

Conservation of Environment

Conservation of the environment can be defined as the management of the environment so that the present generation may gather sustainable benefit from the environment while effectively maintaining its potential to meet the requirements of the future generations. Thus, conservation has the following objectives:

- (i) ensuring that necessary ecological processes and life support system continue;
- (ii) preserving biodiversity;
- (iii) ensuring that species and ecosystem utilisation is maintained at sustainable levels.

Conservation methods in general can be *in-situ* or *ex-situ*.

***In-situ* Conservation** The genetic resources are conserved by maintaining them within the natural or artificial man-made ecosystems to which they belong. The protected areas of different categories—nature reserves, cultural landscapes, national parks, sanctuaries, natural monuments, biosphere reserves—fall in this domain.

***Ex-situ* Conservation** *Ex-situ* conservation is practised outside the habitats of genetic resources by conserving sample population in zoos, genetic resource centres, botanical gardens, culture collections and so on. *Ex-situ* conservation may also be done by forming gene pools, gamete storage for fish, germplasm banks for seeds, pollen, cells, semen, ova etc. The role of seed banks and genetic engineering is of paramount importance in *ex-situ* conservation.

The methods for the conservation of environment are mentioned below:

• **Soil Conservation** The matter has been dealt with in detail in Chapter 4. Briefly, the following steps may be recalled.

Afforestation To check wind velocity and surface runoff by planting trees.

Agronomic practices In areas of normal farming, vegetation itself protects soil.

Dry farming The practice checks soil erosion where rainfall is low to moderate.

Agrostological methods Soil erosion can be checked by successful growth of grass which acts as a soil binder.

Mechanical methods By constructing small basins along the contours, the runoff water can be intercepted and diverted.

Stream bank protection By growing vegetation alongside and by constructing drains and stone pitchings, soil erosion can be reduced.

● **Forest Conservation** The matter has been discussed in detail in Chapter 4.

● **Checking Desertification** Desertification is the process which leads to desert formation. It is caused by recurrent drought for few years in succession or due to bad land use. Some of the methods to check desertification are through large-scale afforestation and checking deforestation; stopping overgrazing; conservation of water resources which can be done by building water-harvesting methods and proper use of scarce water resources so that groundwater is not depleted; restoration of nutrient cycle and micro-climatic equilibrium in the soil which shows signs of desertification.

● **Checking Floods** Floods occur in regions which experience erratic rainfall, i.e., large amounts of rainfall are concentrated in a few months. The recurrent flood situations in the western states of the USA like Nevada, Colorado and Arizona could be controlled by constructing large-scale multipurpose dams like the Hoover Dam. (These dams too could, however, be environmental problems.) The methods to check floods are as follows:

(1) *Afforestation* Afforestation checks soil erosion in the upper reaches of rivers and prevents soil from getting deposited in its bed.

(2) *Flood Monitoring and Warning* By using Geographical Information Systems (GIS) and remote sensing, we can effectively prevent loss of lives and property caused by floods.

● **Checking Pollution** The increasing menace of pollution has caused greenhouse effect and global warming. Pollution can be fought from two angles: (i) By inventing superior technology for the

efficiency of machines, so that automobiles causing pollution can be enhanced and their pollutive effect controlled. Better technological expertise enables us to use alternative sources of energy such as solar, wind, geothermal energy etc. Nowadays compressed natural gas (CNG) promises a better future as it causes least pollution. (ii) By making and implementing strict laws, pollution can be minimised. At present, Delhi has a tough legal provision in the world *vis-a-vis* the measurement of pollution caused by automobiles. In Italy, private cars are not allowed on roads on Sundays. The widespread adoption of Euro II and III norms can go a long way in checking pollution from automobiles. A consensus regarding non-use of harmful gases like chlorofluorocarbons, methane, etc. is of extreme importance in fighting pollution.

• **Facing Nuclear Hazards** Nuclear hazards could be because of two factors: (i) threat from nuclear weapons, and (ii) probability of an accident in nuclear power stations as happened in Chernobyl (Russia) and Three Miles Island. Such nuclear hazards can be tackled by better alternative technology and strict monitoring of the whole system.