
Forest
Resources

Topics

- Introduction
- Forest resources
- Forest resources-Indian Scenario
- Functions of forests
- Importance of forests
- Ecological and Economical Importance
- Types of Forests
- Deforestation Causes & Effects
- Forest Degradation in India

Introduction

- Forest resources play an important role in the economy of any country. It is highly complex, changing environment made up of a living and non living things. Living things include trees, shrubs, wildlife etc. and non-living things include water, nutrients, rocks, sunlight and air. Forest vary a great deal in composition and density and are distinct from meadows and pastures. Forest are important to humans and the natural world. For humans, they have many aesthetics, recreational, economic, historical, cultural and religious values. Forest provide fuel, wood, timber, wildlife, habitat, industrial, forest products, climate regulations, medicinal etc.

Forest Resources

- The word forest is derived from a Latin word
- " Foris" means Outside
- Forest are one of the most important natural resources of the earth.
- Approximately 1/3rd of the earth's total area is covered by forests

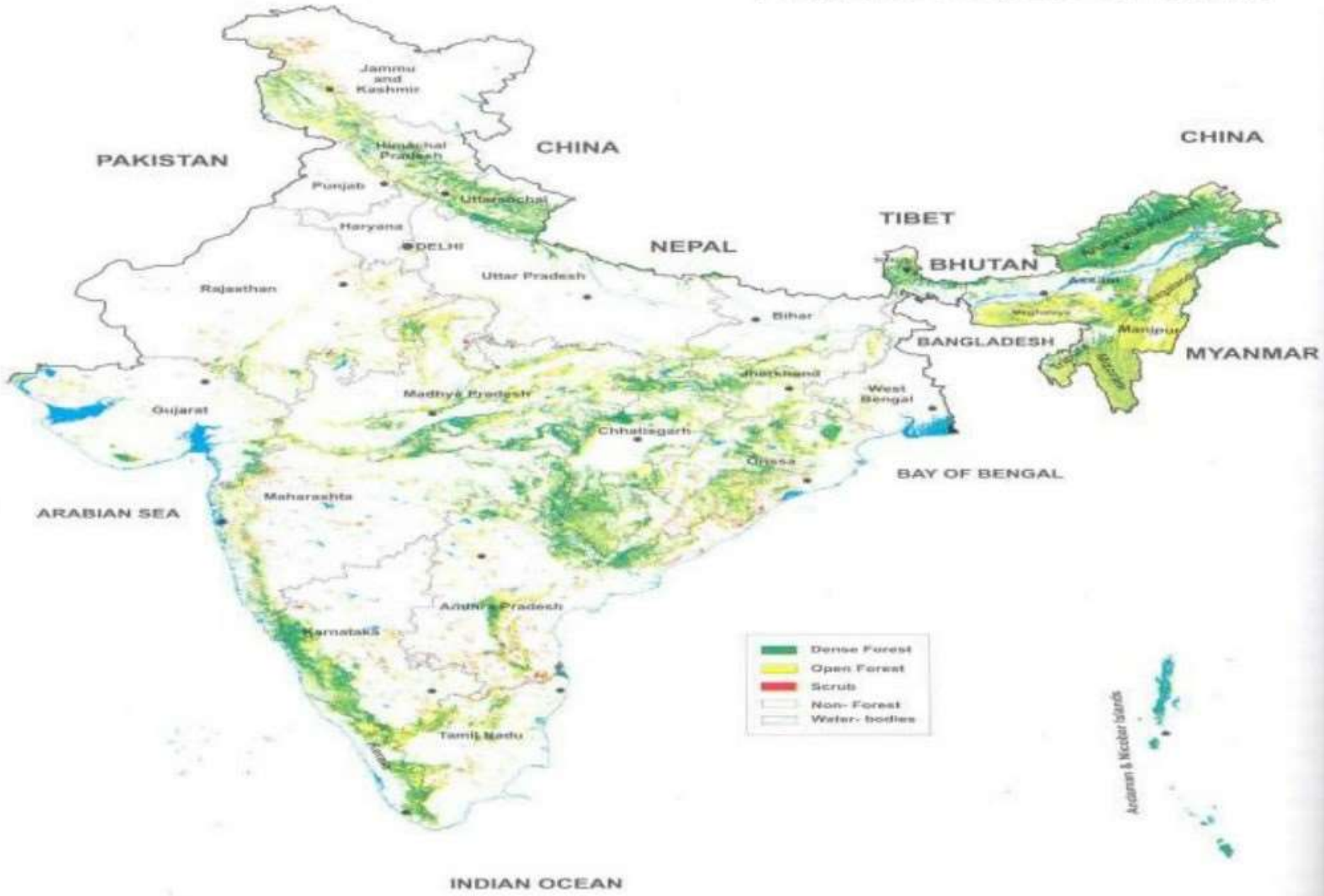
Indian Scenario

- In India forest cover Overall, 21.02% of the country's geographical area is now under green cover **(as per 2009* data)** The total forest cover in India is **6,90,899 km^2**

- Forest cover in India is defined as all lands, more than one hectare in area with a tree canopy density of more than 10%.

Very Dense Forest	All lands with tree cover of canopy density of 70% and above
Moderately Dense Forest	All lands with tree cover of canopy density between 40% and 70%
Open Forest	All lands with tree cover of canopy density between 10% and 40%.
Scrub	Degraded forest lands with canopy density less than 10 %.
Non-forest	Any area not included in the above classes.

FOREST COVER OF INDIA



Functions of Forests

- The functions of forest may broadly classified into following categories
- ***Protective Function***
- ***Productive Function***
- ***Regulative Function***
- ***Accessory Function***

Protective Functions

- Forest Provide protection against Soil erosion, Droughts, floods, noise, radiations

Soil erosion

Soil erosion

Floods

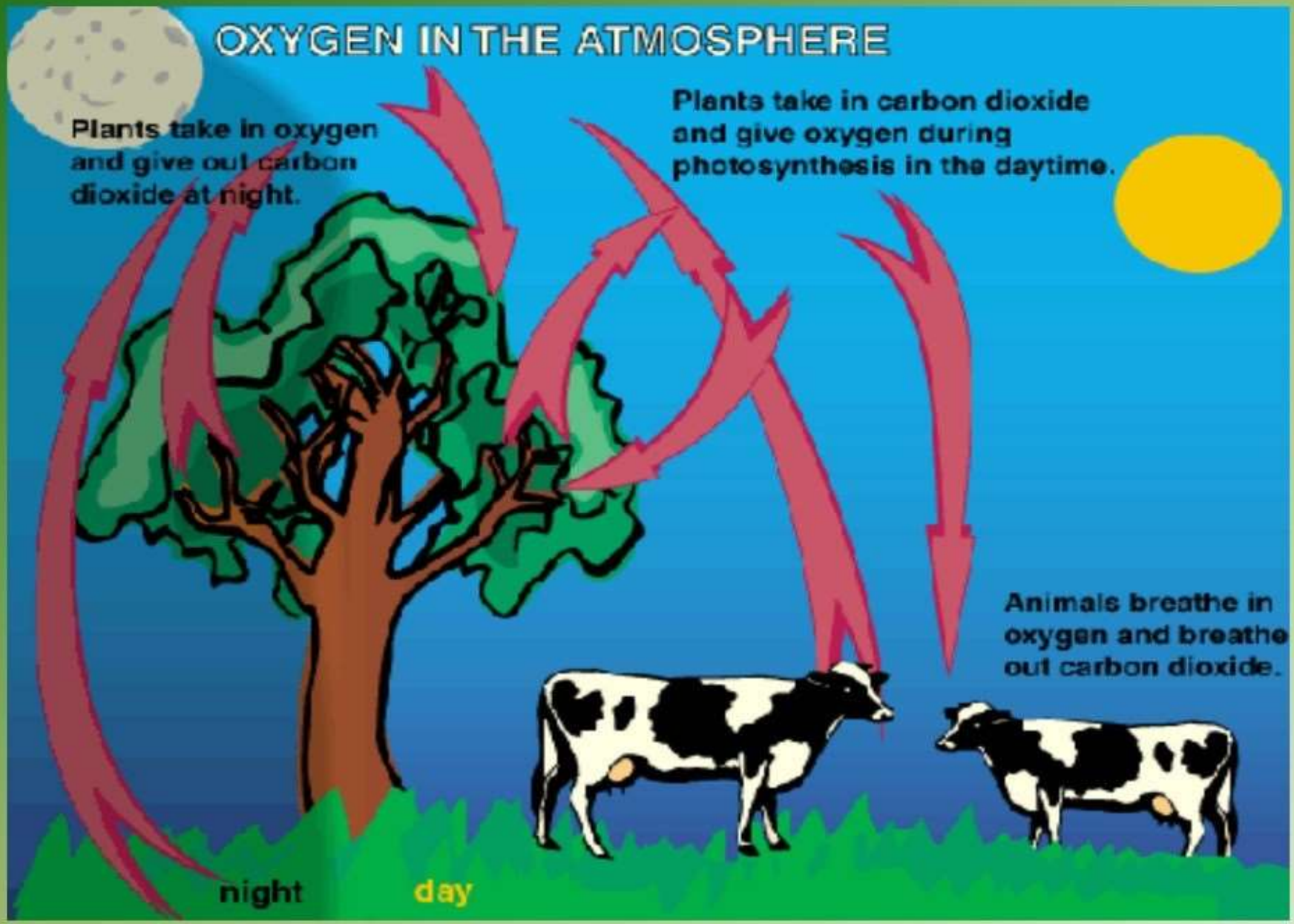
Droughts

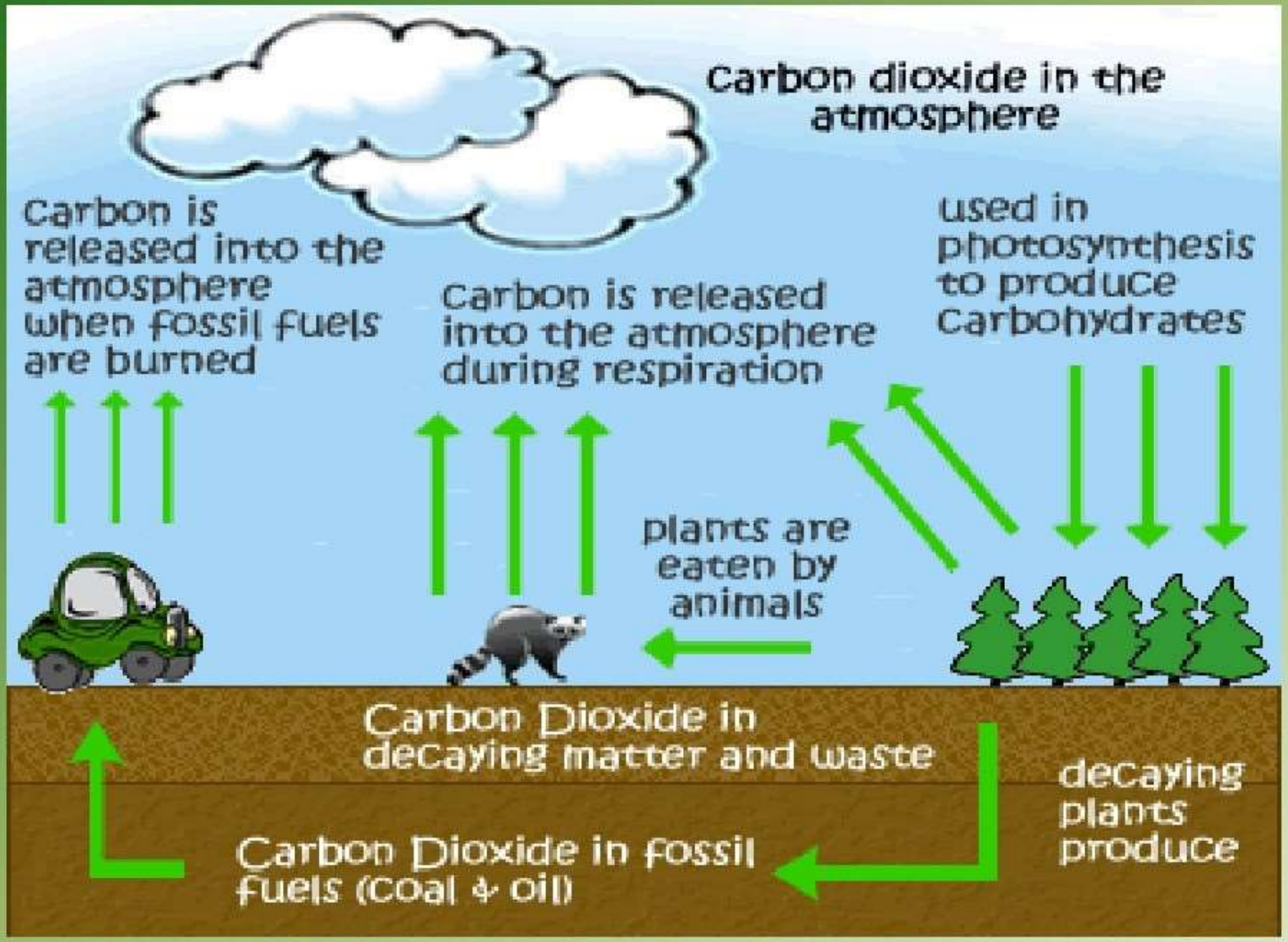
Productive Functions

- Forest Provide various products like, gum resins, medicines, Katha, honey, pulp, bamboo, timber, and fruits

Regulative Functions

- The Forest regulates the level of Oxygen and carbon dioxide in atmosphere. The forests also help in regulating temperature conditions


OXYGEN IN THE ATMOSPHERE
Plants take in oxygen and give out carbon dioxide at night.
Plants take in carbon dioxide and give oxygen during photosynthesis in the daytime.
Animals breathe in oxygen and breathe out carbon dioxide.
night
day


Carbon dioxide in the atmosphere
Carbon is released into the atmosphere when fossil fuels are burned
Carbon is released into the atmosphere during respiration
used in photosynthesis to produce carbohydrates
plants are eaten by animals
Carbon Dioxide in decaying matter and waste
Carbon Dioxide in fossil fuels (coal & oil)
decaying plants produce

Accessory Function

- Forest provides aesthetics, habitat to various flora and fauna besides that it also has an recreational value.

Ecological Importance or uses of Forests

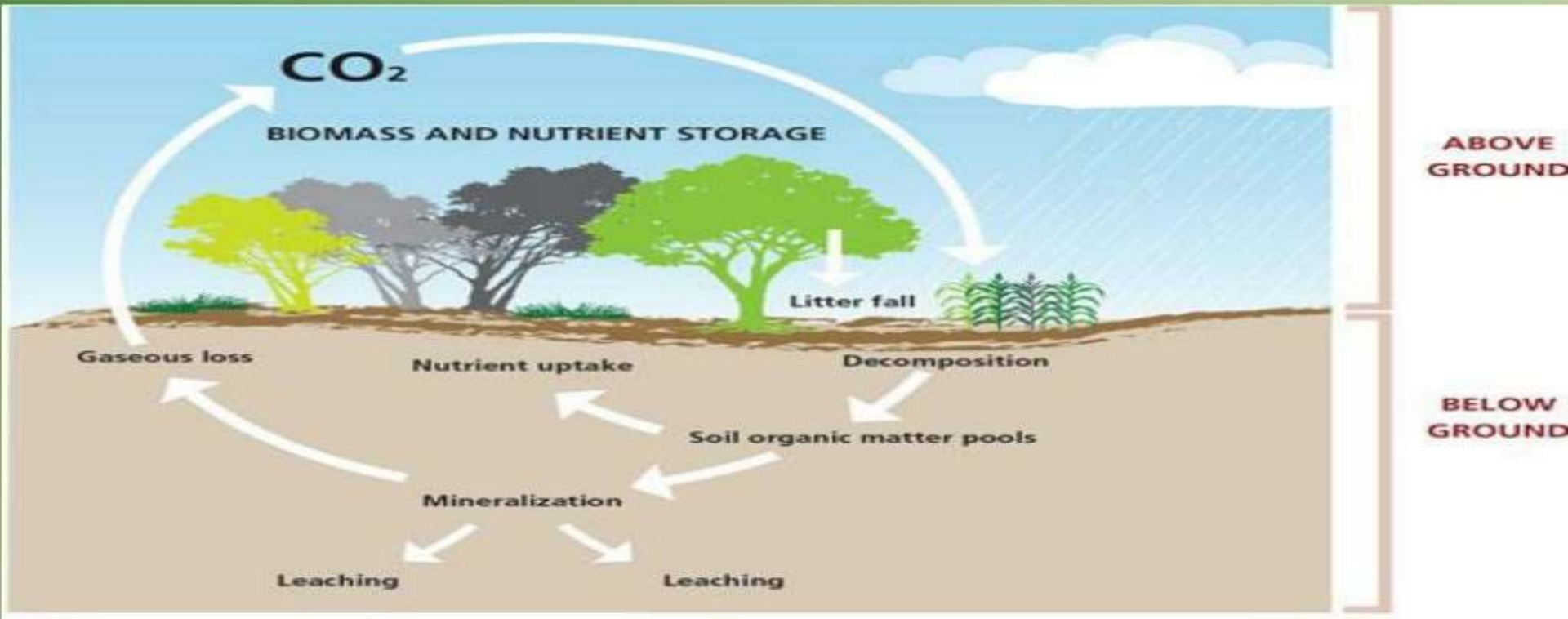
- ***Regulation of global climate and temperature***
- Forest play a crucial role in regulation of global climate and temperature as forest cover absorb the solar radiations that would otherwise be reflected back into the atmosphere by bare surface of the earth.
- Transpiration of plants increases the atmosphere humidity which affects the rainfall, cools the atmosphere and thus regulate the hydrological cycle

Reduction of Global Warming

- The main green house gas co_2 is used by forests for photosynthesis process the forest act as a sink for co_2 there by reducing the green house effect due to co_2

Production of Oxygen

- During Photosynthesis process forest releases oxygen a very important gas for human survival thereby are called as lungs of earth.

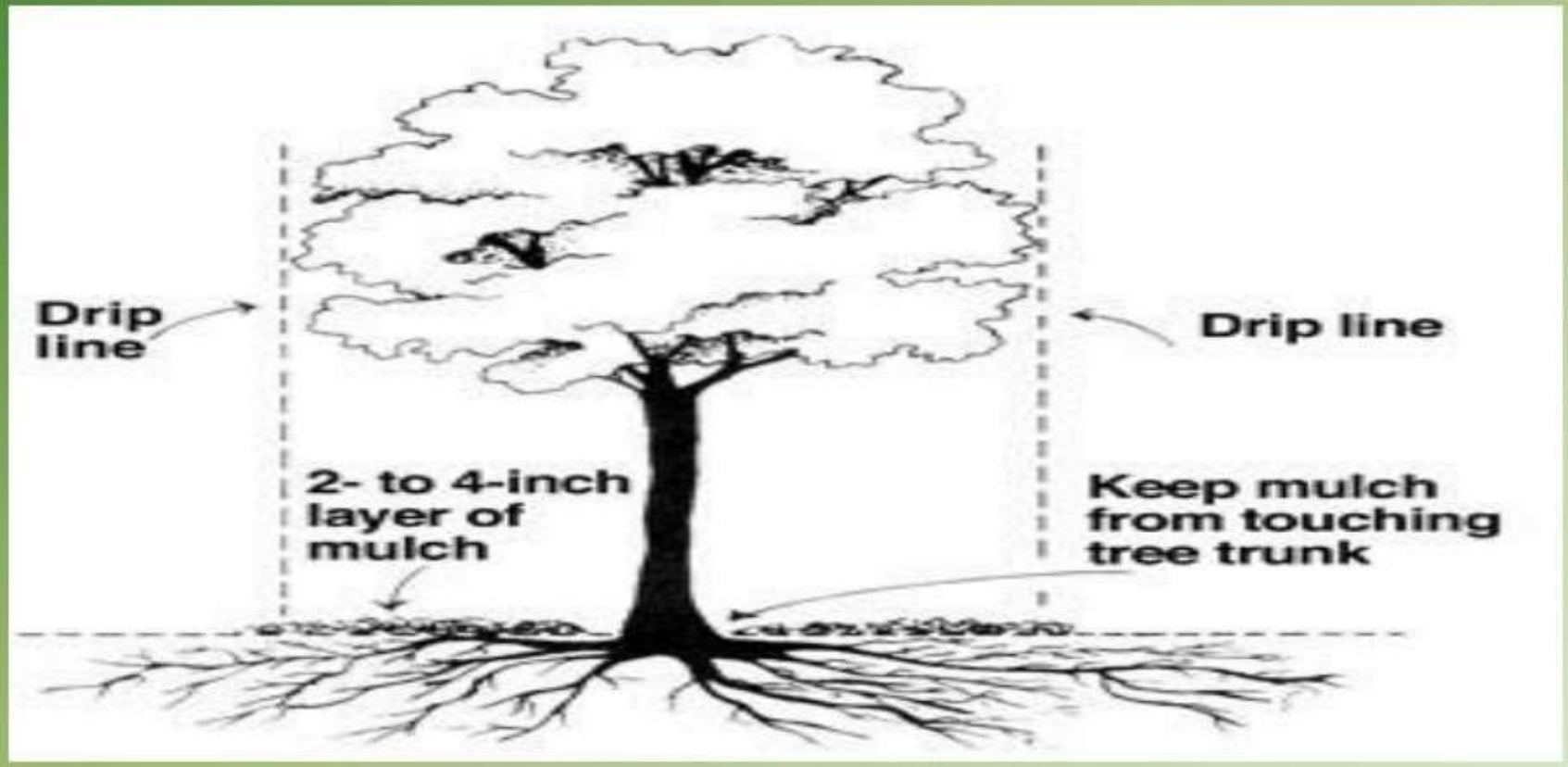


Conservation of Soil

- They prevent soil erosion by binding the soil particles tightly in their roots. They also reduce the velocity of wind and rain which are chief agents causing erosion

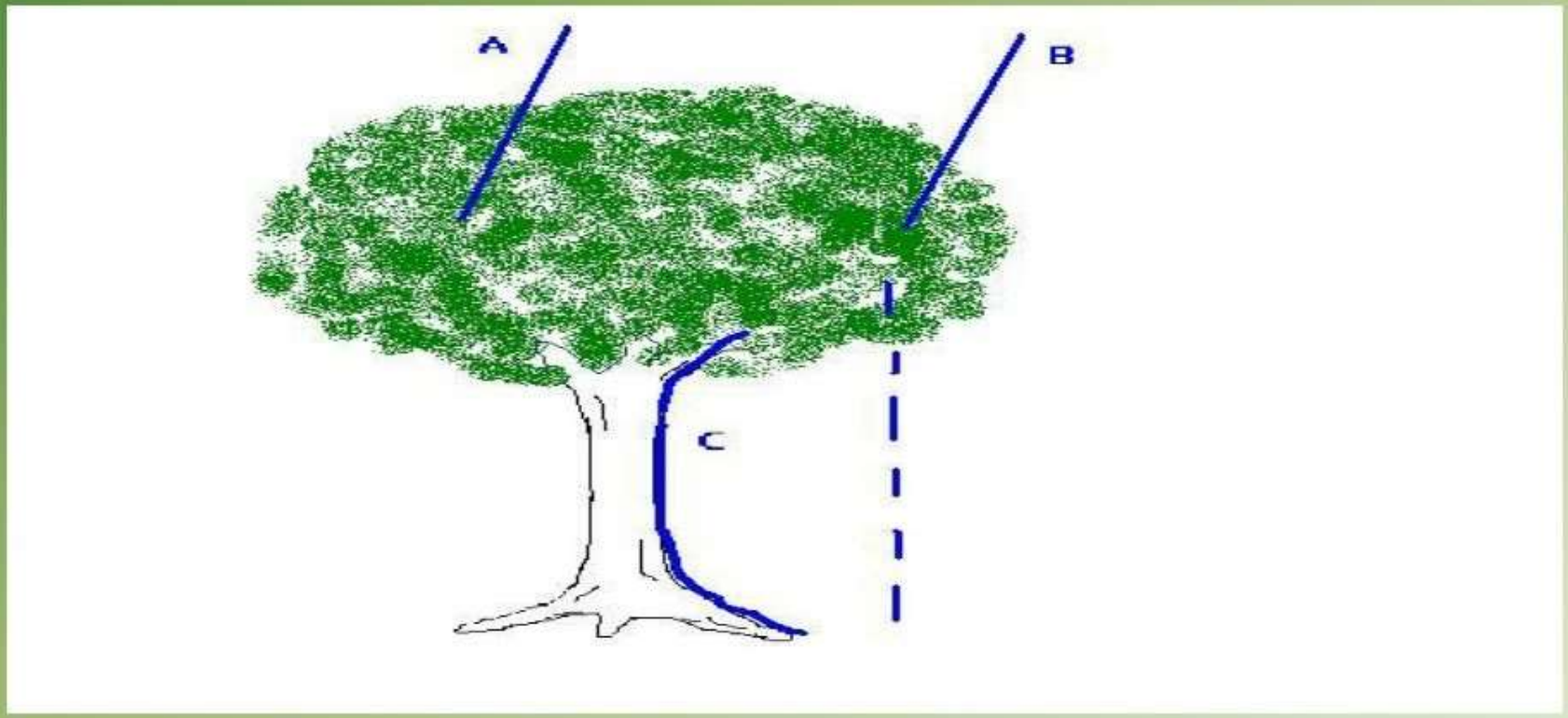
Improvement in fertility of Soil

- The fertility of soil increases due to humans formed by the decay of forest litter



Control of water flow

- The forest act as a giant sponge they slow down runoff, absorbing and holding water that recharges springs, streams, and ground water.

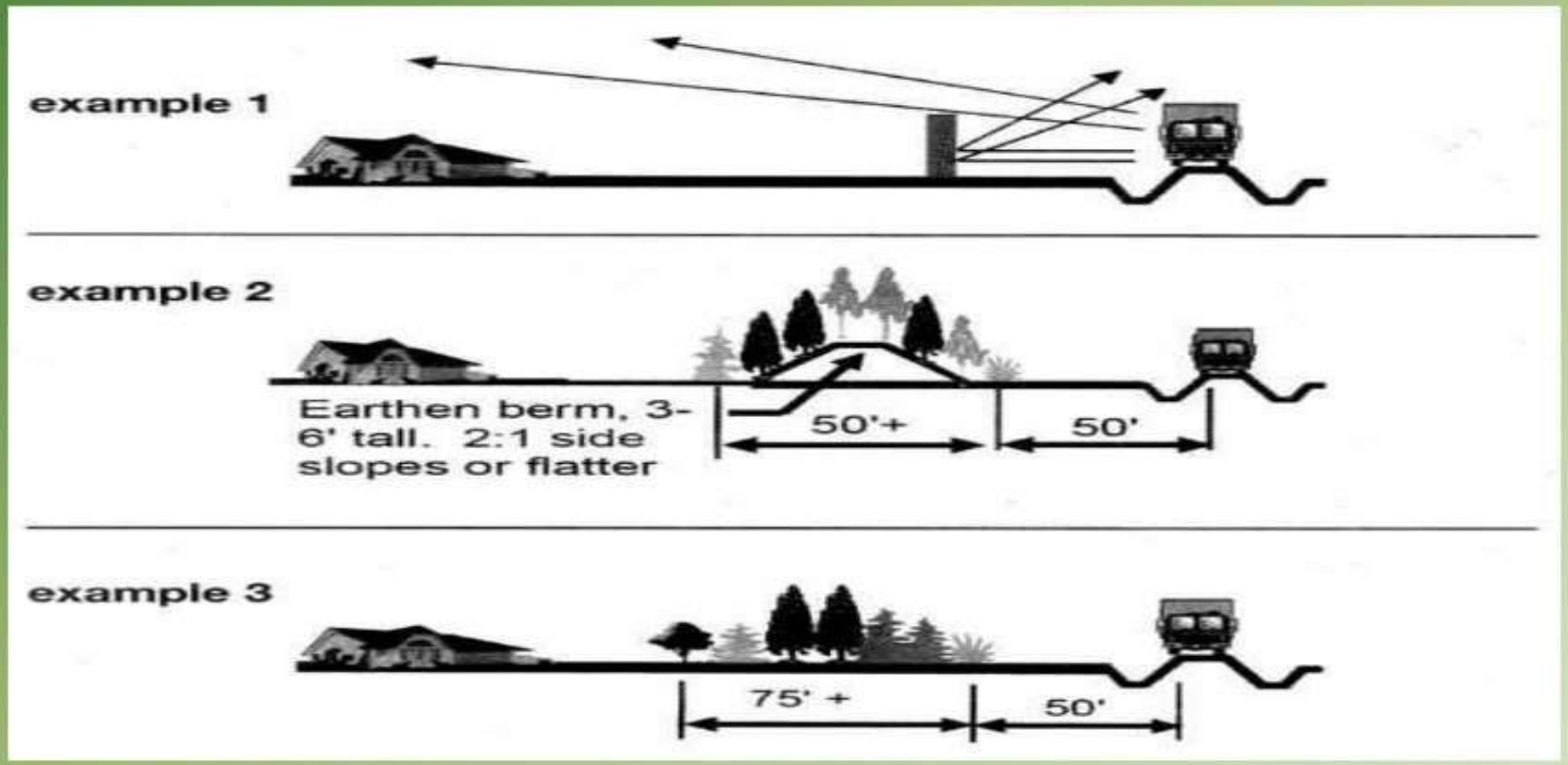


Habitat to wild life

- They provide the habitat for high wild life species

Absorption of Noise

- Forest cover absorbs the noise and helps in preventing noise pollution



Absorption of air pollutants

- Forest absorbs many toxic gasses and air pollutants and can help in keeping air pure.

Economical Importance of Forest

- ***Timber:*** Wood used for commercial purposes like for making furniture and other items like boats, bridges and other day to day uses.

- ***Fuel Wood:*** The wood is used as fuel for cooking and other purposes by poor people.

- ***Raw material for wood based industries:*** forest provide raw material for various wood based industries like paper and pulp, sports goods, furniture, match boxes etc.

- ***Food:*** Fruits, roots, leaves of plants and trees along with the meat of forest animals provide the food to the tribal people.
- ***Miscellaneous Products:*** Miscellaneous products like, resin, gums, oils, medicines, Katha, honey are provided by forests

Types of Forests in India

Moist Tropical Forest

a) Tropical wet evergreen: Western Ghats (Maharashtra, Karnataka, Kerala)

b) Tropical semi evergreen: Lower hills of western Ghats.

c) Tropical moist deciduous: Dehradun, mahableshwar

d) Damp Forests: Sunder bans, Bengal delta, and Andaman.

a

b

c

d

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a

b

c

d

- ***Dry Tropical forests:***

a) Tropical dry deciduous: Madhya Pradesh, Uttar Pradesh

b) Tropical thorn forest: Delhi, Punjab, Gujarat

c) Tropical dry evergreen: Eastern Ghat

(Andhra Pradesh, Tamil Nadu)

a

b

c

Montana Sub tropical Forests

- **Coniferous Forests**

a)Subtropical broad: Shillong, Nilgiris

b)Subtropical pine forest: Arunachal Pradesh, Kashmir

c)Sub Tropical dry evergreen: Foot Hills of Himalayas.

a

b

c

Montana Temperate Forests

a)Montana Wet temperate: Nilgiri, Palmi Hills

b) Himalayan wet temperate: Assam, Himachal Pradesh

c) Himalayan dry temperate: Kashmir

Sub Alpine Forests

a)Moist alpine scrub- high Himalayas

b) Dry alpine scrub: Sikkim

- Among the 16 different forest types of the country, the most common is
- ***Tropical dry deciduous (38.7%)***
- ***Tropical moist deciduous (30.9%)***
- ***Tropical thorn (6.9 %)***
- These 3 types of tropical deciduous forests accounts for more than 76.5 % of forest area in India. Nearly 96 % of forests are owned by government and, 2.6 % by corporate bodies and rest are in private ownership.

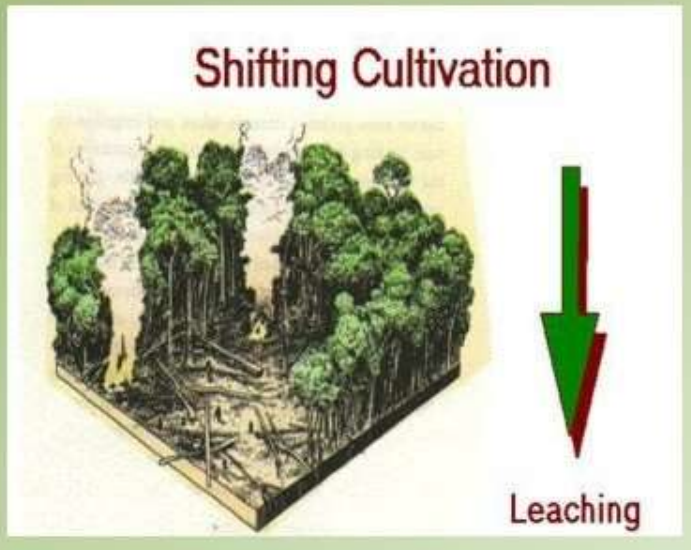
Deforestation

- Forest are exploited since early times for humans to meet human demand
- The permanent destruction of forest is called deforestation

Causes of Deforestation

- ***Population explosion:*** Population explosion is the root cause of all the environmental problems, vast area of forests are cleared for human settlement

- ***Shifting Cultivation:*** It is a traditional agroforestry system widely practiced in north eastern region of country in which felling and burning of forests followed by cultivation of crop for few years and abandon of cultivation allow forests for re-growth cause extreme damage to forest.



- ***Growing food demand:*** To meet the food demand of rapidly growing population more and more forests are cleared off for agricultural purpose.

- ***Fire wood:*** Increasing demand of wood for fuel increases pressure on forests.

- ***Raw material for wood based industry:***

Increasing demand of wood for making furniture, plywood, match box etc results into tremendous pressure on forests.

- ***Infrastructure development*:** Massive destruction of forest occurs for various infrastructure development like, big dams, highways projects etc.
- ***Forest fires:*** Forest fires may be natural or man made cause a huge loss of forest
- ***Over grazing:*** Overgrazing of land by cattle result into soil erosion, desertification.
- ***Natural forces:*** Floods, storms, heavy winds, snow, lightening are some of the natural forces

Effects of Deforestation

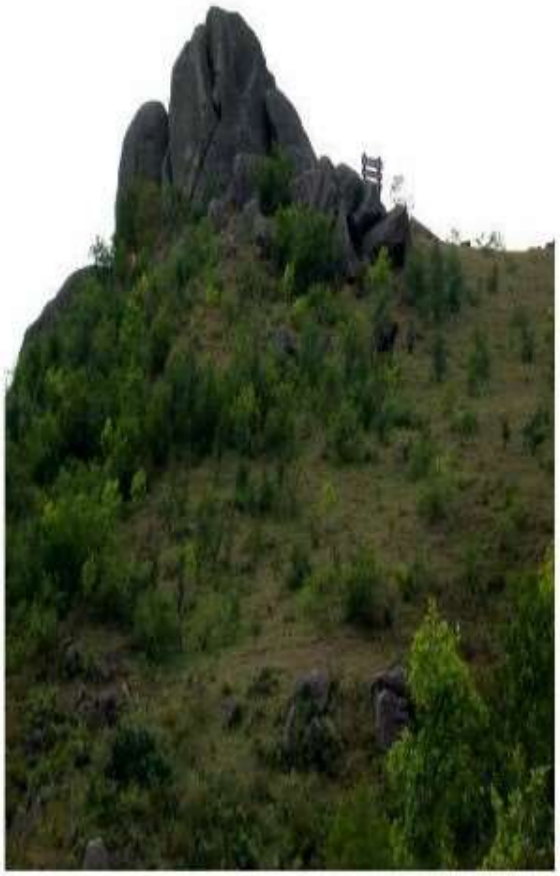
- Deforestation adversely affects and damages the environment
- The adverse effect of deforestation are discussed below:
- ***Soil erosion:*** The soil gets washed away with rain water on sloppy areas in the absence of trees leading to soil erosion.
- ***Expansion of deserts***: Due to strong winds laden by rock dust, land mass gradually gets converted in atmosphere.

- ***Decrease in rainfall*** *:* In the absence of forest, rainfall declines considerably because forest bring rains due to high rate of transpiration. It maintains humidity in atmosphere
- ***Loss of fertile land:*** Less rainfall results into loss of fertile land owing to less natural vegetation growth.
- ***Effect on climate:*** Deforestation induces global climate change. Climate becomes warmer due to lack of humidity in deforested areas, also pattern of rainfall changes

- ***Lowering of Water table:*** Lack of recharging of underground reservoir, results into lowering of water table
- ***Economic Losses:*** Deforestation will cause loss of industrial timber and non timber products
- ***Loss of biodiversity:*** Loss of flora and fauna result into loss of bio-diversity leading to disturbance in ecological balance world wide.
- ***Environmental changes:*** It will lead to increase in carbon dioxide concentration and other pollutants which results in Global warming.

Afforestation

- The conservation measure against the deforestation is afforestation. The development of forest by planting trees on waste land is called afforestation
- The main objective of afforestation
- To control the deforestation
- To prevent soil erosion
- To regulate rainfall and maintain temperature



Corporate Afforestation Scheme

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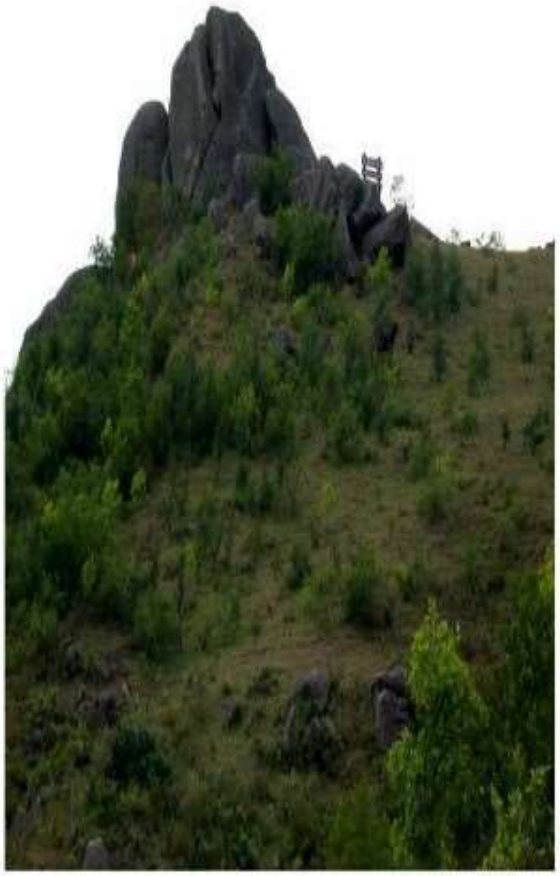
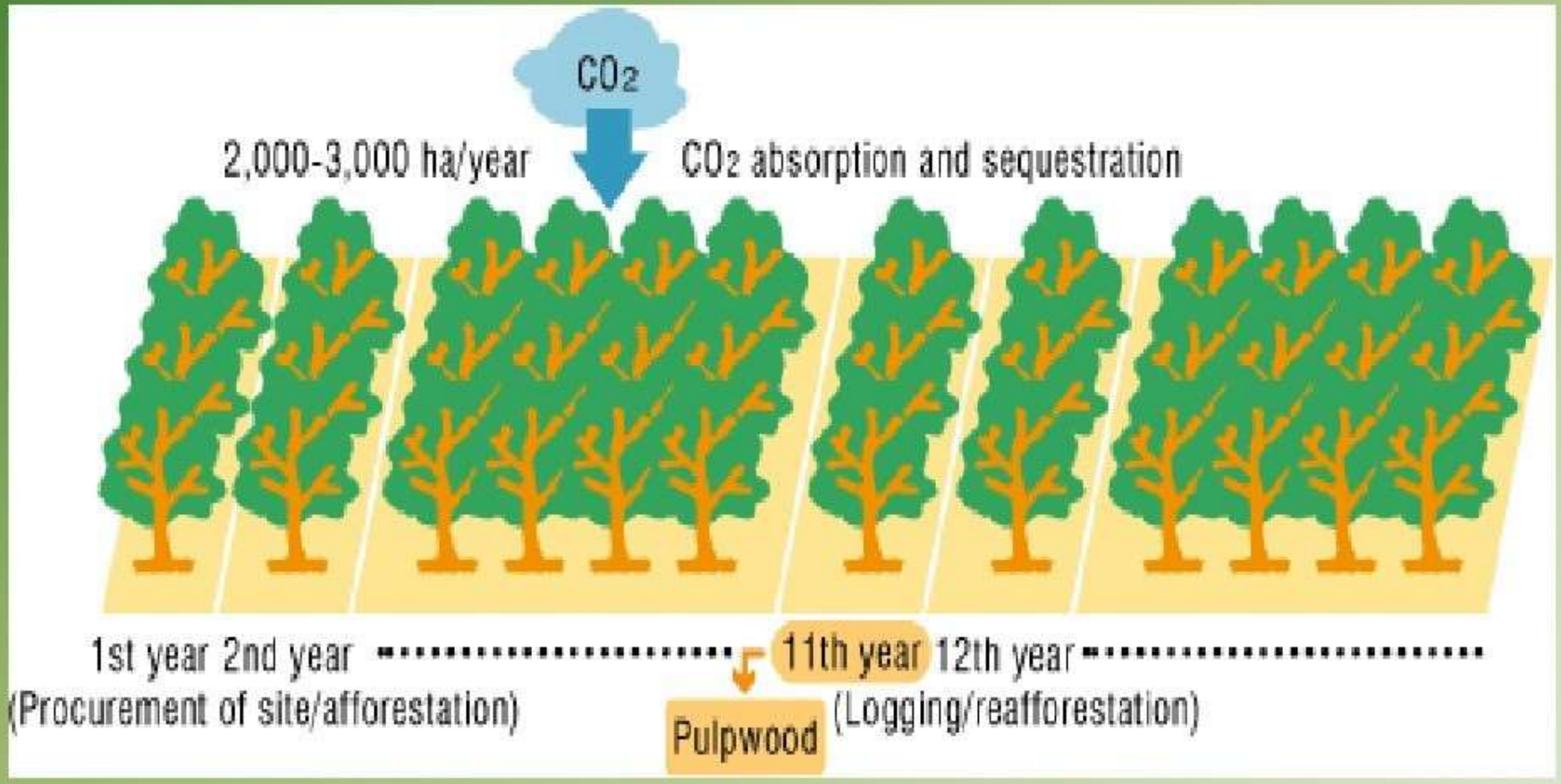


Corporate Afforestation Scheme

- To control atmospheric condition by keeping it clean
- To promote planned uses of wasteland
- To Protect forest ecosystem and to get benefits of forest products.



Forest Degradation in India

- At the beginning of 20th century about 30 % of land in India was covered with forests but by the end of 20th century the forest cover was reduced to 19.4%
- As a result of exploitation, the tropical forest cover in India, is now only reduced to coastal western Ghats and northern India
- We have a huge population size and a very low precipitate forest area 0.075 Ha per capita as compared to 0.64 ha/ capita of world forest area

- The National forest policy has recommended 33 % forest area for plains and 67 % for hills
- The deforestation rate per unit population in India is lowest among the major tropical countries
- For effective forest management of country we have to take the confidence of tribal who have been living in forest.

Dams and their effects on Forest and Tribal People

- When a dam is constructed across any river a huge artificial lake is developed in the catchment area of that dam. It is also known as back waters. The backwaters covering a large surface area. Create a lot of ill-effects on the living environment. They are as follows:
- It creates the loss of forest which are submerged under the back waters of the dam.
- It creates danger to the habitat of the wild life. The wild life are forced to migrate.
- It also affects the land under cultivation, in the catchment area as the crops get submerged under water.
- The roads, already in existence are put under water after the construction of dam. So the road network is damaged.

The Story of Kani Tribe: Compensating Indigenous Knowledge

- TBGRI gave the right to manufacture the drug to a private company, Arya Vaidya Pharmacy (AVP) for a license fee of Rs 1,000,000 and a royalty of two percent. The institute, however, wanted the kanis to get a part of the benefits as compensation for sharing their knowledge of the plants and its properties. The Kanis were to receive half the fee and half the royalty, this was the first case of an indigenous community receiving compensation in exchange for sharing their traditional knowledge of plants and their uses.
- The story of Kani tribe informs us about the rich resources & knowledge, that the forests & the local tribes have, to offer, provided they are protected and maintained in their natural form.
- Refer: http://www.jeevani.com/arya_vaidya.htm

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Activity

- Plant trees wherever you can- in your compound, neighborhood, parks, streets, but take care to choose an appropriate tree; for ex, banyans trees next to buildings is not a good idea, as their strong root systems may damage foundations.


Please, Help Reduce Global Warming !
PLANT A TREE NOW !
Thank You