

Module I

Environment Ecosystem & Biodiversity

1.7 Conservation of bio diversity

In-situ conservation

Ex-situ conservation



1.7 Conservation of Biodiversity

It refers to the maintenance and preservation of biodiversity.

The management of biosphere so that it will yield the greatest sustainable benefit to present generation while maintaining its potential to meet the needs of future generation.

Types

- 1) In-situ conservation (within habitat)
- 2) Ex-situ conservation (outside habitat)

In-situ conservation

In-situ conservation involves protection of fauna and flora within its natural habitat, where the species normally occurs is called in-situ conservation.

Important in-situ conservation

Biosphere reserve, national parks, wild life sanctuaries, gene sanctuary.

Methods of in-situ conservation

Biosphere reserves

India has 7 biosphere reserves all over the state. It covers large area, more than 5000 sq.km. It is used to protect species for long time.

(Ex) Gulf of Mannar, Nilgiri - Tamilnadu

Sundarbans - West Bengal

Role of biosphere reserves

- 1) It gives long terms survival of evolving ecosystem
- 2) It protects endangered species.
- 3) It acts as a site of recreation and tourism
- 4) It is useful for educational and research purpose.

- 5) It protects maximum number of species and communities
- 6) Tourism and explosive activities are not permitted in the biosphere reserves.

National Park

India has 80 national parks all over the state. A national park is a protected area to conserve plants, animals together in a natural habitat.

It is usually a small reserves covering an area of about 100-500 sq.kms. within the biosphere reserves, one (or) more national parks are also exists.

(Ex) Gir national park - Gujarat

Periyar Park - Kerala

Bandipur Park - Karnataka

Role of national Parks

1. It is used for enjoyment through tourism without affecting environment.
2. It is used to protect, develop the wild life.
3. Grazing of domestic animals inside the national park is prohibited.
4. All private rights, and forestry activities are prohibited within a national park.

Wild life sanctuaries

At present, 492 wild life sanctuaries in our country.

(Ex) Vedanthangal bird sanctuary - Tamilnadu

Mudumalai Wild life sanctuary - Tamilnadu

Nalsarover bird sanctuary - Gujarat.

Role of wild life sanctuaries

- 1) It protects animals only
- 2) It allows the operations such as harvesting of timber collection of forest products.
- 3) Killing, hunting (or) capturing of wildlife is prohibited.

Gene sanctuary

2 gene sanctuaries are found in northern India. A gene sanctuary is an area, where the plants are conserved.

(Ex)gene sanctuary for citrus – Lemon family

Gene sanctuary for pitcher plant – an insect eat plant.

Advantage of Insitu conservation

- 1) It is very cheap and convenient method.
- 2) The species gets adjusted to the natural disasters like drought, floods, forest fires.

Disadvantage of Insitu conservation

- 1) 1) A large surface area of the earth is required to preserve the biodiversity
- 2) Maintenance of the habitats is not proper due to shortage of staff and pollution.

Ex-situ conservation

It involves the protection of fauna and flora outside the natural habitat.

Role

- 1) It involves maintenance and breeding of endangered plant and animal species under controlled conditions.
- 2) It identifies the species, which are in more risk condition of extinction
- 3) It prefer the species which are more important to man in near future among the endangered species.

Methods:

It is maintained in the following way.

- Zoos (for animals)
- Botanical gardens (for plants)
- Culture collections (for micro organisms)
- Cryobanks (for gametes, cells and tissues)

- Germplasm banks (for seeds, semen, cells, ovum)

1) **National Bureau of plant Genetic Resources (NBPGR)**

It is located in New Delhi. It used cryo preservation techniques to preserve agricultural and horticultural crops.

Cryo preservation techniques

It involves the preservation of seeds, pollen grains of some important agricultural and horticultural crops by using liq. Nitrogen at temp as low as 196°C Varieties of rice pearl millet, turnip, radish, tomato, onion, carrot, chills, tobacco have been preserved successfully for several years.

National Bureau of Animal Genetic resources (NBAGR)

It is located at Haryana. It preserves the semen of domesticated bovine animals.

National Facility for plant tissue culture Repository (NEPTCR)

It is used for conservation of varieties of crop plants (or) trees by tissue culture.

Advantage of Ex-situ conservation

1. Survival of endangered species are increasing due to special care and attention.
2. Animals are assured for food, water, shelter and also security and hence longer life span.

Disadvantages of ex-situ conservation

- 1) It is expensive method
- 2) The freedom of wild life is lost
- 3) The animals cannot survive in natural environment
- 4) It can be adopted only for few selected species.

