

INTRODUCTION : DEFINITIONS OF BASIC TERMS RELATED TO FORESTRY

Introduction to Forest in India

The word "Forest" is derived from Latin word 'foris' means meaning outside the village boundary or away from inhabited land. It is a large tract covered with trees and under growth some-times mixed with pasture. Generally, forest is referred to an area occupied by different kinds of trees shrubs, herbs, and grasses and maintained as such. In a general sense, forest is a large uncultivated tract of land covered with trees and Underwood, woody ground and rude pasture a preserve for big game. Technically, forest is an area set aside for the production of timber and other forest produce, or maintained under woody vegetation for certain indirect benefits which it provides, e.g. climatic or protective (Anon. 1966). Ecologically, it is defined as a plant community, predominantly of trees and other woody vegetation, usually with a closed canopy. Legally, forest is an area of land proclaimed to be a forest under a forest law. FAO classifies all such lands into forest. The forests made / composed / constituted / dominated from almost entirely one single species, to the minimum extent of 50 per cent are called Pure Forest Constitute.

From the above definition, it is clear that the forest has five components, namely;

1. It is an uncultivated land area
2. The land area should be occupied by different kinds of natural vegetation essentially by trees or it is proposed to establish trees and other forms of vegetation
3. The trees should form a closed or a partially closed canopy
4. The trees and other forms of vegetation should be managed for obtaining forest produce and / or benefits and
5. It should provide shelter to wildlife, birds-and other fauna. (Animals)

India

- **Total geographical area --32, 80,500 sq. km (328.8M ha)**
- **Total forest area-- 7, 50,500.00 sq. km (75.06 M ha)**
- **Agricultural area is about 46.4%**

The second National Forest Policy was enunciated (decided) in 1952 as per which 33.33% of land should be under forest for proper ecological balance. In hills 60% area should be covered under tree cover. During last two decades 2 million ha forest was diverted for non-forest purpose, Agro-industry, power and irrigation projects, housing etc.

Government has enacted the Forest Conservation Act. 1980 to ensure that no reserve forest can be diverted to any other type of forest and that no forest and that no forest land can be used for any non forest purpose.

Out of total area under forest, 45.6 million ha (60%) area is in use and another 14.8 million ha (20%) area potentially exploited and remaining unexploited area as on Himalayan states, North Eastern regions and Andaman Nicobar islands.

Sources of energy consumption in India are: Coal, 16.5% Oil 10.0% Electricity 15.7% wood 37.6% Cowdung 8.7% and Vegetation waste 11.5%

Functions & Types of Forest in India

Function of forests:

S. No.	Particulars	Functions
1	Productive	They provide timber, fuel, charcoal, beedi, leaves, wax and resins, fruits, tanning, materials, manure leaves, grass, bamboo, gums, lac etc.
2.	Protective	Forests protect water sheds, catchments of rivers and streams against erosion.
3.	Aesthetic	Forests add good appearance, landscaping and a thrilling atmosphere to the locality.
4	Recreational	Forest provides picnic resorts and opportunities for sport like hiking, trekking, wild life watching, bird watching.
5	Scientific	Study of ecological process can be made
6	Ameliorative	Forests improve climate and reduce pollution
7	Hygienic	Forests improve the environment and help in reduction of noise, purify the air and give out oxygen to the atmosphere.
8	Industrial developments	Forest meet the need for raw material for industrial development such as Paper pulp, rayon grade pulp, saw mill ply wood, hard board etc.

Forest types of Indian:

1. Tropical wet ever green forest
2. Tropical semi evergreen forest
3. Tropical moist deciduous forests (Southern and northern types)
4. Littoral and Swamp forests
5. Tropical dry deciduous forest
6. Tropical thorn forest
7. Tropical dry ever green forest
8. Sub tropical broad leaved hill forest
9. Sub tropical dry evergreen forest
10. Mountain wet temperate forest
11. Himalayan moist temperate forest
12. Sub alpine forest
13. Himalayan dry temperate forest
14. Sub alpine forest
15. Moist alpine scrub
16. Dry alpine

The above types are called natural ecosystems. Ecosystems are the natural climax forests, resulting from a long process of ecological succession of plants and associated animal's life, undisturbed by man.

Branches of Forestry- 05 different branches:

1. Silviculture:

If refers to certain aspects of theory and practices of raising forests crops, methods of raising tree crops, their growth and after care up to the time of final harvesting.

2. Mensuration:

It deals with the measurement of forest produce ex. Dimension from volume, age and increment of individual trees and forest crop.

3. Silviculture system:

Process by which the crops constituting a forest are tended, removal and replaced by new crops

4. Management:

Practical application of sequence technique and economics to forest estate for the production of certain desired results

5. Utilization:

Branch of forestry which deals with harvesting, marketing conservation and applying the forest produce to a variety of uses eg. Timber, fuel, charcoal, pulp wood, ply wood.

Forestry and Its Branches

Forestry:

The theory and practice of all that constitutes the creation conservation and scientific management of forest and the utilization of their resources, based on the aims or objectives, the forestry may be:

1. **Protection of Environmental forestry:** Protection of land, regulation of water cycle, Wild life conservation Modernization of climate conditions, combination of above.
Ex. Buddha Jayanti Park at New Delhi.
2. **Commercial or Production forestry:** Timber and other raw materials.
3. **Social Forestry:** Raising forests outside the traditional forest with the involvement of society.
4. **Farms Forestry:** Raising forest trees on farms lands. It is further classified as:
 - **Non commercial farm forestry:** raising of trees by individuals for domestic needs (usually by the farmers)
 - **Commercial farms forestry:** Farmers grow trees on commercial basis on farmlands.
5. **Community forestry:** Raising of forests of public or community land

6. **Urban forestry:** Management of public and private owned lands in and adjacent to urban centres. They have more aesthetic value.
7. **Agro Forestry:** Cultivating forest trees along with agricultural crops.

Definitions and Terms used in Forestry

1. **Forestry:** Forestry has been defined as ‘the theory and practice of all that constitutes the creation, conservation and scientific management of forests and the utilization of their resources.
2. **Silviculture:** The terms silviculture, commonly refers only to certain aspects of theory and practice of raising forests crops. **OR** Silviculture pertains to the establishment, development, are and reproduction of forests crops.
3. **Pollarding:** This is a process in which the branch of a plant is cut off in order to produce a flush of new shoots. Pollarding is carried out at a height which is above the reach of browsing animals. It has been widely adopted on salix trees in Kashmir Valley. (Willow), *Hard-wickia binata* in A.P. (Anjan), *Grewia oppositifolia* in U.P. Hills (Silver oak type)
4. **Lopping:** It pertains to the cutting of branches or even young stems. This leads to the development of new shoots. It is carried out on Diospyros (Temburni) for bidi industry, also in number of broad leaved species for fuel and fodder and as *Quercus incana* (Indiana oak), morus etc, for rearing silkworm.
5. **Pruning:** Means the cutting of branches from the bole in order to maintain the quality of timber.
6. **Taungya system:** It was first evolved in Burma in 1850 as a mode of replanting vast teak areas. Taungya is a Burmas word. (Toung hill, ya - cultivation). This is a modified form of shifting cultivation of which the labour has permission to raise crop on the land, but, with this, they are responsible for planting, of the forest species, also for protection and well being of the plantation. After about five years or so, they are required to move to another patch of land.
7. **Coppice:** When certain plants or seedling are cut from near ground level, they produce a flush of fresh shoots. This is known as coppicing
8. **Seed orchards:** are plantations which may raise exclusively with the aim of producing seed.
9. **Pricking out:** When the seedlings have to be kept in the nursery for more than a year, it must be transferred to beds, other than the seedling beds. This is known as pricking out or to transplant small seedlings individually in to nursery beds or boxes.
10. **Wind breaks:** Is a protective plantation in a certain area, against strong winds. It is usually comprised of a few rows of trees (or shrubs) spaces at 0.5 to 2.5 m apart.)
11. **Shelter belts:** is a wide zone of trees, shrubs and grasses, planted in rows, usually at right angles to the direction of the prevailing winds. Its aims are:
 - a. To deflect the air current.
 - b. To reduce the velocity of prevailing winds
 - c. To provide general protection
 - d. To protect the leeward area from the desiccating effects of hot winds.

12. **Tending:** Tending is a board terms given to operation which are carried out for the well being of forest crops, at any stage of it life, involving operation both on the crop itself and on its competing vegetation e.g. weeding, cleaning, thinning, improvement feeling etc. However, tending does not include operation concerning, regeneration such as regeneration feeling, soil working, control burning etc.
13. **Felling:** Felling comprise of removal of trees either singly or in small groups scattered all over the forest.
14. **Afforestation:** Establishing a forest by artificial means on an area on which not forest vegetation has existed for a long time in the past.
15. **Reforestation:** Re-establishing a forest, by artificial means on an area which previously bore forest vegetation, and which may have been felled or otherwise cleared in the recent past.
16. **Age crop:** The age of a regular crop corresponding to its crop diameters.
17. **Age classification:** The division of a crop according to difference in age **OR** the allotment of woods to age classes.
18. **Alpine:** Zone of vegetation where winter is server, slow fall heavy, the mean annual temperature is 450F and the mean January temperature below 300F. In India Himalayan at the altitude above 10,000 ft.
19. **Basal area:** The area of the cross section of a stem at breast height, when applied to a crop, the sum of basal areas of all the stems or the total basal areas per unit area.
20. **Bole:** The main stem of a tree.
21. **Breast height:** Almost universally adopted as the standard height for measuring the girth, diameter and a basal areas of standing trees. India 4'6" (1.37m). In U.K. and most commonwealth countries 4'.3" (1.30m)
22. **Coupe:** A felling area, usually one of an annual series unless otherwise stated. Preferable numbered with Roman numbers as, I, II, III etc.
23. **Crown:** The upper branchy part of the tree above the bole.
24. **Dendrology:** The identification and systematic classification of trees.
25. **Reserved forests:** an area so constituted under the Indian Forest Act or other Forests law.
26. **Protected forests:** A legal terms for an area subjected to limited degrees of protection under the provision of Chapter IV of the Indian Forest Act.
27. **Unclassed forest:** Forest land owned by Government but not constituted in to a reserved, village or protected forest.
28. **Log:** The stem of a tree or a length of stem or branch after felling and trimming.
29. **Logging:** Operation comprising felling of trees, limbing, bucking and transportation of the resulting product out of the forest timber harvesting (Bucking-Act of being)
30. **Pole:** A young tree from the time when the lower branches begin to fall off to the time when rate of height growth begins to slow down and crown expansion becomes marked.
31. **Raft:** An assemblage of logs, timbers or bamboos tied together or enclosed within a boom for transport by floating.
32. **Scrub:** Inferior growth consisting chiefly of small or stunted trees and shrubs.
33. **Stand:** An aggregation of trees or other growth possessing sufficient uniformity in composition, constitution, age arrangement or condition, to be distinguished from adjacent crops and forming a silvicultural unit.

34. **Succession:** The gradual replacement of one community by another in the development of vegetation towards a climax

Seed Production areas or seed stands: Which are area set aside exclusively for the purpose (i) to produce seed of high quality from genetically superior trees available in the stand (ii) to concentrate seed collecting operation in a small sphere or area. The seed stands are established by removal of the inferior trees, seed orchards are plantation of genetically superior trees isolated to reduce pollination from genetically inferior ones. Seed orchards may be of two types: (i) Clonal: raised by grafting clones of superior trees on 2-3 year old seedlings (2) Seedling raised from obtained from seeds of superior trees.