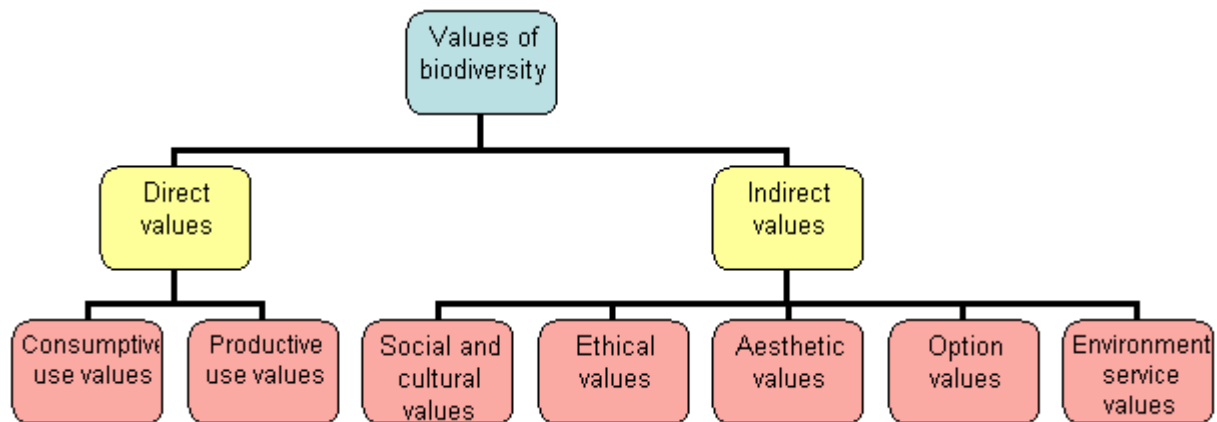


## 4.9 VALUE OF BIODIVERSITY



### Direct values

- It include food resources like (grains, vegetables, fruits) which are obtained from plant resources and meat, fish, egg, milk and milk products from animal resources.
- These also include other values like medicine, fuel, timber, fiber, wool, wax, resin, rubber, silk and decorative items.

Types of direct values: (i) Consumptive use value (ii) Productive use value.

### Consumptive use value:

- These are the direct use values where the biodiversity products can be harvested and consumed directly.
- Example: Food, fuel and drugs.
- These goods are consumed locally and do no figure in national and international market.

#### (a) Food:

##### (i) Plants:

- The most fundamental value of biological resources particularly plants is providing food.
- Basically three crops i.e. wheat, maize and rice constitute more than two third of the food requirement all over the world.

(ii) Fish:

- Through the development of aquaculture, techniques, fish and fish products have become the largest source of protein in the world.

(b) **Fuel:**

- Since ages forests have provided wood which is used as a fuel.
- Fossil fuels like coal, petroleum, natural gas are also product of biodiversity which are directly consumed by humans.

(c) **Drugs and medicines:**

- The traditional medical practice like ayurveda utilizes plants or their extracts directly.
- In allopathy, the pharmaceutical industry is much more dependent on natural products.

Many drugs are derived from plants like:

**Quinine:** Anti malaria drug is obtained from cinchona tree.

**Penicillin:** Antibiotic is derived from penicillium, a fungus.

**Tetracycline:** It is obtained from bacterium.

Recently vinblastin and vincristine, two anti cancer drugs have been obtained from catharanthus plant which has anti cancer alkaloids.

**Productive use values:**

- These are the direct use values where the product is commercially sold in national and international market.
- Many industries are dependent upon these values. Example- Textile, leather, silk, paper and pulp industry etc.
- Although there is an international ban on trade of products from endangered species like tusks of elephants, wool from sheep, fur of many animals etc.
- These are traded in market and fetch a booming business.

**2. Indirect values**

- Biodiversity provides indirect benefits to human beings which support the existence of biological life and other benefits which are difficult to quantify.

- These include social and cultural values, ethical values, aesthetic values, option values and environment service values.

### **Social and cultural value:**

- While traditional societies had valued and preserved their biodiversity and its resources, modern man has depleted it up to the extent leading to irrecoverable loss due to extinction of several species.
- Many plants and animals are considered holy and sacred in India and are worshipped like Tulsi, peepal, cow, snake etc.
- In Indian society great cultural value is given to forest and as such tiger, peacock and lotus are named as the national animal, bird and flower respectively.

### **Ethical Value:**

- These values are related to conservation of biodiversity where ethical issue of 'all life forms must be preserved' is laid down.
- There is an existence value which is attached to each species because biodiversity is valuable for the survival of human race.
- Ethical values of biodiversity are based on the importance of protecting all form of life .
- Most religious and secular creeds believe that all form of life have the right to exist on Earth.
- Man is only a small part of the Earth's great family of species; plants and animals have an equal right to live and exist on our planet.
- There are several cultural, moral and ethical values, associated with the sanctity of all forms of life.
- Indian civilizations has, over several generations, preserved nature through local traditions.

### **Aesthetic value:**

- Natural landscapes at undisturbed places are a delight to watch and also provide opportunities for recreational activities like bird watching, photography etc.
- It promotes eco-tourism which further generates revenue by designing of zoological, botanical gardens, national parks, wild life conservation etc.
- Biodiversity is a beautiful and wonderful aspect of nature.
- Sit in a forest and listen to the birds, Watch a spider weave its complex web, Observe a fish feeding.
- Our history and culture is replete with plant and animal images.
- Symbols from wild species such as the lion of Hinduism, the elephant of Buddhism and the vehicles of several deities are animals, that have been venerated for thousands of year.

- The sacred Basil or the 'Tulsi' has grown in the courtyards of each household for centuries.

**Option values:**

- These values include the unexplored or unknown potentials of biodiversity.
- Environment service values: The most important benefit of biodiversity is maintenance of environment services which includes
  - (i) Carbon dioxide fixation through photosynthesis.
  - (ii) Maintaining of essential nutrients by carbon (C), oxygen (O), Nitrogen (N), Sulphur (S), Phosphorus (P) cycles.
  - (iii) Maintaining water cycle and recharging of ground water.
  - (iv) Soil formation and protection from erosion.
  - (v) Regulating climate by recycling moisture into the atmosphere.
  - (vi) Detoxification and decomposition of waste.