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Threats to Biodiversity – State Intervention and Policy initiatives

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Abstract

Evolution and extinction of species is a natural or normal phenomenon. Even in the absence of human intervention some species of plants animals have disappeared because of natural factors. The huge and mighty dinosaurs have become extinct. It is an example for how some species can disappear on its own. However, now, species are vanishing much faster than any other time in earth's long history. We are losing 1% of the existing species per decade that means we are losing at least two species in an hour! Thanks to the human abilities. Man is making space for his own species at the cost of other. We the Homo sapiens are incapable of creating a small animal but we are capable of erasing many species from the ecological map. Among all the species, the most wide spread species is that of Homo sapiens. With the help of cultural tools human beings adjusted themselves with almost all types of inhospitable environment. They also modified environment according to their needs. Hence, it is with help of culture human beings have faced all adversities, ups and downs in environment in a most successful way. Hence they are found in vast deserts, dense forests and in fact, in almost all parts of the planet. With help of Science and technology human beings who once lived as a part of nature have now emerged as its masters. Unfortunately their activities specifically developmental have posed a great threat to biodiversity.

Keywords

Biodiversity, Policy initiatives, State Intervention, Anthropogenic factors, Extinction

Introduction

The evolution and extinction of flora and fauna is a natural process. In the earlier days the intervention of human beings in the ecosystem and environment was very minimum and almost insignificant. The operation of Darwinian principle used to control the size of the flora and fauna. The technology was in its infancy. Science was almost unknown to primitive people. The practices like hunting and slash and burn cultivation though injurious to ecosystem did not harmed its stability and continuity. However, with the passage of time science and technology grew. It has helped the man to control and alter the environment according to his own requirements. It helped the man to conquer some of the diseases and improve his longevity. Infant mortality

declined and population went on increasing. The space meant for wild animals became occupied by homo sapiens. Biodiversity loss emerged as a serious menace to ecosystem. The present paper examines the loss of biodiversity and its implication on our existence.

Objectives

The objectives of the present paper are :

- to examine the factors that have posed serious threat to biodiversity ;
- to explore the role played by human factors in biodiversity loss ; and
- to emphasizes the part played by state initiatives in protecting biodiversity

Analysis and Discussion

Biodiversity loss is a multi-causal phenomenon. Natural factors in combination with anthropogenic factors together have contributed to the loss of biodiversity. The prominent factors are as follows:

Natural causes namely volcanoes, forest fire, droughts, floods; cyclones have contributed to the loss of biodiversity. Some species become extinct because of one or the other reason that is on their own with the passage of time. Species have disappeared either because of natural causes like volcanoes, forest fire, droughts and floods or as per Darwinian principle, Survival of the Fittest. The species that are dependent on only single source of food naturally become extinct due to the disappearance of that single source of food. Some mammals, according to Scholars, become extinct after one million year. However, extinction of species because of natural causes is a slow process. If species disappear or become extinct because of natural reasons one need not bother. For, over some of the natural processes like volcanoes, droughts and floods we do not have any control. However, we have to give due attention to the man-made causes that are responsible for the extinction of species. However, we can save the vulnerable species using the ex situ method of conservation of biodiversity when species face the danger of extinction because of natural factors.

Habitat loss and fragmentation of habitat is an important cause of extinction. Animal and plant species generally live in harmony in a habitat. They obtain their essential conditions for survival like food and security from habitat. Hence, loss of habitat and its fragmentation cause extinction of some species, which are adapted to that habitat. Deforestation, construction of transportation network, establishment of industries, pollution and many other human activities cause habitat loss and fragmentation of habitat. The loss of habitat by human activities has its own far reaching negative impact on the survival of the species.

In Lake Victoria, introduction of a single exotic species, the Nile Perch destroyed many species of fish of the Lake. It went on eating all fishes and proved disastrous for other native species of the lake. Once cats were brought to New Zealand for domestication and nurture them as pet animals. A few cats escaping from domestication settled at forests. Consequently, such wild cats became cause for the extinction of five species of birds (**Turk,** 1994: 69). Similarly in 1957, a few fishermen brought goats to their native island called Abingdon Island. Such goats eating all the grass made land tortoise starve and die. By 1962, all species of big land tortoise became extinct. Thus introduction of Exotic Species is another important factor of biodiversity loss.

Poaching or hunting of wild animals has led to the extinction of many species from this planet. Even in Stone Age the men were hunting the wild animals either for obtaining food or for protecting themselves against the attack of wild animals. **Cunningham** *et al* (1995:266) attributes extinction of magafauna in America and Ureshia region to poaching and ruthless hunting. Even mammoths, buffaloes, ground sloth disappeared in North America when human beings appeared there. Similarly, Dodo bird of Mauritius Island became extinct. In the same manner, America's wild buffaloes and great whales are on the verge of extinction because of hunting practices of human beings. Thus, all animal beings specifically wild ones are hunt with the purpose of obtaining flesh, bones, fur. Some parts of animals, namely rhinosores, tiger are being used in preparing traditional medicines. In India, elephants are hunted for their teeth. Monkeys and apes are used as genii pigs to test the suitability and reliability of newly invented drugs. Thus, poaching of wild life by so-called civilized man has led to the extinction of many beautiful and useful species. In spite of legislative measures that ban hunting of animals, the practice has still continued in many parts of the world.

Modern man has polluted river, air, soil in fact, all components of environment with irrational use of pesticides, insecticides, solid wastes-degradable and non-biodegradable. The pollutants and biocides have ruthlessly eliminated many organisms and animals from the ecosystem. Many organisms that are helpful to human beings die because of soil pollution. Many aquatic beings dye because of river pollution, marine pollution. Thus pollution of all types poses great threat to biodiversity.

Global Warming and Acid Rain now has contributed to the biodiversity loss. The distribution and survival of species is determined by climate. The burning of fossil fuels and thickening of 'green house blanket' has resulted in global warming. According to experts, climatic change has the potential to destroy 35% of the world's existing terrestrial habitat. Some species of plants are not in a position of facing rapidly occurring climatic changes. For, plants like animals cannot migrate to other places. Hence in coming years global problems like acid rain, global warming are likely to pose a great threat to biodiversity.

The concept of development has undergone radical changes. Modern states now considered that construction of sound infrastructure means Development. The construction of dams, reservoirs, transport and communication networks, establishment of wind mills, mining units and industrial establishments either directly or indirectly led to the extinction of many species. Hence, modern concept of development cannot be called as sustainable development as it has endangered the ecosystem beyond repair. A variety of medicinal and ornamental plant species are being over harvested from nature. Hence many medicinal plants along with some other plants are in danger because of over exploitation.

Conservation of biodiversity – The role of state intervention

Conservation means protecting the biodiversity. The conservation of wild relatives of crop plants or culture of micro-organisms provides breeders and genetic engineers with a ready source of genetic material. Plants and animals conserved in botanical gardens, zoos and aquaria can be used to restore degraded land, reintroduce species into wild, and restock depleted populations. The conservation of biodiversity helps in maintaining a perfect balance in the ecosystem. It is useful in achieving sustainable development.

The state or government in collaboration with International bodies can play meaningful role in protecting the biodiversity. State alone can pass the laws and can implement them with help of judicial machinery. The protection and conservation of biodiversity demands a complicated network of institutional structure operating at different levels. Hence, the state alone can play predominant role in protecting the biodiversity. All over the world the state designed policies have been considered as powerful instruments of environmental protection. The *in situ and Ex situ* conservation techniques demand huge investment of resources. Hence, state alone can tackle the task of biodiversity protection.

Methods of maintaining biodiversity

Two strategies are employed to maintain biodiversity. *In Situ* conservation is one of the best methods of conserving biodiversity. According to UNEP, *In Situ* conservation means "conservation of ecosystem and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings" In situ strategy has been considered as an effective conservation strategy, as It ensures the maintenance of ecosystems and species in their natural conditions.

National parks, wild life sanctuaries, biosphere reserve, sacred groves, sacred lakes are examples for in situ conservation. In Situ means "On Site". This strategy is cheap, secure and financially efficient. It allows threatened animals to interbreed freely and multiply their population in free and natural atmosphere. Thus in *In situ* conservation, the natural process and interaction are conserved.

Ex Situ conservation: It is a technique in which biodiversity is conserved out of their natural habitat. In other words, it is a method of conserving species outside their natural habitats.

Botanical garden, Arboreta, Zoological gardens, aquaria, seed banks, Cryo-preservation, sacred plants, home gardens are examples for Ex Situ conservation. When the land is degraded and the species of that area are facing the threat from the alien species, then species need to be removed from those areas with the purpose of saving them. Under those circumstances ex – Situ conservation alone helps the conservation experts to save biodiversity. Both techniques are complimentary to each other.

Legislative Measures undertaken to Protect Biodiversity: Government of India has passed many laws to protect biodiversity. It has passed The Forest (Conservation)Act, 1980, Environmental Protection Act (1986), The Fisheries Act (1897), The Wildlife (Protection) Act, 1972 (Amendments in 1991 and 2002) and The Biodiversity Act in 2002. Thus, legislations are important mechanism in protecting biodiversity and preventing the ecosystem from biodiversity loss. Further the Indian government has established many Bureaus for the protection of biodiversity. They are as follows:

1.National Bureau of Plant Genetic Resources (NBPGR), Delhi

2.National Bureau of Animal Genetic Resources (NBAGR), Karnal

3. National Bureau of Fish Genetic Resources (Lucknow) – NBEGR

4. The Wildlife (Protection) Act, 1972 (Amendments in 1991 and 2002)

Thus, in India the laws passed by the state and institutional arrangement like environment related bureaus and research centres always play important role in protecting biodiversity. The role played by International agencies and organizations established by UNO cannot be underestimated. Other social institutions namely education and religion too have played significant role in protecting diversity. In India environmental science is taught since the primary school itself. It was significant component of school curriculum. The observance of environmental days in fact creates some awareness about the importance of protecting environment.

Conclusion

Now all over the world, the biodiversity loss is taking place at alarming phase. In Latin American and African countries it is more apparent. The need of the hour is to protect endemic species on priority basis. In the absence of state support even international bodies cannot help us in protecting environment.

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