



## Value of biodiversity

The value of biodiversity in terms of its commercial utility, ecological services, social and aesthetic value is enormous. The multiple uses of biodiversity value have been classified by McNeely et al in 1990 as follows:

- (i) **Consumptive use value:** these are direct use values where the biodiversity product can be harvested and consumed directly e.g. fuel, food, drugs, fibre etc.
  - a. **Food:** A large number of wild plants are consumed by human beings as food. About 80,000 edible plant species have been reported from wild. About 90% of present day food crops have been domesticated from wild tropical plants. A large number of wild animals are also our sources of food.
  - b. **Drugs and medicines:**
    - i. About 75% of the world's population depends upon plants or plant extracts for medicines.
    - ii. The wonder drug penicillin used as an antibiotic is derived from a fungus called penicillium.
    - iii. Likewise, we get Tetracyclin from a bacterium. Quinine, the cure for malaria is obtained from the bark of Cinchona tree, while Digitalin is obtained from foxglove which is an effective cure for heart ailments.
    - iv. Recently vinblastin and vincristine, two anticancer drugs, have been obtained from periwinkle plant, which possesses anticancer alkaloids.

Our forests have been used since ages for fuel wood. The fossil fuels coal, petroleum and natural gas are also products of fossilized biodiversity.

- (ii) **Productive use values:**
  - a. These are the commercially usable values where the product is marketed and sold.
  - b. These may include the animal products like tusks of elephants, musk from musk deer, silk from silk-worm, wool from sheep, lac from lac insects etc, all of which are traded in the market.
  - c. Many industries are dependent upon the productive use values of biodiversity e.g. –the paper and pulp industry, plywood industry, railway sleeper industry, silk industry, ivory-works, leather industry, pearl industry etc.
- (iii) **Social value:**
  - a. These are the values associated with the social life, customs, and religion of the people.
  - b. Many of the plants are considered holy and sacred in our country like Tulsi, peepul, Mango, and Lotus etc.
  - c. The leaves, fruits or flowers of these plants are used in worship or the plant itself is worshipped.



- d. Many animals like Cow, Snake, and Peacock also have significant place in our psycho-spiritual arena.
- (iv) **Ethical value:**
- It is also sometimes known as existence value. It involves ethical issues like "all life must be preserved".
  - The ethical value means that we may or may not use a species, but knowing the very fact that this species exists in nature gives us pleasure.
  - We are not deriving anything direct from Kangaroo, Zebra or Giraffe, but we all strongly feel that these species should exist in nature.
- (v) **Aesthetic value:**
- No one of us would like to visit vast stretches of barren lands with no signs of visible life.
  - People from far and wide spend a lot of time and money to visit wilderness areas where they can enjoy the aesthetic value of biodiversity and this type of tourism is now known as eco-tourism.
  - Ecotourism is estimated to generate about 12 billion dollars of revenue annually.
- (vi) **Option values:**
- These values include the potentials of biodiversity that are presently unknown and need to be explored.
  - There is a possibility that we may have some potential cure for AIDS or cancer existing within the depths of a marine ecosystem, or a tropical rain forest.
  - Thus option value is the value of knowing that there are biological resources existing on this biosphere that may one day prove to be an effective option for something important in the future.
- (vii) **Ecosystem service value:**
- It refers to the services provided by ecosystems like prevention of soil erosion, prevention of floods, maintenance of soil fertility, cycling of nutrients, prevention floods, cycling of water, their role as carbon sinks, pollutant absorption and reduction of the threat of global warming etc.