

# Review : BIODIVERSITY - IMPORTANCE & CONSERVATION

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## ABSTRACT

Today we see the biodiversity which is result of billion years of evolution, but due to humanity's over-exploitation of natural resources & anthropogenic activities causes disturbances to the environment. We are degrading natural environment. To overcome this problem we have to conserve biodiversity. Biodiversity conservation is not only saving life in its all form but also keeping natural ecosystem functioning & healthy. Conservation biology is a scientific discipline through which we have increased our awareness. There are existing measures of biodiversity conservation which contain zoological & botanical gardens, seed bank & national parks.

## INTRODUCTION

Biodiversity describes the whole range of different varieties of living things & systems on this earth. Biodiversity can be found everywhere. It includes species of plants & animals, genes, ecosystems & landscapes. Totality of genes, species & ecosystems of a given region is termed as biodiversity or biological diversity. The term "biodiversity" was coined by Edward Wilson. Biodiversity contains different microorganisms, plants, animals. Wild life & water, land, air in which biotic factors live & interact. They all together increase not only richness, wealth of earth but also provides us qualitative & quantitative services & goods.

### Definition:

We can define biodiversity as comprehensive cover term for the variation within natural system both in numbers as well as frequency. Basically it contains variety of all forms of life on earth.

Global biodiversity is divided into three fundamental categories:

### 1) Genetic diversity:

Genetic diversity is defined as '**diversity of genes**' within a species. As they hold "genetic potential" that's why we consider genetic diversity as a separate category. Genetic variation allows species to evolve in response to diseases, predators, parasites, pollution & climatic change. In addition to traditional breeding, advances in genetic engineering have allowed scientist to introduce beneficial genes from one species to another. e.g. increased production of insulin through use of GEMs.

Many other genetic manipulations are currently under development. It is genetic information which contains variety of plants, microorganisms & animals which occur within population of species. So, it is variation of genes within species & population.

## 2) Species diversity:

Species diversity is defined as variety of species or living organisms in given region. It contains species richness, species abundance & taxonomic/phylogenetic diversity. We can see species diversity from single celled microbes like Neon archaeumequitans, to giant organisms like sequoias, blue whale. It is true that most new species identified are insects, microbes & fungi, we are still discovering new vertebrates.

## 3) Ecosystem diversity:

It shows variety of habitats, community types of biotic factors & abiotic environmental ecological processes of given region.

### 1. Ecosystem - All species + all the abiotic factors characteristics of region.

A conservation focus on preserving ecosystem not only saves large number of species but also preserve the support system that maintains life.

## 1. IMPORTANCE OF BIODIVERSITY:

### Aesthetic Value & Recreation-

We all receive great enjoyment from natural environment. Quantity of money paid to conserve wild life for their value in nature. Aesthetic value of our natural ecosystem & landscapes contribute to emotional & spiritual well being of highly urbanized population. The conservation of biological diversity has ethical benefits. The presence of wide range of biotic factors reminds people that they are one interdependent part of earth. Aesthetic value is not necessarily equated to biodiversity, some of the most aesthetically pleasing landscapes are poor in diversity of habitats & species eg. Mountains. Natural & wild landscapes are aesthetic pleasing & provide opportunities not only to get away from human- dominated landscapes but also for recreational activities.

### Anthropocentric Value :

Biodiversity, encompassing genetic diversity, species, population, communities & ecosystems & landscapes & regions, provides countless benefits to humans at all these scales. Some of these benefits include economic benefits, both direct & indirect-

- Aesthetic benefits-
- Scientific & ethical knowledge-
- Insurance against the future-

### Economic benefits :

Biodiversity provides us benefits in the form of goods that can be directly valued & coasted because they provide some thing that can be extracted & sold.

### Ecological values :

Sequential balance of oxygen & carbon di oxide is maintained through biodiversity. Because of Green house effect, carbon dioxide accumulation, ozone layer depletion causes earth warmer. Biodiversity regulates biochemical cycles.

### 3. BIODIVERSITY CONSERVATION:

Biodiversity is cornerstone of our existence on earth. It is also important to conserve biodiversity for the sake of our own curiosity & aesthetic appreciation.

Biodiversity is the life support system of our planet – we depend on it for the air we breathe, the food we eat, & the water we drink. Wetlands filter pollutants from water, trees reduce global warming by absorbing carbon & fungi, bacteria break down organic material & fertilize the soil.

The connection between biodiversity & our sustainable future appear closer & closer the more we look. We literally need to conserve biodiversity like our lives depend on it! Humans should be concerned about saving biodiversity because of the benefits it provide us – biological resources & ecosystem services.

#### Biological Resources-

This is the products that we harvest from nature. This can be divided into several categories: food, medicine, fibers, wood products etc. there are 80,000 species of plants known on the earth but 90% of world's food comes from mere 20 of this species. We depend on plants also for medicines. Many of our medicines are chemicals produced by pharmaceutical companies, but they originate from plants. Some substances provided by plants used in chemotherapy to inhibit the cell division of cancerous cell. Medicine originating from wild species, including penicillin, aspirin, and quinine have saved millions of life. Most of all prescriptions are for medicines that originate from plants & animals. No one knows how many cures await discovery, hidden in earth's poorly studied species. Fibers for clothing, robes, sacking, webbing, netting & other materials are provided by a large number of plants, including cotton plants, flax plants, Hemp etc. trees provide the wood products used in making homes, furniture & paper products. The field which is known as bio mimicry is the study of natural products that provide solution to human needs. Eg. Shark skin provided the model for hydrodynamic swimming suits.

#### Ecosystem Services-

This is the processes provided by nature that supports human life. This services include the decomposition of waste, pollination, water purification, moderation of floods & renewal of soil fertility.

Human construction & development disrupt natural environment but most habitats have an extra ordinary potential to recover when given the chance.

#### Approaches to Biodiversity Conservation-

##### a) In-situ Conservation

It contains components of biodiversity in their natural habitat. It works for maintaining & recovering viable population of species in their natural habitats. Eg. Biosphere reserves, national parks etc.

##### b) Ex-situ Conservation-

It contains components of biodiversity outside their natural habitat. Ex-situ conservation is also known as captive conservation. To avoid extinction of endangered & threatened species

his type of conservative practices are used. e.g. Botanical gardens, zoos, tissue culture, museums, gene bank etc.

### Sustainable Development-

When we maintain balance between the environment development & society that result into sustainable development. It leads to biodiversity conservation. Sustainable development means to fulfill the needs of current generation without compromising the ability of future generation to meet their needs.

### Environment Management Aspects-

Following are some environmental management aspects to conserve biodiversity:

- Solid waste management
- Monitoring of noise
- Monitoring of chemical discharge
- Studies of wild life population
- Studies of gravity & seismicity

### Conclusion :

Because of human mis-management we are going to face problem of loss of biodiversity. Greatest record in recent history is today's threat to species & ecosystem. Loss to species reduction, increased ecosystem changes & genetic diversity is because of increased insatiable demand for resources. Over exploitation of biological resources, pollution, population, biological invasions, climatic changes, policy failure are some reasons for losses in biodiversity. To overcome this problem we have to incorporate preservation, maintenance, sustainable use (conservation), recovery & enhancement of components of biological diversity.

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