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Biodiversity and Conservation

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Abstract-

There is diversity of life on Earth. The diversity of living beings is the basis that every civilization has used for its growth and development. Who used this gift of nature wisely and sustainably. Those civilizations survived while those that over-used or misused them were destroyed. Science has been attempting to classify the diversity of nature for more than a century. Due to this he came to know about various types of communities of plants and animals. This information has helped in using the Earth's living resources for the benefit of mankind and has been an integral part of the process of "evolution". This also includes better health care, better crops and the use of these life forms for industrial development, due to which the standard of living has increased in developed countries. But due to this, modern consumerist society has also arisen which is adversely affecting the diversity of the biological resources on which it is based. The diversity of life on Earth is so great that if we use it, we will continue to develop new products from biodiversity for many generations. Biodiversity plays an extremely important and major ecological role in the biosphere. Biodiversity brings stability to the environment. Therefore, bio-diversity is very important to keep the ecosystem favorable for living beings so that there can be sustainable development of all living beings and we can also continue our existence in the future. Biodiversity and conservation have been explained in detail in the presented paper.

Key-words: Biodiversity, conservation, ecological systems, living species.

Introduction-

Biodiversity refers to the diverse forms of life i.e. different types of plants, animals

and micro-organism groups in which their genes and the ecological systems they create exist. It is related to those dynamic processes in which new genetic changes lead to the growth or destruction of species. Therefore, biodiversity is a concept in which emphasis is placed on the interconnected nature and processes of the living world. Biodiversity conservation means maintaining the life supporting systems created by nature in all respects and protecting the life resources essential for ecological self-sustainable development. Like natural resources like soil, water and air, biodiversity is also a major natural resource. It provides us security of life. The collective community of different types of organisms like plants, animals and micro-organisms found on the earth has been named biodiversity or biodiversity is the result of biological processes of evolution that have been going on continuously for thousands, millions and millions of years. Of the approximately two million biological species available on this planet, there is not a single plant or animal that is not naturally useful. These organisms have different functions in nature and they play an important role, directly or indirectly, in maintaining the vitality and balance of the planet. Bacteria, viruses and micro-organisms and many microscopic species have as much importance in environmental balance as larger species and plants. There is a huge diversity of life here, which includes different types of plants, animals, insects and micro-organisms. Many types of habitats and ecosystems are also located here. Biodiversity is the diversity and change of living species and ecosystems, i.e. the total variability of life on the planet.

In other words, it defines the totality of genes, species and ecosystems of a region. The changes found within different species, between species and ecosystems are biodiversity. It can be classified to better understand the biodiversity within a group or species of organisms in a country, a particular region or an ecosystem. While biodiversity has special importance from the point of view of environment and ecological balance, its importance for humans is no less. Animals, trees, even micro-organisms (viruses and bacteria) found around us play an important role in maintaining ecological balance. The greater the biodiversity, the better and broader based the ecosystem. The environment also benefits from this. Biodiversity ensures the availability of food, medicines and other materials that we use in everyday life. If it is said that human existence itself depends on biodiversity, then there would be nothing inconsistent in it. From food to medicine and in almost every area of life, our dependence remains on biodiversity. In this way, we can say that the importance of biodiversity is not limited only to ecology and environmental balance, but it is also important for us from economic, social, commercial and cultural point of view. Biological resources are the basis of human life and life beyond these cannot be imagined. In such a situation, it becomes our moral responsibility to preserve biodiversity and prevent its decline.

Biodiversity is three-tiered. (i) Every organism is identified on the basis of its genetic structure. This structure explains the uniqueness of the organism. This variation can occur even among different members of the same species. This is a very personal quality, which develops with harmony in the new environment. On the basis of genetics, different organisms are placed under this class. (ii) The diversity found on a wide scale in organisms is kept under it. All groups of animals living in a certain geographical environment are known as species diversity. Organisms ranging from micro-organisms to human species have been kept in it.

(iii) Due to living in a certain geographical environment, living beings often acquire those qualities which are necessary for life in that environment. Ecological diversity is essential for any biological unit to function smoothly. Thus, establishing harmony among all the species in any biological community is essential for their survival. Ecosystem diversity represents the structural and functional components of an ecosystem.

Biodiversity is the basis of human existence. Its loss is considered to be a loss of serious social and economic values. It can be used for moral and aesthetic understanding. Due to the loss of biodiversity, living knowledge stores like species, species, ecosystems and human knowledge of adaptation to local and global changes are being damaged. Due to biodiversity, we get various types of food grains like wheat, paddy, maize, millet, pulses, oilseeds, various types of vegetables and fruits, firewood, cotton, wood for housing and furniture, spices, medicines, milk, ghee, Butter, leather, meat, eggs etc. are obtained. Microorganisms decompose the organic remains present in the soil and convert them into nutrients, which maintains the fertility of the soil. Apart from this, carbon dioxide emitted by biodiversity is used by animals in photosynthesis to produce food which is used by living beings. In this way, a clear relationship of symbiosis is visible between plants and animals. Destruction or adulteration of any part of biodiversity in nature can prove to be harmful for both nature and the environment.

Our country India is also exceptionally rich in terms of biodiversity and it is one of the twelve major diversity centers of the world. There are ten biogeographical zones and twenty-five biological provinces. More than 45,000 species of plants and more than eighty-one thousand species of animals are found here, which is seven percent of the world's plant species and six and a half percent of animal species. 35 percent of the flora and 62 percent of the animal species found in India are endemic. From the point of view of biodiversity, the Eastern Ghats, Western Ghats and North-Eastern mountainous regions are mainly important places. Biodiversity conservation means conserving all types of cultivable vegetation, forests and domesticated and wild animals and protecting them from the ill effects of development.

Globally we are extremely rich in biodiversity. Based on Chapman's assessment, there are about 15-19 lakh (1.5-1.91 million) known/described species of animals and plants on Earth, while their estimated number has been estimated at about 5+3 million. There is wide variation in biodiversity at the global level and on the basis of this variation, it is determined at the global level which areas have more biodiversity and which areas have less. At the global level, while the terrestrial and aquatic parts of the tropics, flow wall areas and wetlands are considered very rich in terms of biodiversity, the monsoon areas and grasslands of the western world are also considered good in terms of biodiversity. The climate of these areas is favorable from the point of view of biodiversity. This is the reason why these areas are rich in biodiversity. Globally, there are some areas where the climate is not conducive to biodiversity. Due to unfavorable conditions of biodiversity, the level of biodiversity in these areas is low or extremely low. Such areas include the desert and sub-polar regions of the world, while the ice-covered areas around the North and South Poles have been identified as areas of extremely low biodiversity. Due to being completely covered with snow, the chances of biodiversity flourishing

in such areas are very less. Even the life that flourishes in such areas does not remain permanent.

Biodiversity plays an important role in our daily life and livelihood and in creating resources. Our family, community, nation and future generations are completely dependent on it. Loss of biodiversity can be in the form of species extinction, disappearance of ecological organizations or loss of genetic changes in existing species. By classifying this loss, a timeline for biodiversity loss can be determined. On the contrary, new life elements keep getting added to biodiversity through induction of addition, artificial reproduction, biotechnology or ecological changes.

Effects of biodiversity loss-

Biodiversity is the basis of human life. Man has been dependent on nature since primitive times. Since human civilization started from forests, man made a large number of wild animals and plants the basis of his life. Due to increasing population and blind race for development, biotic and abiotic pressures on our ecosystem are continuously increasing. As a result, biodiversity is declining and there are obstacles in meeting the increasing demand for food and other essential commodities. Biodiversity is also useful as raw material for our biotechnology industries. In such a situation, the deficiency of each species or gene limits our future development. Biodiversity has its own importance for keeping the ecosystem balanced and for environmental protection. There are many such micro-organisms, which maintain the fertility of the land and increase crop production. Algae found in the sea produce oxygen and cleans the pollution of our environment. What I mean to say is that nature gives us everything which is the basis of our life, but without preserving it, we have exploited it so much that its ability to give is now continuously diminishing. This situation is indicative of decline in biodiversity. The most serious form of biodiversity loss is species extinction.

The existence of species is disappearing very fast and there are many species among them which are not even documented and they are destroyed. Only when species are not seen for several years are they considered extinct. According to a recent study by the Biological Survey of India, cheetah, pink-billed duck and mountain quail had become extinct in the last decade, while the existence of brown horned deer, hypsid hare etc. was in danger. The same fate has befallen the plant diversity.

Agriculture is at risk due to loss of genetic diversity. Due to the increasing popularity of hybrid varieties among farmers, their wild related species are being neglected which eventually become extinct. The essential genes were found in a wild species named *Oijanivara*. This species found from Uttar Pradesh proved important in the conservation of genetic resources. The existence of about 492 groups of trees of special importance from genetic point of view is in danger around the world. The loss of both genetic and ecological diversity leads to loss of cultural diversity. As new pressures and practices emerge, they result in overall changes. The extinction of many species is embedded in religion, mythology and folklore. Due to destruction of natural habitat, there is a greater risk of extinction of such large animals in more tropical levels whose rate of increase in numbers is low and whose gestation period is longer. The ecosystem is a tough web. The extinction of one species has harmful effects on other species in the ecosystem. This devastating

effect occurs when the local extinction of one species causes a significant change in the population of other species.

Use of biodiversity-

Human society receives many direct and indirect benefits from the living communities located on the earth. This biological diversity is the basic storehouse of highly useful sources of food items, medicines, pharmaceutical drugs, fibres, rubber and timbers. Biodiversity automatically provides us with many types of ecosystem services which are responsible for keeping the ecosystems healthy. Out of thousands of edible plant species, there are only 20 plant species whose cultivation is responsible for producing about 85 percent of the global food demand. To sustain such a large population of human society, major carbohydrate crops like wheat, maize and rice produce about two-thirds of the total food requirement. Commercial species are crossed with their wild relatives to improve domesticated species. In this, genes from wild species are used to establish new qualities in domestic species such as developing disease resistance or increasing production. The rice developed and grown in Asia is a hybrid developed by the fusion of genes obtained from Indian wild rice (*Oryza nivara*) and is protected from four major diseases.

Biodiversity is a rich source of substances (chemicals) with medicinal properties. Mostly many types of important medicines are prepared from forest produce based substances. There are many examples of the development of substances obtained from plants as valuable medicines, such as morphine (*Papaver somniferum*) for pain relief; Quinine (*Chinchona ledgeriana*) for the treatment of malaria and Taxol as an anti-cancer drug are obtained from the barks of the Yew tree (*Taxus brevifolia*). Thousands of plant species are used in traditional medicine around the world. At present, about 25% of medicines are prepared from only 120 plant species. Plants are also used to manufacture thousands of synthetic products, called botanical chemicals.

Since the beginning of the human race, humans have been related to biodiversity through cultural benefits and religious sentiments. Zoos, wildlife, animal husbandry, horticulture etc. are examples of aesthetic and recreational benefits including eco-tourism, which are derived from biodiversity. Even today, in major rural areas of India, Tulsi (*Ocimum sanctum*), Peepal (*Ficus religiosa*) and Khejri (*Prosopis cineraria*) and many other trees are grown and worshiped by people considering them sacred. In our culture, many birds and poisonous animals like snakes are also considered sacred. Today we have started considering plants and animals as symbols of national self-respect and cultural heritage. Various types of materials and services are obtained from ecosystems and the species present in them. To achieve these continuously, maintenance of biodiversity is required. The services provided by them include climate control through forests and marine ecosystems, natural pest control, maintenance of acidic gas composition, pollination of flowers by insects and birds, soil formation and conservation, water conservation. Preservation and purification and control of nutrient cycles etc. are important.

Biodiversity conservation-

Conservation of biodiversity is essential for human life and coexistence. Humans

are a major part of the ecosystem. Just as animals, plants and insects are essential for ecology, in the same way man is also an essential creature. No side can be denied in this series. All the biological elements present in the environment fulfill our needs of food, agriculture, medicine, industry, housing and entertainment. Biodiversity plays an important role in maintaining environmental balance. It also has a special contribution in continuing the gradual development. Environmental system directly or indirectly helps in photosynthesis, pollination, transpiration, chemical cycle, food cycle, soil maintenance, climate control, air-water process management and pest control etc. From the point of view of sustainable development of the ecosystem and optimum utilization of biological resources, conservation of biodiversity comes under the scope of necessity. Keeping in mind the importance of biodiversity, it is a global responsibility to ensure effective measures for its conservation.

When conservation measures for animals and plants are taken in their natural habitats, this method is called 'in-situ' conservation method. Through this type of conservation, efforts are also made to improve the level of the ecosystem. Under in-situ conservation, species are conserved by establishing protected areas, such as national parks, sanctuaries and bio-reserves. When the habitat itself is destroyed, the possibility of conservation also disappears. Even in damaged habitats, effective conservation measures are not possible. These measures may not be practical because species that are endangered require special care that is not possible in degraded habitats. In such a situation, 'ex situ' conservation method is adopted for conservation and protection, under which conservation measures are ensured by keeping the endangered species in seed banks, botanical gardens, zoos and zoos etc. These measures are taken under human supervision.

Conservation means the state of human use of the biosphere, in which the present generation of humans gets full benefits and can be protected for the future generations also. In short, it is appropriate to say that conservation is the use of techniques to obtain maximum benefits from the biosphere without harming it. The main reason for the need for plant conservation is excessive exploitation of plant resources by humans. Man is doing such work for his economic development and comfort, due to which many types of changes have taken place in our natural ecosystem. Exploitation of natural resources has created a crisis for biodiversity. (i) To maintain balance between the biological and non-biological parts of the ecosystem. (ii) To preserve the diversity of species or complex of genetic material of the world's organisms. (iii) The sustainable use of species is actually limited to the environment that supports rural communities and urban industries. (iv) To protect endangered and rare species. (v) To maintain natural balance. Therefore, conservation of living resources is not only for plants, animals and micro-organisms but also for the abiotic factors of the environment which provide support to them.

Biodiversity, at all levels, in the form of genetic species and undisturbed ecosystems, can best be conserved in situ by setting aside substantial areas of wilderness as protected areas. That's the best way. This area should be a system of national parks and sanctuaries and this system should include each special ecosystem. This mechanism requires a network of national parks and sanctuaries, covering each distinct ecosystem. Such a system will protect the entire biodiversity of an area. In the past, national parks and sanctuaries were notified in India only

for the protection of large wild animals like tigers, lions, elephants and deer. The purpose of these areas was then expanded to include relatively unaffected natural ecosystems that could preserve all biodiversity, from microscopic unicellular plants and animals to giant trees and giant mammals. But individual conservation of species is impossible because they are all dependent on each other, so the entire ecosystem must be conserved. Biologists are concerned with areas that are relatively species-rich or where rare, or endangered species live, or where there are “endemic” species found nowhere else.

Conservation of natural habitats is the first step in this direction. Barren land can be improved by planting trees. Trees should be selected according to the prevailing nature of the natural habitat. National parks, sanctuaries and other protected areas should be created for conservation. Industrial units that use natural resources on a large scale should be regulated and asked to analyze their impact on the environment. Every country should prepare an account of the changes taking place on the basis of natural products and environmental resources. The current level of knowledge about species and ecosystems is inadequate and we lack detailed information about the distribution and population size of many groups. For the overall development of science, exchange and partnership in technology should be promoted between bio-rich and technology rich countries and technology poor countries. Special training programs should be organized regarding environmental management techniques and conservation. Biodiversity Bill should be passed to conserve the flora and fauna of the country. There must be a clear consensus about what is to be conserved, where, how and to what extent.

Considering the projects related to biodiversity assessment and management as an absolute national need, more funds should be allocated for them. Widespread use of mass media should be made to create awareness among people about recent environmental problems. Sustainable use of biological resources should be done on the basis of people’s participation. Biodiversity inventories should be prepared in consultation with local communities, which can provide evidence of the locality of natural resources. This type of list has been given statutory status in the draft of the proposed National Biodiversity Bill. With this, exploitation of our flora and fauna by foreigners can also be monitored. Today, genes of various rare animal species are being preserved to conserve biodiversity. so that if that particular species becomes extinct in the future, it can be brought back to life once again through its preserved genes. Many such efforts are being made by India and countries around the world.

By preserving biodiversity, the precious living environment of the earth can be saved and if the environment present on the earth is saved, then trees, plants, animals and we humans can continue our existence on this earth for a long time. If we fail to conserve and utilize biodiversity sustainably, we will end up with nothing but a degraded environment, new and severe diseases, and poverty. Therefore, it becomes our moral responsibility to hand over this natural capital to our future generations by properly preserving the biodiversity. We should not turn away from this responsibility.

Conclusion:

Biodiversity refers to the variety and number of living organisms, which includes both plants and animals. The greater the number of animals and plants in an

area, the more rich that area is considered in terms of biodiversity. Biodiversity came into existence as a result of long-term biological processes of evolution in the universe. The immense diversity in biological forms is a special characteristic of life. A global campaign has been launched to save biodiversity and it has been named Count Down 2010 Network. This network has about 969 partners from all over the world which include both government and non-government organizations. All types of public institutions, local and national NGOs are associated with this campaign. By becoming an active part of the network, these organizations are working to link their local issues to the global biodiversity agenda, thus creating a platform for international debate on the issue of biodiversity conservation. Countdown 2010 partners are located in more than 60 countries around the world. All the centers of this network have been established in European, Asian, American and African countries. The basic objective of this network is to create public awareness about the conservation of biodiversity all over the world. The Count Down 2010 Network remains a key partner of the United Nations-proclaimed International Year of Biodiversity 2010 and The whole world is connected so that there will be mutual exchange of information. The rate of extinction of species has increased rapidly in recent years. If species continue to become extinct at this rate, the time is not far when half of the known species will become extinct from the face of the earth. The reason is the increasing human population and along with it, the exploitation of the earth's resources at a very rapid pace. Humans can be held directly responsible for the loss of biodiversity.

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