

MODULE III

3.1 NATURAL RESOURCES

3.1.1 Forest Resources

3.1.2 Types of forest

3.1.3 Function of forest

3.1.4 Uses of Forest

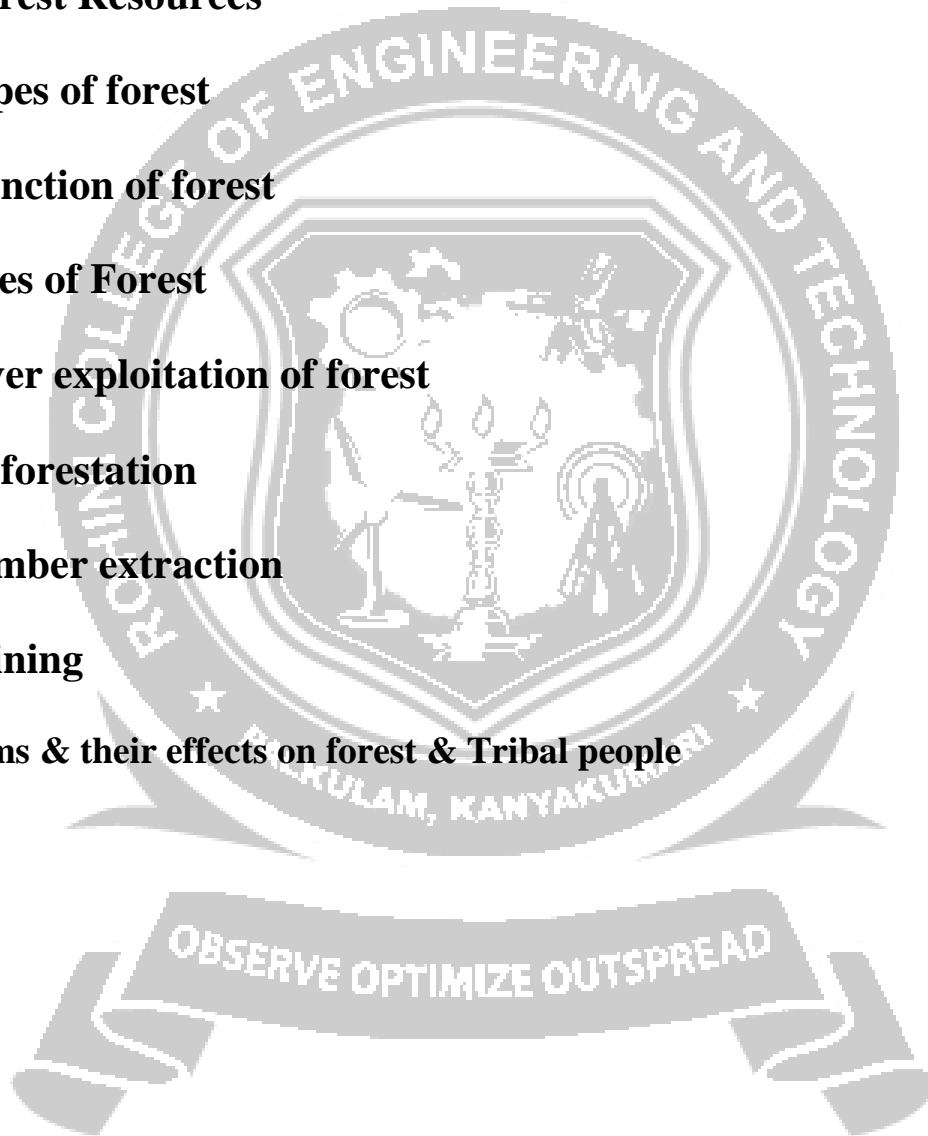
3.1.5 Over exploitation of forest

3.1.6 Deforestation

3.1.7 Timber extraction

3.1.8 Mining

3.1.9 Dams & their effects on forest & Tribal people



3.1 NATURAL RESOURCES

Natural resources can be classified into two types:

1. Renewable resources:

These resources are capable of being regenerated by ecological process.

Examples: soil, water, air, wildlife.

2. Non renewable resources:

These resources are not capable of being regenerated by ecological process.

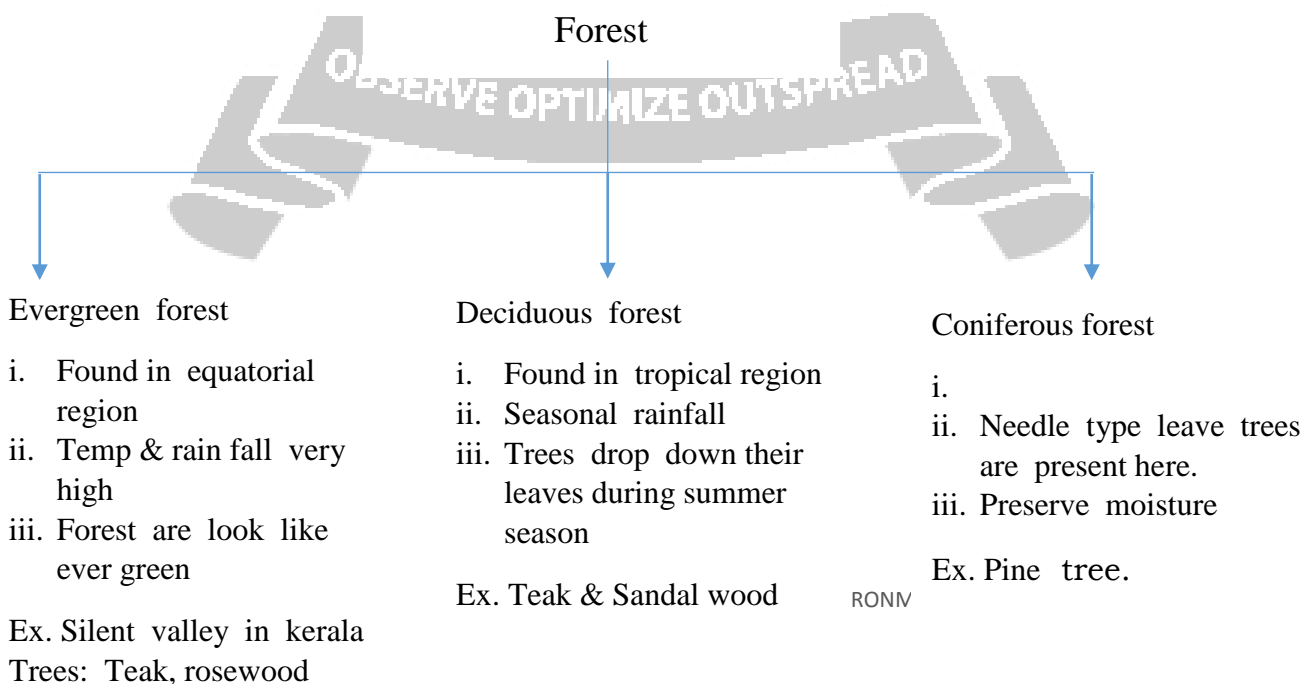
Examples: Minerals, coal, oil, natural gas, ground water.

3.1.1 Forest Resources

Forests are one of the most important renewable natural resource in this earth. About $\frac{1}{3}$ of the world's land surface is covered with forest.

Besides economy, it gives fuel, wood, coal, furniture, erosion, and prevent land slides and soil erosion.

3.1.2 Types of forest



3.1.3 Function of forest

- i) Forest play an important role for both humans & to nature.
- ii) It is a habitat of millions of plants, animals & wild life.
- iii) It recycle rain H₂O and remove pollutants from air.
- iv) It control water quality & quantity.
- v) It helps to maintain temp, weather & humidity.
- vi) It prevent soil erosion.
- vii) It promotes tourism & contribute aesthetic beauty.

3.1.4 Uses of Forest

1. Commercial Uses:

- a. Forest supply wood, which is used as fuel and the raw materials such as pulp, paper, board, timber are used for various industries.
- b. It gives minor forest products like gums, resins, dyes.
- c. Many plants are used for preparing drugs & medicines.
- d. It produce variety of animal products like ivory, honey hides.
- e. Forest lands are used for mining, grazing, recreation and for dams.

2. Ecological Uses

- a. Trees involving in the “production of oxygen” during the photo synthesis process.
- b. It absorbs the “Co₂” gas which is mainly responsible for Global warming
- c. Soil conservation Roots of the trees bind the soil tightly. So it prevent soil erosion.
- d. It regulate the hydrological water cycle.
- e. Trees absorb many toxic gases & noise. So it act as pollution moderator.
- f. It is the home of millions of wild animals & plants.

3. Aesthetic Value

- a. Forests have aesthetic value and serve as gene reserve of important species.

4. Touristic Value

Tourism provides a growing income to the government.

3.1.5 Over exploitation of forest

In India, the minimum area of forests required to maintain good ecological balance is about 33% of total area. But present is only 22% . So over exploitation of forest materials occur.

Causes of over exploitation

- i) Due to over population & poverty.
- ii) Increasing agricultural production.
- iii) Increasing industrial activity.
- iv) Increase in demand of wood resources like timber, pulp, minerals.

Consequences of over exploitation

- i) It leads to the migration of farmers.
- ii) Environment will be damaged.
- iii) Countless plants & animals will be endangered.
- iv) Dumping of wastes into land, air, water has a problem.

3.1.6 Deforestation

Deforestation means destruction of forests due to many natural (or) man made activities.

Causes

- i) **Developmental Projects** Cause deforestation in 2 ways
 - a. Submergence of forest area under H₂O

b. Destruction of forest area.

Ex. Big dams, hydro electric project, road construction.

ii) **Mining Operations** reduces the forest area.

Ex. Mica, Coal, Manganese, Limestone.

iii) Need of raw materials for industries.

iv) Increasing the fuel requirements.

v) Shifting cultivation.

vi) Due to forest fire, the forest area gets destructed.

Consequences

- i. **Global warming:** cutting & burning of forest trees increase the CO₂ gas in the atmosphere leads to changes in the climate, rising sea level, depletion of O₃ layer.
- ii. **Loss of genetic diversity:** Forests are habitat of wild life. During deforestation, the genetic diversity become lossed.
- iii. **Soil erosion:** Due to soil erosion land slide, flood drought may occur. Natural vegetation acts as a barrier to reduce the wind velocity, so it reduce the soil erosion.
- iv. **Loss of biodiversity :** most of the species are very sensitive to any disturbance and changes. Due to this deforestation the rare spicies may lossed.
- v. **Loss of food grains** from forest.
- vi. Increasing the **unemployment** problems.
- vii. Floods & land slides occur.

Preventive measurersof deforestation (or) conservation of forest:

- i) More no of plants should be planted.
- ii) Reduce the usage of wood for fuel.
- iii) Forest fire must be controlled by modern techniques.
- iv) Over grazing by cattle must be controlled.
- v) Discourage the migration of people from foresty area.
- vi) Education and awareness programmes must be conducted.

- vii) Strict implementation of law of forest conservation act.

3.1.7 Timber extraction

Due to population growth and lack of alternative fuels people living near by forest area are using wood as a fuel. So, timber extraction is increasing day by day.

Uses of timber

- a. It is used as a raw material for various wood based industries like pulp, paper, composite, furniture.
- b. It is used for developmental activities like railway, boat, rood construction.

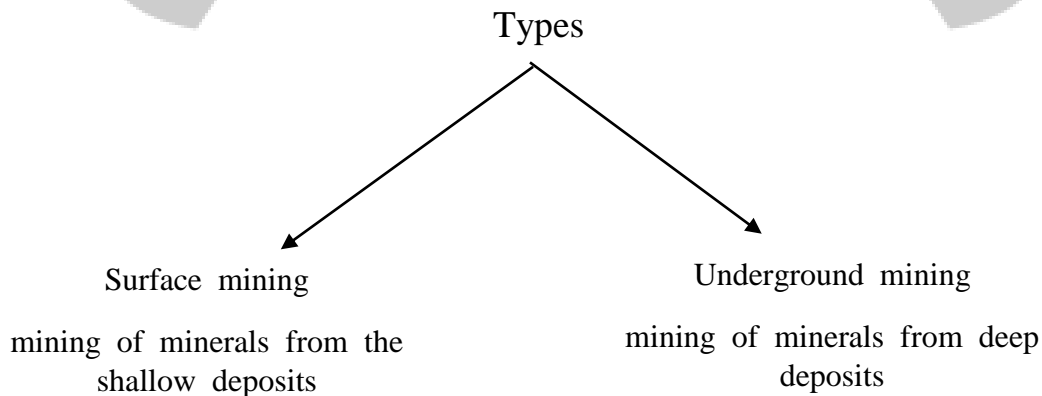
Consequence of timber extraction

- a. Large scale timber extraction causes deforestation.
- b. It produce soil erosion, loss of fertility, landslides and loss of biodiversity.
- c. Loss of tribal culture & extinction of tribal people.
- d. It reduce the thickness of the forest.

3.1.8 Mining

Mining is the process of extracting mineral resources and fossil fuels like coal from the earth. These are deposited in the forest area. The mining operation affect the forest.

Type of mining



Steps involved in mining

Mining operation involves the following steps:

- a) Exploration (investigation & searching of minerals)
- b) Development
- c) Exploitation (extraction of minerals)
- d) Ore processing (separation of ore)
- e) Extraction & purification of minerals.

Consequence of mining

1. Mining activity destroys the forest area.
2. It pollutes the soil, water, air with heavy metal toxic, that are impossible to remove.
3. Destruction of natural habitat at the mining area and the waste disposal sites.
4. Formation of trenches on the ground, leads to water logged area, which contaminates the ground water.
5. Noise pollution may created.
6. Due to continuous mining landslide may also occur.
7. Surface & ground water may polluted due to the disposal of waste minerals in H₂O.
8. Migration of tribal people from mining areas to other areas for searching land & food.

3.1.9 Dams & their effects on forest & Tribal people

Dams are the massive artificial structure built across the river to create a reservoir in order to store water for many beneficial purpose.

Dams are responsible for the destruction of vast area of forest and displacement of local people.

Effects of dam on forest

- i) Thousands of hectares of forest have been cleared for executing river valley projects.
- ii) In addition to dam construction, the forest is cleared for residential accommodation, office buildings, storing minerals and materials, laying roads.
- iii) Hydro electric projects reduces the forest area.
- iv) Killing of wild animals and destroying aquatic life.
- v) The big river projects cause water logging which produces salinity and in turn reduces the fertility of soil.

Ex) Narmada Sager Project : It has submerged 3.5 hectares of forest consisting teak & bamboo trees.

Effects of dam on tribal people

1. Displacement of tribal people
2. They are affected by mentally & physically due to the displacement & cultural change.
3. They are ill treated by modern society.
4. Many of the displaced people were not recognized & resettled.
5. Their body conditions are not suitable with the new areas. So they are affected by many diseases.