



Considerable impact of change in Biodiversity and Ecosystem on Land use and Economic development:

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Abstract : There are different types of ecosystems on Earth that are home to different types of species. A geographical area can have diverse ecosystems, such as mountain, grassland, forest, desert etc. and aquatic such as river, lake, pond, ocean etc. This diversity gives rise to different types of life which differ from one system to another. This variation is called ecological variation. Human use of land has been changing the Earth's ecology for millennia. From hunting and grazing to land burning to farming to industrial agriculture, increasingly intensive human use of land has reshaped global patterns of biodiversity, ecosystems, landscapes and climate. Economic growth, population growth, poverty and globalization are all creating increasing demands on our environment and its resources. 'The ecological dimension of globalization' examines the effects of global alliances on ecological issues. There is an unbreakable connection between all of humanity and planet Earth. The Industrial Revolution has created many ecological problems, including resource and food shortages, overpopulation, loss of biodiversity, pollution, and climate change. All of these problems are global – the result of aggregate human action – and require a coordinated response. However, there is still debate about the seriousness of ecological issues, and, while progress has been made, some multilateral measures have been implemented. This phase of globalization has been seriously damaging to the environment, and action is needed now. Our health and well-being depend on our use and management of these services and these natural resources. We study the relationships between human and natural systems and the need for a holistic social-ecological approach to understand the challenges and solutions of environmental conservation and sustainable development. We need to make conservation of the earth and its resources a part of our lifestyle. Nature nourishes us. In return, we have to give priority to the care and conservation of nature.

Key word : Ecological environmental changes are negatively affecting human survival and development.

Various types of life have developed on Earth, which have been fulfilling the needs of humans since they came into existence and are still doing so. There are many types of plants and animals in nature which have evolved and expanded according to the ecological system and

their life cycle continues sequentially as long as the environment remains favourable. As soon as there is adversity in the environment, disturbances begin to occur in the ecological cycle. Animals and plants start facing trouble. This is the reason why many biological species have become extinct in the present world and many are endangered. For this reason, today the world is conscious about biodiversity and many world organizations and governments are trying to conserve it. This is necessary because in the ecological cycle, organisms and plants not only develop through mutual harmony and balance but also provide protection to the entire environment. If there is a disruption in this cycle or some organisms become extinct, then the entire cycle gets disrupted which causes imbalance in the environment and causes crisis for the entire living world including humans. Biodiversity is currently facing the greatest crisis and thousands of species are becoming extinct every year.

The main reason for biodiversity is the diversity in the geographical environment and it is the result of a continuous process lasting millions to thousands of years. About 20 lakh biological species exist on this earth and each organism has importance in the ecosystem. Biodiversity plays a major role in the creation of nature and its existence. Therefore, if it decreases, the environmental cycle gets disrupted and it starts having adverse effects on living beings as well. The reason for being conscious about biodiversity at present is the rapid loss of biodiversity. According to an estimate, about 10,000 to 20,000 species are becoming extinct every year in the world. This type of loss is harmful for the entire world. Therefore, it is very important to know about its proper form and conserve it. Biodiversity has been divided into three categories on the basis of genetics and physiology:

(1) Ecosystem Diversity-There are different types of ecosystems on Earth which are habitats for different types of species. A geographical area can have diverse ecosystems, such as mountain, grassland, forest, desert etc. and aquatic such as river, lake, pond, ocean etc. This diversity gives rise to different types of life which differ from one system to another. This variation is called ecological variation.

(2) Species diversity – The number of animals and plants in an area is the species diversity of that area. This diversity occurs in both natural ecosystems and agricultural ecosystems. Some areas are rich in it, such as tropical forest areas, on the other hand, isolated types of developed forests contain only a few species. Current intensive agricultural systems have relatively fewer species, whereas traditional agroecosystems have more diversity. . The diversity found among different species of a genus is species-level biodiversity and the variation found among species of the same species in an area is species-level biodiversity.

(3) Genetic diversity - There is difference in organisms and plants on every genetic basis which is based on various combinations of 'genes' and that is their identity, just as every human being is different from each other. This genetic diversity is essential for the healthy development of the species. If there is a change in the form of heredity or the form of 'gene' gets deteriorated then many deformities occur and that species may also become extinct. There is a 'gene store' of the diversity of the species. Crops and domesticated animals have evolved from it for thousands of years. Currently, new varieties of seeds, disease-free plants and improved animals are being developed, which is the result of genetic research. The less genetic variation there is among the members of any species, the greater will be the risk of its extinction, because it will not be able to adapt to the environment.

Apart from the above mentioned biodiversity, some scholars also describe developed biodiversity and micro-organism biodiversity. Developed biodiversity develops due to human efforts such as diverse forms of agriculture, diversity of domesticated animals, diversity of

forestry etc. Whereas microbial diversity includes microscopic organisms like bacteria, viruses, fungi, etc. which are important in the biochemical cycle. Although both these types are included in the above mentioned categories. On the basis of territorial extent, the types of biodiversity are: local biodiversity, national biodiversity and global biodiversity. The extent of local biodiversity is limited. It can be a geographical region of small area. The diversity of animals and plants found in this area is called local biodiversity. The reason for this diversity is the geographical nature of the area. There is regional variation even within the same climate region. For example, there is biological diversity in Aravali, Hadoti, desert and plain areas of Rajasthan. There is biodiversity in the desert area, in irrigated and non-irrigated areas. Hadoti has biodiversity in Chambal region, Mukandra region, forest region and agricultural region. Biodiversity at the national level is natural because differences in relief, climate, soil, water bodies, forests etc. in a country are the cause of biodiversity. Study of biodiversity at the national level is important in its conservation because policy decisions are taken at the national level. Global biodiversity is related to the entire world. There are millions of species of animals, plants and micro-organisms on land and in the water all over the world. There are various biome ecosystems globally, they have immense biodiversity which plays an important role in functioning of the entire ecosystem. Generally the importance of biodiversity is in the following forms:

Consumable importance- Biodiversity is directly used for wood, animal base, fruits, flowers, herbs etc. Vegetation has always been used for timber and fuel, although its commercialization also causes destruction. They have been used locally as fodder for animals, honey, meat and fish and medicine. Although excessive consumerist tendencies and selfishness are the cause of its destruction.

Productive importance – At present bio-technicians and scientists have started developing new plants on the basis of genetics. Development of high productivity agricultural seeds and development of disease resistant plants are bringing revolution in the agriculture sector. Similarly, more milk and wool etc. are obtained from hybrid animals. With the advancement in pharmaceutical science, many medicinal plants are being used in making medicines. The basis of Ayurveda in Indian medicine is nature's herbs. Many materials are obtained from forests through forestry. 90 percent of the world's food grains are obtained from 20 plant species. Biodiversity is also essential for economic and industrial development at present, many industries, especially the pharmacy industry, depend on it.

Social importance – Biodiversity is also important from social point of view. Even today in the world, many castes and communities live in harmony with the natural environment and use biodiversity for their limited needs in such a way that they are not harmed. In many areas, biodiversity is protected only by traditional communities. They also use it but only so much that they can grow again. Their cultural and religious sentiments are also associated with this.

Ethical and moral importance – Human moral values have an important role in preserving biodiversity. All religious texts contain the message of protection of the living world and it is believed that every living being on earth has importance and has the right to live. In India, trees, plants, wild animals and creatures are so well associated with religious faith that every person protects them. Here, trees are worshiped considering them as the abode of Gods. Regular worship of trees like Peepal, Banyan, Tulsi, etc. is normal. Similarly, there is a tradition here of honoring various living beings by accepting them as the vehicle or beloved of the deity.

(a) Aesthetic importance – Nature has always been aesthetic and biodiversity plays an important role in this beauty. Be it areas covered with forests, trees laden with flowers,

mountainous and valley areas or coastal areas, desert areas or lake areas, all have their own beauty due to the biodiversity there. Sanctuaries with wild animals, bird areas and special plant areas. Attracts everyone. Be it national parks, bird sanctuaries, places of special animals like tigers, elephants, leopards, etc. or areas of marine creatures, all have special beauty. For this reason, regions rich in biodiversity are centers of attraction for tourists.

(b) Ecological importance – Ecosystem is run by diverse species, in which one organism is dependent on the other. Destruction of one species also puts other organisms at risk. For example, a tree not only has economic importance but the habitat of many birds and micro-organisms depends on it and it is also important for soil and water. Therefore, if it is destroyed, not only will all of them be affected but some living beings will also be destroyed. Every plant and organism involved as producer, consumer and decomposer has ecological importance.

India is a vast country, where immense geographical and environmental diversity is found. India is the seventh largest country in the world in terms of territorial extension, which is 3214 km from north to south and 2933 km from east to west. Is detailed in. On one side of it are the highest ranges of the Himalayas and on the other side are the coastal plains, the large plains of rivers, the southern plateau, apart from the desert region, there is geographical diversity in every major region. This means that there are many ecosystems here, that is why it is included in the highly biodiversity area. The most biodiversity sensitive areas of the world are called biodiversity hot spots. These are areas where biodiversity is abundant but biodiversity is continuously decreasing, hence it is necessary to pay attention and conserve these places.

Major biodiversity areas of the world: Mediterranean Basin, Caribbean Islands, Madagascar region, Sunda Land (Indonesia), Wallacea, Polynesia, Micronesia (Pacific Ocean Islands), California, Central America, Tropical Andes, Central Chile. , Brazil and Atlantic forest region, Guinea coast, Cape region, Caucasus, Western Ghats, mountainous region of South China, South Australia, New Zealand. In all the above mentioned areas, many species are endangered and many have even become extinct. For the conservation of world biodiversity, it is necessary to pay maximum attention to these areas. Apart from these major areas, there may be such sites in every country/state, it is necessary to identify them and take measures to conserve them.

It is a well-known fact that biodiversity is endangered and its continuous degradation has even led to extinction. According to the World Conservation and Control Center, about 88,000 plant and 2000 animal species are under threat. About 20 to 25 mammals and birds are becoming extinct every 100 years. Apart from this, 24 percent of animal and 12 percent of bird species are in danger globally. Thus erosion is mostly caused by human activities. Some scientists are of the opinion that 4000 to 17000 species are becoming extinct every year. Instead of looking at the veracity of their data, it is important to see how they can be protected. In these, only information can be collected regarding those species which have become extinct, whereas it is necessary to make a worldwide and countrywide plan to save the endangered and potentially endangered species. Why does biodiversity become extinct or what are the reasons for its degradation/endangerment? Degradation of biodiversity is not due to any one reason but due to the combined effect of many reasons. In short, the reasons for biodiversity extinction are as follows:

(1) Destruction of habitats - With the increase and development of human population, the natural habitats of organisms get destroyed, which is the main reason for biodiversity loss. Human settlement i.e. settlement and expansion of villages and towns, construction of roads, development of industries, expansion of agricultural areas, mining of minerals, construction of dams etc. causes harm to forest areas or other living areas. Due to the construction of a big dam,

thousands of hectares of land gets submerged and the plants, animals, birds and other creatures present there get destroyed. Similarly, mineral mining completely destroys the living habitats. Habitat destruction has been responsible for the loss of approximately 36 percent of biodiversity. According to the report of NCMC and BCCI, 65 percent of the habitats of wild animals in tropical Asia have been destroyed.

(2) Habitat fragmentation - Initially, natural habitats were spread over wide areas, due to which creatures like wild animals, birds and other creatures got the opportunity to move freely. Now they are being fragmented, somewhere by rail, somewhere by road, canal or pipeline. Due to habitat fragmentation, the nature of the land is changing, pollution is increasing due to the passing of vehicles etc. and animals are also being killed in accidents. . As a result of habitat fragmentation, the natural habitats of many organisms get divided and they start becoming isolated, which harms biodiversity.

(3) Changing trend of agriculture and forestry – Change in the method and format of agriculture is also harming biodiversity. Earlier, different types of crops were grown in sequence due to which the capacity of the land and the insect resistant capacity of the crops was maintained. Now mostly due to commercial trend, it has become the nature of solitary cropping. Besides, excessive use of chemical fertilizers and pesticides is destroying the micro-organisms in the agricultural sector. Which is harming not only agriculture but also the environment. Similarly, isolated trees are being planted in forest areas for commercial use. Eucalyptus and exotic acacia are being planted in many natural places. Depletion of forest areas and various types of agriculture is also the cause of biodiversity degradation and ultimately species extinction.

(4) Impact of new species – Local species which have been thriving there for centuries. Introducing new species in their place is also an attack on biodiversity and is harming it. Like the spotted deer was brought to Andaman and Nicobar Islands by the British which is continuously causing harm to the forest plants and fields there. Similarly, the arrival of foreign plants is harming the local plants. A direct example of this is the plantation of Eucalyptus on vast areas in India which has eliminated the local vegetation.

(5) Over-exploitation for commercial use – Many species have been exploited so much that they have become endangered. Illegal hunting and trafficking are not only the cause of crisis but also the cause of extinction of many animals. Lions, leopards, elephants are hunted for their skin, hair, teeth, bones etc. Many fur animals, snakes and birds are slaughtered or caught alive and smuggled. This work is done not at the local and regional level but at the international level. Many aquatic creatures are being over-exploited, thus many plants are becoming extinct due to over-exploitation. Many rare medicinal plants are being destroyed mercilessly. Currently, illegal hunting, smuggling and overexploitation are causing the greatest harm to biodiversity.

(6) Pollution – Soil, water and air pollution affects the ecological cycle and has an impact on biodiversity. Pollution destroys many animals and plants. There are many types of harmful chemicals which are used for pesticides. For example, the chemicals that fall into the Gulf of Mexico from the American agricultural sector through the Mississippi River have created a dead zone in an area of about 7,700 square miles where oxygen up to a depth of 20 meters has been depleted, resulting in the death of all aquatic life. This is not the story of any one region but of all the regions. More pesticide residues are found in mustard in Keoladeo Park, Bharatpur (Rajasthan) and DDT in Corbett National Park. Like dangerous pesticides are the cause of death of many living beings. Oil leakage in the sea and chemicals from industries are fatal for the

living beings in rivers and lakes. There is a continuous increase in various types of pollution which is a threat to biodiversity.

(7) Global climate change – The world's climate is changing. The world's temperature is increasing due to the depletion of the ozone layer and the greenhouse effect. Not only this, deforestation, emission of various gases, acid rain are also affecting the climate system. Climate change has a direct impact on various species, they start becoming extinct due to not being able to adapt to the new conditions. Increase in global temperature leads to migration of organisms. The impact of climate change is greater in island areas. Climate change affects not only animals but also plants. This also affects the crop sequence and crop production.

(8) Natural disasters - Natural disasters like volcanic eruption, earthquake, landslides also cause harm to the living world. Similarly, floods, droughts, fires and epidemics also harm biodiversity. Many animals and plants get destroyed due to forest fires, sometimes this type of fire occurs in wide areas due to which biodiversity is damaged. Madhya Pradesh and Chhattisgarh are the states in the country which have the maximum number of forest and animal conservation sites. More than 11 percent of the forest area of the state is reserved for parks and sanctuaries. These forests extend from Damoh to Sagar in the form of Vindhya-Kaimur mountains, from the ravines of Chambal and Kunwari rivers in Morena to the forest of Kuno river, the plateau area of Shivpuri, from the eastern border south of Narmada to the western border Bastar. . On one hand, these states claim to provide maximum protection to forests and animals in the country, while on the other hand, maximum violations of the Forest Conservation Act 1980 are taking place in these states. It is clear that the crisis on biodiversity is deepening. This means that currently we are facing the crisis of biodiversity extinction, its conservation should be on priority basis.

References

- 1- Mahatma Gandhi: 'Reconstruction of our villages, Navjeevan Prakashan Mindar, Ahmedabad,
- 2- Amartya Sen: 'Economic Development and Freedom', Rajpal and Sons, Delhi, 2008.
- 3- Mittal, A. Of. (2002) Socio-economic and cultural history of India. (3rd Revised Edition). Agra: Sahitya Bhavan Publication
- 4- Dr.Veena Upadhyay: Contribution of Priority Sector in Regional Economic Development, Crescent Publishing Corporation, Mathura Lane, Daryaganj, New Delhi, 110002