

FOREST BOTANY

- *Forest botany is applied plant science that aimed at contributing to forest management.*
- It covers the taxonomy, morphology, physiology, ecology, genetics, and other aspects of forest plants and fungi.

Forest Products

- *A forest product is any material derived from a forest for direct consumption or commercial use.*
 - ❖ Timber
 - ❖ Medicinal plants
 - ❖ Bamboo
 - ❖ Gums and resins
 - ❖ Animal products
 - ❖ Grasses
 - ❖ Fruits
 - ❖ Essential oil
 - ❖ Tans and Dyes
 - ❖ Spices
 - ❖ Canes
- Forest products are classified into two
 1. Major forest products
 2. Minor forest products

Major Forest Products : Timber

- Timber can actually be the trees used to make or build something, or the wood that comes from those trees.
- Forest provides us with both hard woods and soft woods.
- **Tropical hardwoods** include Sal, Teak, Ebony, Mahogany, Ironwood, Logwood, Semul, Sisso etc.



- **Softwoods** include Pine, Blue pine, Fir, Spruce, Cedar, Poplar etc.



- There are various industries that are solely dependent on timber.
- Saw mills, hardboard factories, plywood factories, match industry, window, door and furniture-making industries are a few of them.
- Timber is also used to make packing boxes, sports goods, wooden toys, railway sleepers etc.

Timber Yielding Trees

- *Dalbergia latifolia* (Rosewood)



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- *Tectona grandis* (Teak)
- *Tamarindus indica*
- *Artocarpus heterophyllus* (Jackfruit)
- *Santalum album*
- *Mangifera indica*
- *Hevea brasiliensis*
- *Mimosops elengi*



- *Cocos nucifera*
- *Artocarpus hirsutus* (Anjili)

Minor Forest Products

- Minor forest products include all products obtainable from the forest other than wood and thus comprise products of vegetables and animal origin.
- Some of the important forest products of minor nature are described as follows:
 - Grass, Bamboo, Canes
 - Tans and Dyes
 - Oil
 - Gums and Resins
 - Fibres and Flosses
 - Leaves
 - Drugs, Spices, Poisons
 - Edible products
 - Animal products
- Bamboo is called the **Poor man's timber**. It is used for construction, for making pulp and producing paper and newsprint, and young bamboo shoots are eaten as food item



- Canes grow in abundance in most forests. They are used mainly for making ropes, bags, strings etc
- Tannins are secretion products of plant tissues. Tanning materials are used in leather industry.
- Medicinal plants. Eg:- *Asparagus racemose*, *Piper longum*, *Terminalia chebula*



- A large number of plants and trees which grow in Indian forests contains several types of oils which are used to manufacture soap, cosmetics, confectionaries, pharmaceutical preparations and many more things.
- Commercially important oils are those obtained from sandal wood, lemon grass, khus and eucalyptus globulus.
- Fibres are obtained from the tissues of some trees. Most of such fibres are coarse and are used for rope making.
- Fruits, flowers, leaves or roots of various species provide edible products.
- Thousands of drugs are obtained from fruits, flowers, roots, stems and leaves of different types of trees, plants, herbs.
- **Quinine** is the most important drug obtained from the Indian forest.
- Spices are used to add aroma or pungency to food to flavor certain dishes.
- The important spices are Chilli, Cinnamon, Cardamom, Clove, Pepper, Asafoetida, Bay leaf, Nutmeg, Ginger etc.



- Gums are extracted from the stems of different trees. They are used in confectionery, medicine, and in the manufacture of paste, ink and coloured crayons.

Animal Products

- **Lac** is the most important animal product obtained from the forests. It is secreted by a minute insect (*Laccifer lacca*) which feeds on the saps of a large variety of trees like palash, peepul, kusum, sissoo, sisir, kul, gular, ber, banyan, jujube and ghont.



- The other animal products are honey, wax, silk moths, horns and hides of dead animals, ivory, antlers of deer, etc.

Significance of forest on environment

- Forests are the lungs of earth.
- It is the trees which absorb the carbon dioxide released by the burning of fuel by man and keeps the air fresh.
- The leaves use the carbon dioxide to produce food during photosynthesis, which is needed by animals.

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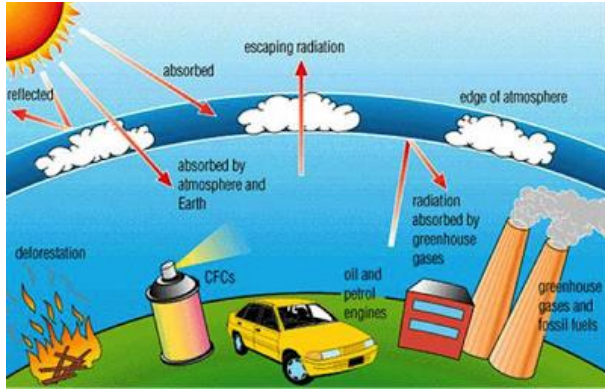
- The leaves after photosynthesis release oxygen which is a byproduct of photosynthesis into the atmosphere.
- This oxygen in the atmosphere is needed by all living organism for respiration.
- Without oxygen no animal or plants can survive on this environment.
- Forests help in improving the fertility of the soil by the rotting of the dead leaves and animals.
- The forests help in increasing the rainfall as the transpiration from the leaves increases the cloud formation and thus brings plenty of rain.
- They prevent soil erosion and preserve the fertility of the soil. They provide moisture and lower the temperature.
- They are home for many animals, birds, thus they preserve biodiversity.
- They maintain the ecological balance.
- They provide medicinal value resulting in the making of many medicinal drugs.
- Forest also help to alleviate psychological stress arising from the trials of modern society.
- They provide opportunity for relaxation and meditation – can lead to the development of eco-tourism.

Role of the forest

- Promote rain fall
- Prevents soil erosion
- Prevents flooding
- Maintains the composition of the atmosphere
- Reduce noise pollution
- Act as a wind barrier from heavy winds
- Provide medicinal remedies
- Recreation
- Lumber for the construction industry

Consequences Of Deforestation

- **Loss of biodiversity** : as forests are the natural habitats of many species, their destruction has a direct impact on the survival of global biodiversity.
- **Wildlife extinction and habitat loss.**
- **Soil degradation.**
- **Global warming.**



- **Increased flooding** due to a lack of water absorption by trees.
- Decline in the quality of life of people.
- **Food insecurity** in future.

Impact Of Industrialization

- Air pollution is caused by the smoke and emissions generated by burning fossil fuels.
- Soil contamination is another problem that goes in hand with industrialization.
- Lead is the most common form of soil contamination
- Other heavy metals and toxic chemicals leach into soil contaminate crops that grow there.
- Water pollution specifically in regions where factories are build next to natural water sources.
- Lead to drastic habitat destruction.
- Climate change.
- Loss of natural resources.