Geography

Main Values of Biodiversity – Explained

Some of the major values of biodiversity are as follows: 1. Environmental Value 2. Social Value 3. Ecosystem Services 4. Economic Value 5. Consumptive use value 6. Productive Use Value 7. Ethical and Moral Value 8. Aesthetic Value.

Biodiversity is the most precious gift of nature mankind is blessed with. As all the organisms in an ecosystem are interlinked and interdependent, the value of biodiversity in the life of all the organisms including humans is enormous.

The role of biodiversity in providing ecosystem services is twofold.

Firstly, biodiversity is directly used as a source for food, fibre, fuel and other extractable resources. Secondly, biodiversity plays an important role in ecosystem processes providing the regulating, cultural and supporting services.

For example, vegetation cover protects the soil from erosion by binding soil particles and minimizing the effects of water runoff. Likewise, cultivation of crops is to a large extent dependent on the availability of pollinating insects.

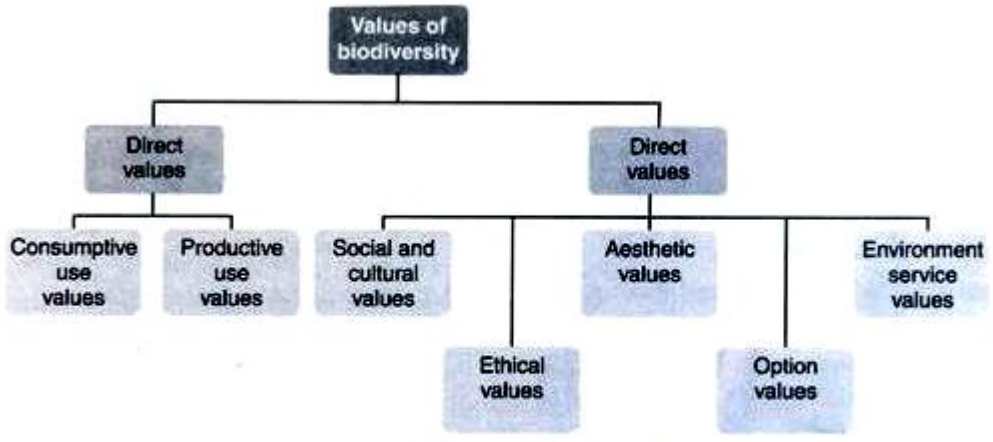
Biodiversity has a fundamental value to humans because we are so dependent on it for our cultural, economic, and environmental well-being. Elements of biodiversity can contribute to cultural identity, and

many ecosystem characteristics are frequently incorporated into cultural traditions.

Other facts of human well-being, such as health and economic and political security, can influence the value of biodiversity. Many arguments to increase efforts to conserve diversity often emphasize the value of the “un-mined riches” that has yet to be discovered.

These include potential sources of new foods, medicines, and energy which can further fuel economic activity, as well as a healthier population. Biodiversity has proven to hold enormous value when adapted for use in health, agricultural, or industrial applications.

In the field of medicine alone, approximately 50% of current prescription medicines are derived from or modelled on natural substances. The health and diversity of ecosystems can have a significant effect on the overall stability of nearby communities.



Values of Biodiversity

Environmental Value:

The environmental value of biodiversity can be found by examining each ecosystem process and identifying the ecosystem services that result. For instance, in wetlands the vegetation captures water- carried sediment and the soil organisms break down a range of nutrients and pollutants washed into the area.

These processes provide the ecosystem service of purifying water. Wetlands also act as spawning and nursery grounds for some fish and provide a refuge for animals in times of drought. Some ecosystem services are easy to overlook until the underlying process is impaired.

For instance, dry-land salinity has emerged as a problem following sustained clearance of deep rooted perennial plants over wide areas. Water tables have raised carrying dissolved salts which then concentrate in the soil. Forests regulate the amount of carbon dioxide in the air by releasing oxygen as a by-product during photosynthesis, and control rainfall and soil erosion.

2. Social Value:

The social value of biodiversity includes aesthetic, recreational, cultural and spiritual values. To this can be added health benefits resulting from recreational and other activities. While traditional societies which had a small population and required less resources had preserved their biodiversity as a life supporting resource, modern man has rapidly depleted it even to the extent of leading to the irrecoverable loss due to extinction of several species.

Thus apart from the local use or sale of products of biodiversity there is the social aspect in which more and more resources are used by affluent societies. The biodiversity has to a great extent been preserved by traditional societies that valued it as a resource and appreciated that its depletion would be a great loss to their society.

There can be marked differences in landscape and biodiversity preferences according to age, socioeconomic factors and cultural influences. The lifestyle of the ancient people was closely interwoven with their surroundings.

The life of the indigenous people in many parts of the world still revolves around the forests and environment, even in these modern times, many of them still live in the forests and meet their daily requirements from their surroundings.

The biodiversity in different parts of the world has been largely preserved by the traditional societies. Since the indigenous people always protect the forests for their own benefit. In ancient times, especially in India, the environment in totally i.e., flora, fauna, etc., were held in high esteem.

Trees like Peepal, Banyan and Tulsi are still worshipped. Ladies offering water to Tulsi daily is considered good and there are festivals when ladies tie sacred threads around Peepal and Banyan trees and pray for the welfare of their families.

3. Ecosystem Services:

These services also support human needs and activities such as intensely managed production ecosystems.

Ecosystem service includes:

a. The production of oxygen by land based plants and marine algae;

b. The maintenance of fresh water quality by vegetation slowing run off, trapping sediment and removing nutrients and by soil organisms breaking down pollutants;

The production and maintenance of fertile soil as a result of many interacting processes;

d. The provision of foods such as fish, pastures for cattle and sheep, timber, fire wood and harvested wildlife such as kangaroos and native cut flowers;

e. The provision of native species and genes used in industry research and development, for instance, in traditional breeding and biotechnology applications in agriculture, forestry, horticulture, mariculture, pharmacy, chemicals production and bioremediation;

f. Pollination of agricultural crops, forest trees and native flowering plants by native insects, birds and other creatures;

g. Pest control in agricultural land by beneficial native predators;

h. Flood mitigation by vegetation slowing run off and trapping sediment;

Breakdown of pollutants by micro-organisms in soil and aquatic ecosystems and sequestration of heavy metals in marine and fresh water sediments;

j. Greenhouse gas reduction by, for instance, sequestering atmospheric carbon in wood and marine calcium carbonate deposits;

k. Maintenance of habitats for native plants and animals; and

l. Maintenance of habitats that are attractive to humans for recreation, tourism and cultural activities and that has spiritual importance.

4. Economic Value:

The economic potential of biodiversity is immense in terms of food, fodder, medicinal, ethical and social values. Biodiversity forms the major resource for different industries, which govern the world economy.

The salient features regarding the economical potential of biodiversity are given below:

1. The major fuel sources of the world including wood and fossil fuels have their origin due to biodiversity.

2. It is the source of food for all animals and humans.

3. Many important chemicals have their origin from the diverse flora and fauna, used in various industries.

4. Diverse group of animals are used for medical research during the testing of new drugs.

5. Consumptive use value:

This is related to natural products that are used directly for food, fodder, timber, fuel wood etc. Humans use at least 40,000 species of plants and animals on a daily basis. Many people around the world still depend on wild species for most of their needs like food, shelter and clothing. The tribal people are completely dependent on the forests for their daily needs.

6. Productive Use Value:

This is assigned to products that are commercially harvested and marketed. Almost all the present date agricultural crops have originated from wild varieties. The biotechnologists continuously use the wild species of plants for developing new, better yielding and disease resistant varieties. Biodiversity represents the original stock from which new varieties are being developed.