■ USES OF FORESTS

Commercial uses: Forests provide us a large number of commercial goods which include timber, firewood, pulpwood, food items, gum, resins, non-edible oils, rubber, fibers, lac, bamboo canes, fodder, medicine, drugs and many more items, the total worth of which is estimated to be more than $ 300 billion per year.

Half of the timber cut each year is used as fuel for heating and cooking. One third of the wood harvest is used for building materials as lumber, plywood and hardwood, particle board and chipboard. One sixth of the wood harvest is converted into pulp and used for paper industry. Many forest lands are used for mining, agriculture, grazing, and recreation and for development of dams.

Ecological uses: While a typical tree produces commercial goods worth about $ 590 it provides environmental services worth nearly $ 196, 250.

The ecological services provided by our forests may be summed up as follows:

- **Production of oxygen:** The trees produce oxygen by photosynthesis which is so vital for life on this earth. They are rightly called as earth's lungs.
- **Reducing global warming:** The main greenhouse gas carbon dioxide (CO_2) is absorbed by the forests as a raw material for photosynthesis. Thus forest canopy acts as a sink for CO_2 thereby reducing the problem of global warming caused by greenhouse gas CO_2.

- **Wild life habitat:** Forests are the homes of millions of wild animals and plants. About 7 million species are found in the tropical forests alone.
- **Regulation of hydrological cycle**: Forested watersheds act like giant sponges, absorbing the rainfall, slowing down the runoff and slowly releasing the water for recharge of springs. About 50-80 %of the moisture in the air above tropical forests comes from their transpiration which helps in bringing rains.
- **Soil Conservation:** Forests bind the soil particles tightly in their roots and prevent soil erosion. They also act as wind-breaks.
- **Pollution moderators:** Forests can absorb many toxic gases and can help in keeping the air pure. They have also been reported to absorb noise and thus help in preventing air and noise pollution.

Major Causes of Deforestation

(*i*) **Shifting cultivation:** There are an estimated 300 million people living as shifting cultivators who practice slash and burn agriculture and are supposed to clear more than 5 lakh ha of forests for shifting cultivation annually. In India, we have this practice in North-East and to some extent in Andhra Pradesh, Bihar and M.P which contribute to nearly half of the forest clearing annually.

(*ii*) **Fuel requirements:** Increasing demands for fuel wood by the growing population in India alone has shooted up to 300-500 million tons in 2001 as compared to just 65 million tons during independence, thereby increasing the pressure on forests.

(*iii*) **Raw materials for industrial use:** Wood for making boxes, furniture, railway-sleepers, plywood, match-boxes, pulp for paper industry etc. have exerted tremendous pressure on forests. Plywood is in great demand for packing tea for Tea industry of Assam while fir tree wood is exploited greatly for packing apples in J&K.

(*iv*) **Development projects:** Massive destruction of forests occur for various development projects like hydroelectric projects, big dams, road construction, mining etc.

(*v*) **Growing food needs:** In developing countries this is the main reason for deforestation. To meet the demands of rapidly growing population, agricultural lands and settlements are created permanently by clearing forests.

(*vi*) **Overgrazing:** The poor in the tropics mainly rely on wood as a source of fuel leading to loss of tree cover and the cleared lands are turned into the grazing lands. Overgrazing by the cattle leads to further degradation of these lands.

Major Consequences of Deforestation

Deforestation has far reaching consequences, which may be outlined as follows:

(*i*) It threatens the existence of many wild life species due to destruction of their natural habitat.

(*ii*) Biodiversity is lost and along with that genetic diversity is eroded.

(*iii*) Hydrological cycle gets affected, thereby influencing rainfall.

(*iv*) Problems of soil erosion and loss of soil fertility increase.

(*v*) In hilly areas it often leads to landslides.

■ DAMS AND THEIR EFFECTS ON FORESTS AND PEOPLE

Big dams and river valley projects have multi-purpose uses and have been referred to as *"Temples of modern India"*. However, these dams are also responsible for the destruction of vast areas of forests. India has more than 1550 large dams, the maximum being in the state of Maharashtra (more then 600), followed by Gujarat (more then 250) and Madhya Pradesh (130). The highest one is *Tehri dam*, on river Bhagirathi in Uttaranchal and the largest in terms of capacity is Bhakra dam on river Satluj in H.P. Big dams have been in sharp focus of various environmental groups all over the world which is mainly because of several ecological problems including deforestation and socio-economic problems related to tribal or native people associated with them. The

Silent Valley hydroelectric project was one of the first such projects situated in the tropical rain forest area of Western Ghats which attracted much concern of the people. *The crusade against the ecological damage and deforestation caused due to Tehri dam was led by Sh. Sunder lal Bahuguna, the leader of Chipko movement. The cause of Sardar Sarovar Dam related issues has been taken up by the environmental activists Medha Patekar, joined by Arundhati Ray and Baba Amte.*

For building big dams, large scale devastation of forests takes place which breaks the natural ecological balance of the region. Floods, droughts and landslides become more prevalent in such areas. Forests are the repositories of invaluable gifts of nature in the form of biodiversity and by destroying them (particularly, the tropical rain forests) we are going to lose these species even before knowing them. These species could be having marvelous economic or medicinal value and deforestation results in loss of this storehouse of species which have evolved over millions of years in a single stroke.