

Skill Enhancement Course (SEC)
Plant Diversity and Human Welfare
3rd sem. Botany (Hons.)

Values of Biodiversity

Biodiversity has a fundamental value to humans because we are so dependent on it for our cultural, economic, social and environmental well-being. Some argue that it is our moral responsibility to preserve the Earth's incredible diversity for the next generation.

❖ **Direct values:**

These are those ways by which we can directly use biodiversity for our benefit. For example we can use varieties plants as food and crude medicines in our daily life. Economic value and recreational value comes under this category

Direct values are further divided into: -

1. **Consumptive use Value:** Consumptive use value is the value put on the products of nature which are consumed directly without passing through a market. For example, if we use firewood by cutting down a tree or consume an animal after hunting it.
2. **Productive use value:** Productive use value is the value put on the products of nature which are consumed after passing through a market. For example, if we buy fish from the market then it will have productive use value.

❖ **Indirect values or Non-Consumptive value:**

These are those ways by which we don't physically use a plant or animal, but by virtue of its existence it provides services that keep the ecosystem healthy. Indirect values would include **ethical or moral value, existence value, ecological value, aesthetic value, cultural or spiritual value, option value** and **scientific or educational value.**

Ethical value:

It is based on the principle of 'live and let others live'. Ethical values related to biodiversity conservation are based on the importance of protecting all forms of life. All forms of life have the right to exist on earth. Man is only a small part of the Earth's great family of species.

Don't plants and animals have an equal right to live and exist on our planet which is like an inhabited spaceship? Morality and ethics teach us to preserve all forms of life and not to harm any organism unnecessarily.

Some people take pleasure in the hunting of animals. People also sometimes degrade and pollute the environment by their unethical actions. Through proper education and awareness, the people's conscience against such practices must be raised.

Aesthetic Value:

The beauty of our planet is because of biodiversity, which otherwise would have resembled other barren planets dotted around the universe. Biological diversity adds to the quality of life and provides some of the most beautiful aspects of our existence. Biodiversity is responsible for the beauty of a landscape.

People go far off places to enjoy the natural surroundings and wildlife. This type of tourism is referred to as **eco-tourism**, which has now become a major source of income in many countries. In many societies, the diversity of flora and fauna has become a part of the traditions and culture of the region and has added to the aesthetic values of the place.

Uses/significance/importance of biodiversity

Biodiversity is useful for humans in both direct and indirect way. Biodiversity is vital for a healthy biosphere. Biodiversity is must for the stability and proper functioning of the biosphere. Besides these biodiversity is so important due to having consumptive use values, productive use values, social values, ethical values and aesthetic values.

Benefits of biodiversity: A healthy biodiversity offers many natural services for everyone-

❖ **Ecosystem services**, such as

- Protection of water resources
- Soils formation and protection
- Nutrient storage and recycling
- Pollution breakdown and absorption
- Contribution to climate stability
- Maintenance of ecosystems
- Recovery from unpredictable events

❖ **Biological resources**, such as

- Food
- Pharmaceutical resources & medicinal drugs
- Wood products
- Ornamental plants
- Breeding stocks, population reservoirs
- Future resources
- Diversity in genes, species and ecosystems

❖ **Social benefits**, such as

- Research, education and monitoring
- Recreation and tourism
- Cultural values.



Fig.: This eco-wheel image shows natural resources provided by biodiversity, the benefits and beneficiaries, and drivers of change.

Precautionary principle

The uncertainty surrounding potential threats to the environment has frequently been used as a reason to avoid taking action to protect the environment. However, it is not always possible to have clear evidence of a threat to the environment before the damage occurs. Precaution – the “**Precautionary Principle**” or “**Precautionary Approach**” – is a response to this uncertainty.

The Precautionary Principle has been widely incorporated, in various forms, in international environmental agreements and declarations and further developed in a number of national laws.

Some examples of different formulations of the Precautionary Principle

❖ **Rio Declaration, 1992 Principle 15**

Principle 15 of the Rio Declaration 1992 states that: "in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall be not used as a reason for postponing cost-effective measures to prevent environmental degradation."

❖ **Convention on Biological Diversity 1992, Preamble**

[W]here there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

❖ **UK Biodiversity Action Plan, 1994, para 6.8**

In line with the precautionary principle, where interactions are complex and where the available evidence suggests that there is a significant chance of damage to our 2 biodiversity heritage occurring, conservation measures are appropriate, even in the absence of conclusive scientific evidence that the damage will occur.

❖ **Convention on International Trade in Endangered Species of Wild Fauna and Flora, Resolution Conf 9.24 (Rev CoP13)**

[T]he Parties shall, by virtue of the precautionary approach and in case of uncertainty either as regards the status of a species or the impact of trade on the conservation of a species, act in the best interest of the conservation of the species concerned and adopt measures that are proportionate to the anticipated risks to the species.

❖ **Earth Charter, para 6:**

- a. Prevent harm as the best method of environmental protection and, when knowledge is limited, apply a precautionary approach.
- a. Take action to avoid the possibility of serious or irreversible environmental harm even when scientific knowledge is incomplete or inconclusive.
- c. Strengthen democratic institutions at all levels, and provide transparency and accountability in governance, inclusive participation in decision-making, and access to justice.

[The role of the precautionary principle in the conservation and sustainable use of biodiversity and living natural resources:](#)

The Precautionary Principle is of particular relevance and importance in the context of conservation and sustainable use of biodiversity and living natural resources. Species (as well as populations and sub-species) are genetically unique and irreplaceable — their loss is irreversible. Ecosystems vary across a vast range of parameters, and similar ecosystems (whether wetlands, forests, coastal reserves etc) cannot be presumed to be interchangeable, such that the loss of one can be compensated by protection or restoration of another. Further, conservation and sustainable use must deal with a particularly high degree of persistent and largely irreducible uncertainty and complexity.

Application of the Precautionary Principle helps sustain the biodiversity assets and ecosystem services which underpin all societies and economies, and can thereby contribute to the eradication of poverty; maintenance of a natural and social environment supportive of human dignity, bodily health, and spiritual well-being; and the rights of indigenous peoples to their spirituality, knowledge, lands, resources and livelihoods.