5% on the earth's land surface

#### **Importance of Biodiversity:**

Approximately 80,000 edible plants have been used at one time or another in human history, of which only about 150 have even been cultivated on large scale. Today a mere 10 to 20 species provide 80 to 90 % food requirements of the world. Biological diversity has direct consumptive value in food, agriculture, medicine and industry. It also has aesthetic and recreational value. Biodiversity maintains the ecological balance and the continuous evolutionary process. The indirect services provided through biodiversity are photosynthesis, pollination, transportation, chemical regulation, air and water system management, waste treatment and pest control.

#### **Loss of Biodiversity:**

Today we have many environmental related problems. The most serious man-made threat biological diversity is due to deliberate destruction of the ecosystem, especially in the tropics. Disappearance of habitats in the wake of developmental activities like industrialization, urbanization, population growth and over exploitation of species, forest fire, introduction to exotic and non native species, pollution and contaminants, climate change, ecological imbalance.

#### **Pollution:**

The environment is made up of air, water and land, technically known as atmosphere, hydrosphere and lithosphere respectively which together constitute the biosphere. In the biosphere, apart from human beings, plants, animals, birds, fishes, insects and micro organisms (algae, bacteria and virus) also exist. The atmosphere provides oxygen, while the hydrosphere, lithosphere provide food, water and space. Whenever a change, in physical constitution occurs in the atmosphere, hydrosphere or lithosphere, the ecosystem and living beings are affected. This change is accelerated by anthropogenic and industrial activities, more specifically due to the pollution. Pollution is any undesirable change in the physical, chemical or biological characteristics of air, water and land. Population in addition to destruction of materials and natural capita can harm the health and threaten the survival of activities of human beings and other living organisms.

#### **Deforestation:**

Deforestation is conversion of forested areas to non-forest land use such as arable land, pasture, urban use, logged area or wasteland. Generally, the removal or destruction of significant areas of forest over has resulted in a degraded environment with reduced biodiversity. Generally loss of biodiversity is highly correlated with deforestation. Deforestation affects the surface water and ground water reserves and the moisture content in the atmospheric air. Forests support considerable biodiversity, providing valuable habitat for wildlife and medicinal flora and fauna. Deforestation destroys genetic variations irretrievably. Deforestation also contributes to decrease and transparency in which in some cases effects prevention live down from the forest evapo-transpiration, which in some cases affects

precipitation levels downwind from the deforested area. Growing worldwide demand for a wood to be used as firewood or in construction, paper manufacture and furniture as well as a clearing land for residential, commercial and industrial development (including road construction), together with growing local population and their demands for agriculture expansion would endanger the ever-larger forest areas.

#### **Soil Erosion:**

Soil erosion is one from the soil degradation along with soil compaction, low organic matter, loss of soil structure, poor internal drainage, and sanitization and soil acidity problems. These other forms of soil degradation, serious in themselves, usually contribute to accelerate to soil erosion.

Soil erosion is naturally occurring process on all land. The Agents of soil erosion are water and wind, each contributing a significant amount of soil loss each year. Soil erosion may be a slow process that continuous relatively unnoticed, or it may occur at an alarming rate causing serious loss of topsoil. The Loss of soil from farmland may be reflected in reduced crop production potential, poor surface water quality and damaged drainage network.

#### **Acid Rain:**

“Acid Rain” is a broad term referring to a mixture of wet and dry deposition from the atmosphere containing higher than normal amounts of nitric and sulfuric acids. The precursors, or chemical forerunners, of acid rain formation result from both natural sources, primarily emissions of sulfur dioxide and nitrogen oxides resulting from fossil fuel combustion.

#### **Effect of Acid Rain:**

Acid Rain causes acidification of lakes and streams contributes to the damage of trees at high elevations (for example, red spruce trees above 2000, feet) and many sensitive forest irreplaceable buildings, statues and sculptures that are part of our Nation's cultural heritage.

#### **Ozone Depletion:**

Ozone is tri atomic molecule of oxygen. Ozone is a natural constituent of the atmosphere occurring in concentration of about 0.1 ppm in stratosphere. A layer of atmosphere between the altitudes of 20 to 35 km where in a maximum concentration of 0.5 ppm ozone occurs is terms as “ozone layer”. Nature has kept a perfect balance of ozone in stratosphere layer of the atmosphere to act as a filter to prevent the harmful ultra violet rays (UV) radiations from the sun. Depletion of ozone may create larger exposure to UV producing skin cancer, melanoma etc. Other responses include changes in metabolism, reduced photosynthesis, leaf necrosis, leaf drop and altered growth and quality.

Depletion of Ozone layer in the atmosphere in commonly terms as “ozone hole”. UN declared September 16<sup>th</sup> as a world ozone day to alarm the people to reduced the use of chemicals which can deplete the ozone layer in stratosphere. Over Antarctica, stratospheric ozone has been depleted over the last 15 years at certain times of the years. This is mainly due to the release of manmade chemicals containing chlorine such as CFC’s, compounds containing bromine, other related halogen compounds and also nitrogen oxides. CFC’s are common industrial products, used in refrigeration systems, air conditioners, aerosols, solvents and in the production of some type packaging. Nitrogen oxides are a byproduct of combustion processes, e.g. aircraft emissions. The currents levels of depletion have served to

highlights a surprising degree of instability of the atmosphere and the amount of ozone loss is still increasing. Greenpeace have documented many of the cancers that this raises.

**Global Warming and Green House Effect:**

A secular increase in carbon dioxide in the atmosphere, arising from progressive industrialization and the combustion of fossil fuels, could raise the mean, temperature of the atmosphere, effecting profound climatic changes. Besides carbon dioxide, a number of natural and synthetic gases present in the composition of global atmosphere. The important fact is that- Short Wave Radiation can pass easily through the atmosphere to the surface of the earth, while a proportion of the resultant heat is retained in the atmosphere. Since outgoing long wave radiation cannot penetrate the atmosphere as easily, especially when there is a cloud cover of gases, it leads to an enhanced heat-trapping of the earth. This in heat trapping capacity of the atmosphere a phenomenon called 'Green house Effect' - results in the increase in global temperature.

**Conclusion:**

The modern technological advancement in chemical process have given rise to new products, new pollutants and in much abundant level which are above the self-cleaning capacities of environment. One of the major issues in recent times in the threat to the human life caused due to the progressive determination of the environment. The environment is made up of air, water and land, technically known as atmosphere, hydrosphere and lithosphere respectively which together constitute the biosphere. In the microorganisms also exist. The atmosphere provided oxygen, while the hydrosphere, lithosphere provide food, water and space.

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