

FOREST RESOURCES

A forest can be defined as a biotic community predominant of trees, shrubs or any other woody vegetation usually in a closed canopy. It is derived from latin word 'foris' means 'outside'. India's Forest Cover is 6, 76,000 sq.km (20.55% of geographic area). Scientists estimate that India should ideally have 33% of its land under forests. Today we only have about 12% thus we need not only to protect our existing forests but also to increase our forest cover.

FUNCTIONS OF FOREST

1. It performs very important function both to human and to nature.
2. They are habitats to millions of plants, animals and wild life.
3. They recycle rain water.
4. They remove pollutant from air.
5. They control water quality.
6. They moderate temperature and weather.
7. They influence soil condition and prevent soil erosion.

USES OF FOREST

1. Commercial uses
2. Ecological uses

1. Commercial uses:

- i. Wood – used as a fuel
- ii. Supply wood for various industries – Raw materials as pulp, paper, furniture timber etc.
- iii. Minor forest products – gum, dyes, resins
- iv. Many plants – Medicines
- v. Supply variety of animal products – honey. Ivory, horns etc.
- vi. Many forest lands are used for - Mining, grazing, for dams and recreation.

2. Ecological uses:

Forest provides number of environmental services.

- i. Production of oxygen: Photosynthesis produces large amount of oxygen which is essential for life.

ii. Reducing global warming: Carbon dioxide is one of the main greenhouse gas. It is absorbed by plants for photosynthesis. Therefore the problem of global warming caused by CO₂ is reduced.

iii. Soil conservation: Roots of trees bind the soil tightly and prevent soil erosion. They also act as wind breaks.

iv. Regulation of hydrological cycle: Watershed in forest act like giant sponges and slowly release the water for recharge of spring.

v. Pollution moderators: Forest can absorb many toxic gases and noises and help in preventing air and noise pollution. vi. Wild life habitat: Forest is the home of millions of wild animals and plants.

REASON FOR DEFICIENCY OF FOREST:

In India the minimum area of forest required to maintain good ecological balance is about 33% of total area. But at present it is only about 12%. So over exploitation of forest material occurs.

OVER EXPLOITATION OF FOREST:

Due to over population, there is an increased demand for medicine, shelter, wood and fuel. Hence exploitation of forest materials is going on increasing. Cause of over exploitation:

1. Increasing agricultural production.
2. Increasing agricultural activities.
3. Increase in demand of wood resources.

DEFORESTATION:

It is process of removal of forest resources due to natural or manmade activities (i.e.) destruction of forests.

Causes of deforestation:

1. Developmental projects: Developmental projects causes deforestation through two ways.
 - Through submergence of forest area.
 - Destruction of forest area.Ex: big dams, hydroelectric projects, road construction etc.
2. Mining operations: It reduces forest areas.
Ex: Mica, coal, Manganese and lime stone.
3. Raw materials for industries: Wood is an important raw material for various purposes.
Ex: Making boxes, furniture and paper etc.
4. Fuel requirement: Wood is the important fuel for rural and tribal population.

5. Shifting cultivation: Replacement of natural forest ecosystem for mono specific tree plantation. Ex: Teak
6. Forest fires: Forest fire destructs thousands of acres of forest.
7. Over grazing: Over grazing by cattle reduces the cultivation land

Consequences of deforestation (or) impacts of deforestation:

1. Economic loss
2. Loss of biodiversity
3. Destructs the habitats of various species
4. Reduction in stream flow
5. Increases the rate of global warming
6. Disruption of weather patterns and global climate
7. Degradation of soil and acceleration of the rate of soil erosion.
8. Induces and accelerates mass movement / landslides.
9. Increases flood frequency, magnitude / severity.
10. Breaks the water cycle
11. Breaks the nutrient cycle

PREVENTIVE MEASURES (OR) AVOID OF DEFORESTATION (OR) METHODS OF CONSERVATION OF FORESTS

1. New plants of more or less of the same variety should be planted to replace the trees cut down for timber
2. Use of wood for fuel should be discouraged.
3. Forest pests can be controlled by spraying pesticides by using aero planes
4. Forest fire must be controlled by modern techniques.
5. Over grazing by cattle must be controlled.
6. Steps should be taken by the government to discourage the migration of people into the islands from mainland.
7. Education and awareness programmes must be conducted.
8. Strict implementation of law of Forest conservation Act.

Case study:

Deforestation in the Himalayan region, involves clearing of natural forests and plantation of monoculture like Eucalyptus. Nutrient in the soil is poor; therefore soil losing their fertility, hence, Himalayan area facing the serious problem of desertification.

MAJOR ACTIVITIES IN FORESTS

TIMBER EXTRACTION

Wood used for engineering purposes like building houses, making furniture is called timber. The products derived from timber have been important to many civilizations, and thus it has acquired value within these civilizations. Timber extraction results in deforestation and in the fragmentation of the last remaining forests. It harms valuable species of trees, birds and wild animals. In spite of this, it is sometimes necessary to extract timber, so as to meet the needs of a developing country. During the extraction of timber, cutting, felling and handling should be done selectively, carefully and in a planned manner, in order to save the remaining forests and biodiversity.

Effects of Timber Extraction

The major effects of timber extraction on forest and tribal people include:

1. Poor logging results in a degraded forest.
2. Floods may be intensified by cutting of trees or upstream watersheds.
3. Loss of biodiversity.
4. Climatic changes such as less rains.
5. New logging roads permit shifting cultivators to gain access to logged areas and cut the remaining trees.
6. It results in forest fragmentation which promotes loss of biodiversity because some species of plants and animals require large continuous areas of similar habitat to survive.
7. Exploitation of tribal people by the contractors.
8. Soil erosion especially on slopes occurs extensively.
9. Sedimentation of irrigation systems, floods may be intensified by cutting of trees on upstream.

Case Study-Chipko Movement

The world famous Chipko Movement, pioneered by Dasohli Gram Swarajya Mandal in Gopeshwar brought about a general awareness about conservation of forests. The first Chipko Movement dates back to 1731, when a village woman named Amrita Bai led the Bishnoi women against the Maharajas men to prevent them from cutting trees. In this attempt

to save the trees, she sacrificed her life along with the lives of her husband, three daughters and 363 people. The movement was given this name because the village women embraced or hugged the trees to stop them from being cut. In 1972, in Uttar Pradesh, the Chipko Movement was led by Bachnoi Devi of Advani who protected the hill forests from the contractors axe men.

DAMS

Today there are more than 45,000 large dams around the world, which play an important role in communities and economies that harness these water resources for their economic development. Current estimates suggest some 30-40% of irrigated land worldwide relies on dams. Hydropower, another important the use of stored water, currently supplies 19% of the world's total electric power supply and is used in over 150 countries. The world's two most populous countries – China and India –have built around 57% of the world's large dams.

Dams problems

Dams are the massive artificial structures built across the rivers to store water for much beneficial purpose.

Dams are considered a “Temples of modern India”. Dams destruct vast area of forest area. India has more than 1600 large dams.

Effects of dams on forest:

1. Thousands of hectares of forest will be cleared.
2. Killing of wild animals and destruction of aquatic life.
3. Spreading of water borne diseases.
4. Water logging increases the salinity of the soil.

Ex: Narmadha Sagar project it has submerged 3.5 lakhs hectares of forest.

Effects of dam on tribal people

1. Construction of big dams leads to the displacement of tribal people.
2. Displacement and cultural change affects the tribal people both mentally and physically.
3. They do not accommodate the modern food habits and life style.
4. Tribal people are ill-treated by the modern society.
5. Many of the displaced people were not recognised and resettled or compensated.
6. Body condition of tribal people will not suit with new areas and hence they will be affected by many diseases.

Case study- Sardar Sarovar Project:

The World Bank's withdrawal from the Sardar Sarovar Project in India in 1993 was a result of the demands of local people threatened with the loss of their livelihoods and homes in the submergence area. This dam in Gujarat on the Narmada has displaced thousands of tribal folk, whose lives and livelihoods were linked to the river, the forests and their agricultural lands. While they and the fishermen at the estuary, have lost their homeland, rich farmers downstream will get water for agriculture. The question is why should the local tribals be made homeless, displaced and relocated to benefit other people? Why should the less fortunate be made to bear the costs of development for better off farmers? It is a question of social and economic equity as well as the enormous environmental losses, including loss of the biological diversity of the inundated forests in the Narmada valley.

MINING

The process of extracting mineral resources and fossil fuels like coal from the earth is called as mining.

Types of mining

1. Surface mining: Mining of minerals from shallow deposits
2. Underground mining: Mining of minerals from deep deposits

Steps involved in mining

1. Exploration
2. Development
3. Exploitation
4. Ore processing
5. Extraction and purification of minerals

The extent of damage by underground mining is more than that of surface mining, which needs enormous amount of land area for its operation and management.

Effects of mining

1. Pollute soil, water and air.
2. Destruction of natural habitat.
3. Continuous removal of minerals leads to the formation of trench where water is logged which contaminates the ground water.
4. Vibrations cause earth quakes.

5. Produces noise pollution
6. Reduces shape and size of the forest.
7. Increased risk of landslides.
8. Spoils the aesthetic beauty.