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By

Ved Prakash Gupta
Assistant Professor

Vedprakashcsa76@gmail.com

Department of Soil Conservation Faculty of
Agriculture

Government Degree College Jakhini, Varanasi

Head of Department

Ved Prakash Gupta

Vedprakashcsa76@gmail.com

Head of institutional

Dr. Akhilash Kumar

Email Id:-
principalgdcj@gmail.com

Affiliated to

Mahatma Gandhi Kashi Vidyapith, Varanasi-221002
(U.P.) India

ROLE OF FORESTS

Forests play a significant role in social, cultural, economical, industrial and environmental development. Forests are the resource base for sustenance of population and store house of biodiversity and the associated natural resources. All land use patterns like agriculture, horticulture, animal husbandry etc. either originated or are dependent on forests and forest land. Forest is the part of earth since the earth started to evolve forests are the important source of natural resources like fruit and timber. They are productive because they can create new trees and plants in natural process without human interference. While they are protective because they give home to any species and they also provide us with breathable air. Trees have tremendous potential not only to control soil, water and air pollution and greenhouse effect but also to improve the balance of oxygen. Conserve soil, water, air and biodiversity besides preventing degradation of natural resources. The importance of forest tree species and multipurpose tree species (MPTS) is increasing due to deforestation, land degradation, pollution and environmental hazards. These trees when planted outside forested areas provide fuelwood, fodder, fibre, timber, oilseed, edible pods, tannin dyes, gums, shelter, shade etc. and are regular sources of income to the farming community.

(A) Productive Role of forest :-

- (I) **Food** – forests provide a wide range of food for the dwellers and the local people and thus contribute towards the food security. The following are-
- A. **Rhizome** - *Amarphous companulatum*, *Cyperus rotundus*.
 - B. **Root and aerial** - *Dioscorea*, *Maringa oleitera*, *Caryata urens*, *Bauhinia variegata*
 - C. **Buds**- *Dillenia pentagyna*, *Phoenix sp.*
 - D. **Sap and latex** - *Borassus Flabellifer*, *Cissus rapanda*.
 - E. **Stem** - *Cycas Pectinata*, *Dendrocalamus strictus*
 - F. **Leaves** - *Tamarindus indica*, *Moringa oleifera*
 - G. **Flowers** – *Ficus glomerata*, *Madhuca indica*, *Bombax ceiba*, *Tamarindus indica*
 - H. **Fruits** – *Aegle marmelos*, *Anacardium occidentale*, *Annona squamosa*, *Artocarpus Heterophyllus*

Borassus flabellifer, Capparis decidua, Diospyros melanoxylon, Emblica officinalis, Ferronia elephantum, Morus alba, Zizyphus Spp.

- 1. Seeds** - *Anacardium occidentale, juglans regia, prunus amygdalus, Tamarindus indica, Dendrocalamus strictus*
- 2. Fuel**- wood is used as fuel for thousands of the years the advent of coal, oil, gas Electricity etc. wood contributes as chief source of fuel, even today more than half of the total world consumption of wood is for fuel wood. Wood remains the major source of domestic fuel in India. The important fuel wood species are - *Acacia catechu, Acacia nilotica, Leucaena leucocephala, Azadirachta indica, Dalbergia sissoo, Eucalyptus spp, Prosopis Juliflora, Acacia tortilis, Albizzia spp, Casuarina equestifolia. etc*
- 3. Timber** – Timber is a major forest produce and is used extensively for various purposes, in India most of the wood produced is used for construction of houses, agricultural implements, bridges, sleepers etc. In India 12 MM³ of timber produced from our forests more than 1500 species of tree are commercially exploited for timber in different parts of India. It is used in timber based industries such as plywood, saw milling, paper and pulp and particle board. Many species like teak, sal, deodar, babul, Sissoo, chirpine, adina, axlewood, rosewood, dipterocarpus etc. are yield valuable timber.
- 4. Fodder** – forests extend fodder to the cattle due to their richness in protein, fibre and fat. The forest in India meet about 30 % of the fodder requirement through provision of grazing and browsing facility. It also supplements the fodder needs of the cattle during lean season. Fodder trees are – *leucaena leucocephala, Albizia amara, hardwickia, pterocarpus, Gliricidia sepium, Sesbania sesban, Prosopis cineraria, Bauhinia perpurea, Ailanthus excelsa etc.*
- 5. Industrial wood** - Forest provide raw material to large number of industries eg. paper and pulp, plywood and other board, packing cases, matches toys etc.

Paper and Pulp – Bamboos, Eucalyptus casuarina

Plywood – teak, Rosewood, terminalia etc.

Packing Cases – Pinus Spp, silver, oak, Fir

Matchwood – Ailanthus, Semaruba, Bambax

Toys - Adina, Red Sanders, rose wood.

6. **Shelter** – wood is used for construction of building . eg palmyra , teak , jack etc

7. **NTFP (Non timber forest Product)** – forests provide wide range of non timber products.

i. **Fibre and flosses** – fibre are obtained from bast tissue of certain woody plants which are used for making rope . flosses are obtained from ceiba pentandra and fibres are obtained from agave sisalana , sterculia urens.

ii. **Grasses and bamboos** – A large variety of grasses are found in the forest . about 30% of the 416 million livestock population graze in the forest . among valuable grasses eg sabai Eulaliopsis binata have harvested annually 6.5 million tones and 80,000 tones bamboo are harvested from the forest every year.

iii. **Essential oil** – the essential oil are utilized in making soap . detergent ,and chemicals. eg Eucalyptus , bursera, Cymbopogon , santalum album etc.

iv. **Oil Seed** – Many tree species of *madhuca indica* , *pangomia pinata* , *shorea robusta* , *Azadirachta indica* , *Schleichera oleosa* , *Vateria indica* , etc. produce oil bearing seeds . which are commercially important.

v. **Tans and dyes** – important tannis are extracted from myrobolan nuts , bark of wattles (*Acacia decurrens* , *Acacia dealbata*) and *cassia auriculata* , leaves of *Embllica officinalis* and *anogeissus latifolia* , fruit of *Zizyphus xylophora* , *cassia pistula* , *Terminalia alata* , *Terminalia arjuna* etc. *katha* and *cutch* or obtained from *Acacia catechu*.

vi. **Gums and resin** – gum and resin are excuded by trees as a result of injury to the bark or wood

Gum – sterculia urens , anogeissus latifolia , Acacia nilotica , Acacia catechu , Acacia Senegal , pterocarpus marsupium , butea manosperma etc.

Resin – resin obtained from pinus roxburghii , pinus wallichiana , boswellia serrata , depterocarpus turbinatus.

vii. **Durgs , spices and insecticides** – important species yielding drugs are *Rauvolfia serpentina* , *Hemidesmus indicus* , *Atropa spp* , *Datura innoxia* etc.

Spices – seeds of *carum carvi* , bark of *cinnomomum*, *zeyanicum* , *dried capsules of Elletaria cardomomum*. Insecticides---- pyrethrum and neem.

(VIII)- **Tendu and other leaves:-**

Tendu leaves (bidi leaves) *diopyrus melanoxylan* and leaves of *bauhinia spp*, *Butea spp* etc.

IX- lac and other product:- lac is a resinous secretion of insects which feed on forest trees e.g. *Butea monosperma*, silk worms feed on *Morus alba* or *Terminalia alata*. Honey is produced from forests.

(B) protective role of forest:-

(1) Forest as earth's air purifiers:- forest is an effective sink for the carbon dioxide produced as a result of animal respiration, burning of fossil fuel, volcanoes and other natural and human-induced phenomena and if that is not all. A by-product of photosynthesis is oxygen thus the Amazon forests are the earth's air purifiers given the large amount of CO₂ they absorb from the atmosphere. Forests play a significant role in maintaining the CO₂ balance in the atmosphere without sufficient forest cover all the CO₂ released in the atmosphere will not be utilized. Resulting in a higher percent of CO₂ in the atmosphere.

(2.) Climate amelioration:- forest increases local precipitation by about 5 to 10 % due to their agrographic and microclimate effect and create conditions favorable for the condensations of clouds, forest reduces temperature and increases humidity it also reduces evaporation losses.

(3.) soil and water conservation:- forests maintain the productivity of the soil through adding a large quantity of organic matter and recycling of nutrients. The leaves are used as manure. Tree crowns reduce violence of rain and check splash erosion. Forests increase the infiltration and water holding capacity of the soil. Resulting in much lower surface runoff this in turn results in checking of soil erosion.

(4.) Tree crowns reduce the violence of rain and check splash erosion. Forests increase the infiltration and water holding capacity of the soil.

(5) Forests reduce temperature and increase humidity

(6.) Forests and trees reduce wind velocity considerably reduction of wind velocity causes considerably reduction in wind erosion, check shifting of sand dunes and halt the process of desertification.

(7.) Forests check flood.

(8.) Forests and trees provide a shelter belt and wind break effect which is beneficial to agricultural crops, particularly in arid and semi arid areas and increase in agriculture production.

(9.) Forests provide recreational facilities to the people.

(10.) Forests and various forest activities help tribal's to improve their socio economic conditions.

(11). Forest provides employment to a large number of people.

(12). Forest and trees act as a habitat for wild life.

(13). Forest help in biological rejuvenation of soil trees through their sturdy root structures open to the soil improve it by adding organic litter or humus rendering it hospitable to useful micro and macro flora and fauna.

(14). Forest have a natural healing effect for a number of diseases. Most of the sanatoria are found in a forested locality.

(15.)forest protect us from physical, chemical and noise pollution, dust and other particulates and gaseous pollutants cause serious health problems.

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Ved Prakash Gupta

