

Dynamic Environment and Biodiversity

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Abstract

The population explosion induced growing rate of consumption, along with the access to technology has made our environment dynamic. This has been resulted into the significant changes in the environmental setup. Climate change, habitat loss, pollution and over exploitation of resources are some of the effects of this phenomenon. With this background, an attempt has been made in this paper to understand the impact of dynamic environment on biodiversity.

KEYWORDS: Dynamic environment, Biodiversity

Introduction

Biological diversity is the very basis of human survival and economic development. It plays an important role in the way ecosystems function and in the many services they provide (Sharma D., et. al., 2011). Biodiversity can be recognized at three levels viz. Ecosystem diversity, species diversity and genetic diversity. The study of biodiversity has been continued since centuries. The writings of Greek philosopher Aristotle illustrate various plants and animals. This understanding of biodiversity is continued throughout the centuries. The study of world Geography for exploring different regions along with the effective use of available technology have contributed a lot in understanding the nature and status of existing biodiversity within a region. Man induced greenhouse emissions in the atmosphere have grown rapidly during the last one hundred and fifty years. The concern for the enhanced concentration of greenhouse gases in the atmosphere leading to global warming was for the first time rose at the United Nations General Assembly in 1988. A resolution was adopted describing it as a common concern multilateral treaty in the form of United Nations Framework Convention on Climate Change in 1992 (Sharma S., K., 1999). The problem of climate change has become severe and today has emerged as a major factor responsible for the loss of biodiversity.

Climate Change

The Intergovernmental Panel on Climate Change (IPCC) in its fourth assessment report observed that “Warming of climate system is now unequivocal, as is now evident from observations from increases in global melting of snow and ice and rising global sea level” (IPCC,2007). The entire global flora and fauna are sensitive to these changes in atmospheric temperature. Emission of Green House Gasses (GHGs) due to anthropogenic activities is the main cause of global warming, leading to the phenomenon of climate change. Carbon dioxide, methane and nitrogen oxide released into the atmosphere mainly contribute to the total emission of GHGs. Concentration of these gasses in the lower atmosphere trap heat and the temperature rises. This rise in temperature strengthens the plant water use efficiency. Temperature and rainfall are the two basic climatic elements; even a small change in these elements can adversely affect

different physiological processes of plants and animals and also changes their distribution within the region.

Rise in atmospheric temperature strengthens the process of photosynthesis and thereby invigorates the growth of autotrophs. Global warming induced climate change is responsible for the extinction of some plant and animal species as they do not tolerate the extreme temperatures. The rising atmospheric temperature leads to the spread of diseases and it also increases the incidences of forest fires, leading to destruction of plants and animals. The interactions between the species are also adversely affected. Today, reptiles, insects, birds, mammals and amphibians are facing trouble due to climate change.

Habitat Loss

Habitat is an ecological area that is inhabited by a particular species of animals or plants. All along the climate change, habitat loss due to man induced activities like deforestation, industrialization, over population, heavy use of pesticides are the major causes of loss of biodiversity. Deforestation particularly due to the expansion of agriculture, industrialization and forest fires is responsible for shifting, shrinking and total loss of habitats. Encroachment of settlements, extension of roads and railways, constructions of dams and mining are the other major causes of habitat loss. Forest cutting for wood and other products is also responsible for the loss of habitat in some parts of the world.

Pollution

Pollution is any undesirable change in the physicochemical and biological properties of soil, water and air which may cause harm to living organisms. Air pollution is one of the types of pollution which adversely affect the plants and animals. The sources of air pollution are stationary e.g. thermal power plants and mobile like automobiles. Carbon dioxide, Carbon monoxide and sulfur emitted from these sources adversely affect the growth of plants and animal health. Water pollution is the result of mixing various pollutants in water bodies that have negative effects on ecosystems, human health and aquatic biota. Hot water released by thermal power stations into rivers, lakes or sea causes thermal pollution of water bodies. Water from agricultural area, contaminated with fertilizers and pesticides, hamper the quality of fresh and marine water ecosystems. It proves to be harmful to the aquatic flora and fauna. Polluted soils with low fertility, restricts the growth of plants.

Over Exploitation of Resources

Overexploitation of natural resources is one of the major causes responsible for the loss of biodiversity, particularly the over utilization of forest resources, fishing and hunting. Explosion of human population particularly in Asian and European countries exerts high pressure on biological resources.

Exhaustive logging for wood and timber destroys enormous forests, together with the habitat loss, they affect the animal species. Over utilization of marine resources, particularly fisheries has driven several fish species to the edge of disappearance and resulted into the loss of marine biodiversity. Excessive hunting and illegal trade of animal parts particularly in case of scarce species are a major threat to their endurance. Today, a number of species that were popular fishes during the period of last few decades like god

fish and herring became rare. In addition to fishes, many invertebrates and macro algae are under stress due to their over exploitation.

During the period of past 500 years, the rate of man induced extinctions has increased exponentially. Sailors seeking spices, wood, whale fat and other resources used in international trade, released goats, pigs sheep and rats on remote islands and on Australia, which had never been home to the species before the age of global trade. These species proceeded to take over the habitats of many endemic species causing the extinction of some native species (Crosby, 1986).

Conclusion

The basic aim of this paper is to urge us, all human beings, to be aware of the need of biodiversity conservation. The present study reveals that, most of the loss of biodiversity is due to the anthropogenic activities induced environmental changes. The effects of global warming and climate change are visible in many parts of the world. Now the societies will have to maintain the biodiversity by adapting these changes. Strengthening our understanding about the effects of climate change on biodiversity, and finding a way to mitigate these effects, are essential to cope up with this problem.

References

Crosby, Alfred., 1986. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge: Cambridge University Press.

Sharma, D., K., and Mishra J., K., 2011. Impact of environmental changes on Biodiversity, *Indian J. Sci., Res.2* (4), Pp. 137-139.

Sharma, S., K., 1999. *United Nations framework convention on climate change: A commentary on Issues and concerns, Biodiversity, Taxonomy and Ecology*, Scientific Publisher, India, Pp261-288.

IPCC, Intergovernmental Panel on Climate Change, 2007. *Climate Change: The Physical Science Basis-summery for policy makers*, Pp. 5.