Chapter 4
Biodiversity & its conservation

* Biodiversity & types
Refer unit test-2 notes p.g.n. 8

* Hot spots of biodiversity
In biodiversity there are two major concepts of 'megadiversity' & 'biodiversity hot spots.' Megadiversity concept covers the broad frame of biodiversity concept which emphasizes more on species richness, threatened species & endemic species.

Megadiversity phenomenon of at least 50% of all being confined to 17 megadiversity countries in the tropics. The Hot spots, originally 18 & now 25 in number, provide a means of focusing on those areas where threats to biodiversity are most extreme & conservation efforts are urgently needed.

Two hotpots are in India, in one the Western Ghats or Sahyadri & other being the north eastern Himalayas. This indicates the global importance of the biodiversity in our country. Initially only high plant species were considered for identifying the hotspots but later not only the higher plants but also the birds, mammals, reptiles & amphibians.

* Conservation of biodiversity
There are different views & priorities about conservation of biodiversity. There are immediate causes as well as ultimate causes of biodiversity destruction. The immediate causes being over exploitation, habitat degradation & destruction.

The causes include :
- Inequities in the distribution of power
- Information & resources
- Effects of global market forces & market failures
- That miss-value natural resources.

- Separation of environmental conservation & economic development.
- Decline of the indigenous systems of resource management.
- Unsustainable levels of resource demand at global level.
- Lack of ethical commitment to sustainability.
- Inequities within & between societies & countries.

The biodiversity normally conserved in two ways ① In-situ conservation ② ex-situ conservation. Both the methods have own merits & limitations in the present situation.

① In-situ conservation

There is conservation of flora & fauna, particularly wild, in their natural habitats. These concepts of conservation have been practiced by the local communities for centuries. The present wildlife management practice of 'Protected Areas' for wildlife conservation has been implemented in the country.

The country today has 520 National parks, wildlife sanctuaries, project tiger area.

National Parks are granted high degree of protection & no human interference is allowed in the protected area. Biosphere reserve is another concept of in-situe conservation. Industries & environment damaging commercial, development projects would not be allowed.

Project Tiger is another concept to conserve in-situ the entire food chain of tiger.

② Ex-situ conservation

The ex-situ conservation of plants & animals is being carried out as a last alternative to in-situ conservation. The collection & preservation of genetic material of wild varieties of crops, domestic animals, economic & medicial species.

The idea of ex-situ conservation is to protect the germplasm.

* Critical issues in the implementation of biodiversity conservation

- transforming attitudes & practices of people concerning biodiversity.
- building a regional & global alliance to conserve biodiversity, as biodiversity does not have man made boundaries.
- empowering local communities to conserve biodiversity & use it sustainability.
- Integrating conservation of biodiversity with economic development at national, regional & local level.
- reducing & stabilising human impact on biodiversity wherever possible.
- Biological resources including genetic resources, organisms or part of organisms, populations or any other biotic component of any ecosystem.
- Those resources & the diversity of the systems which support them, are therefore the essential foundation of sustainable development.
- The human activities are greatly reducing the planet's biodiversity.
- Little data is available to access which genes or species are particularly important in the functioning of ecosystems.
- The loss of wild species & habitat receives most public attention.
- The agriculture will have a far narrow genetic base & many fewer varieties of fruits & vegetables will reach the market.

* Sustainable goals for Biodiversity

Only sustainable future for our planet, where less than sustainable use of biological resources will lead inevitably to a decline in productivity & quality of life.

Elements in this sustainable future include.

- A well-informed public, aware of the status & trends of the ecosystems of their own country.
- A system of legislation, economic incentives & supporting regulations which encourage people to use biological resources sustainably & promote the conservation of biodiversity
- A collective relationship bet^{n} governments, scientists, local communities & the private sector which supports the process of conserving biodiversity.
- A well-managed system of protected areas established in each country, including representative ecosystems of the widest possible range of country's biodiversity.
- A comprehensive data base on soils climate, topography, geology & biodiversity to monitor status & trends of genes, species & ecosystems to predict the impact of future changes.