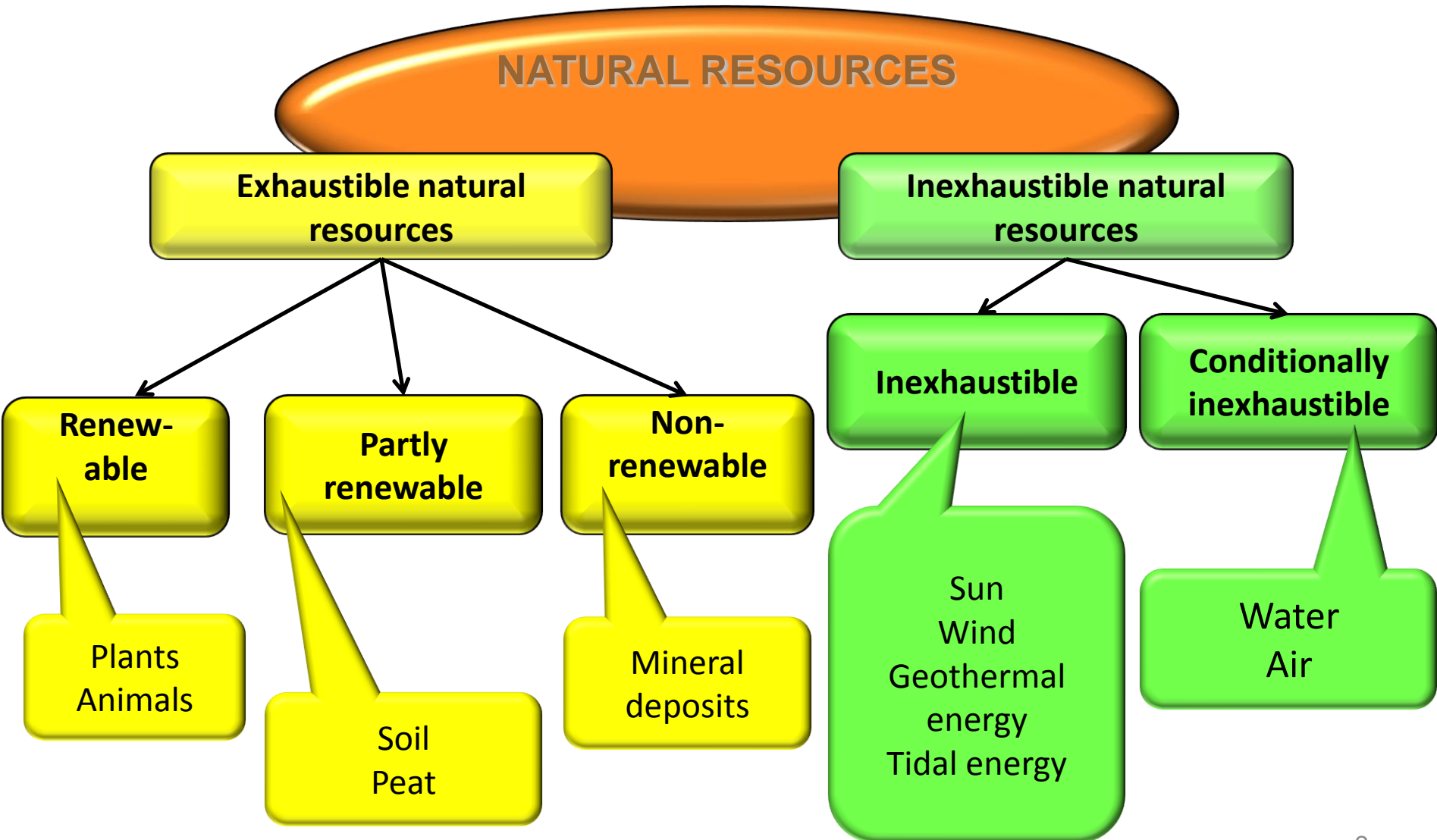


Natural Resources

CLASSIFICATION OF NATURAL RESOURCES



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 $1/3^{\text{rd}}$ of the earth’s total area is covered by forests

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



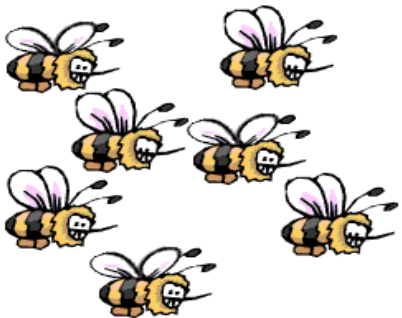
Floods



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

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

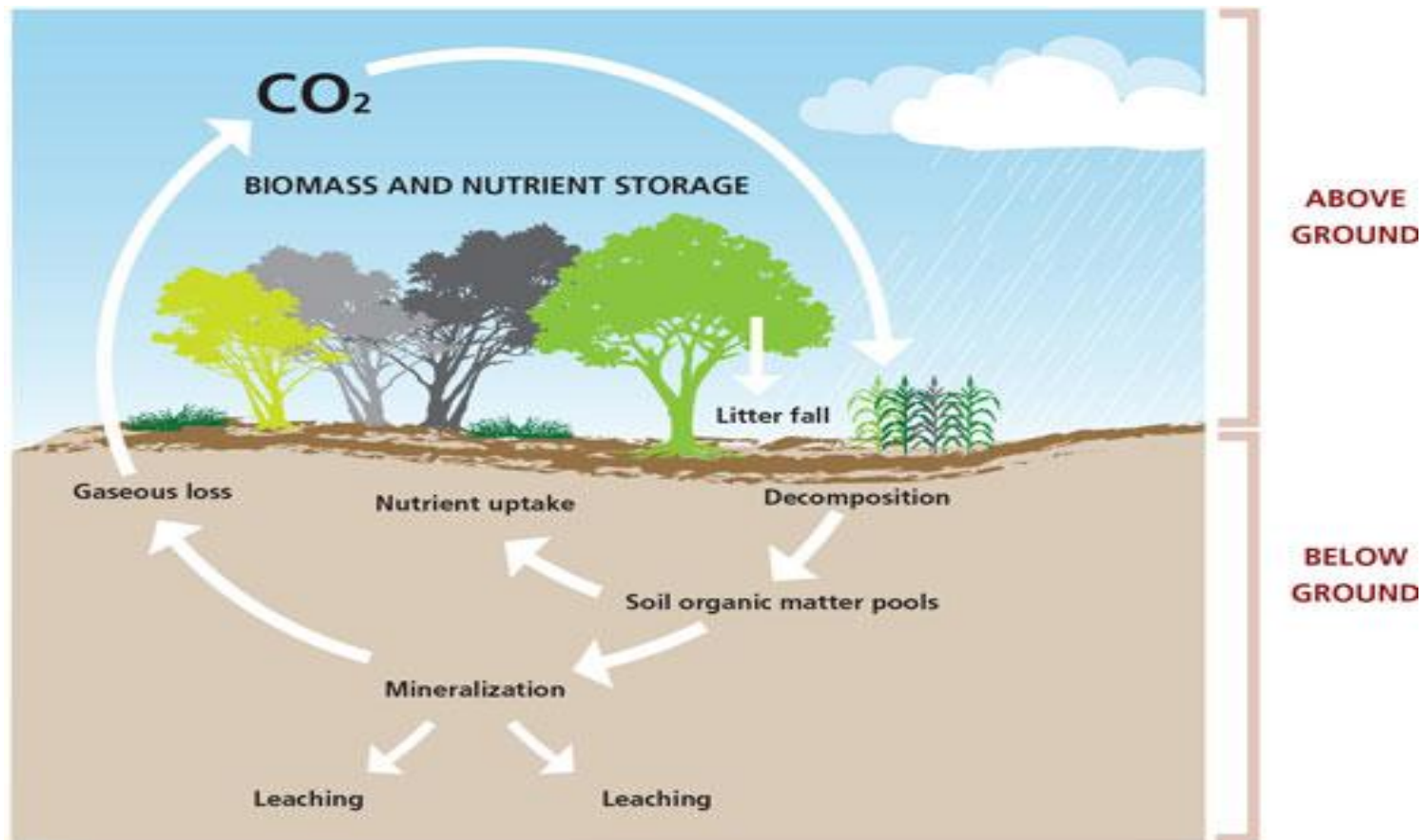
Reduction of Global Warming

- 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.

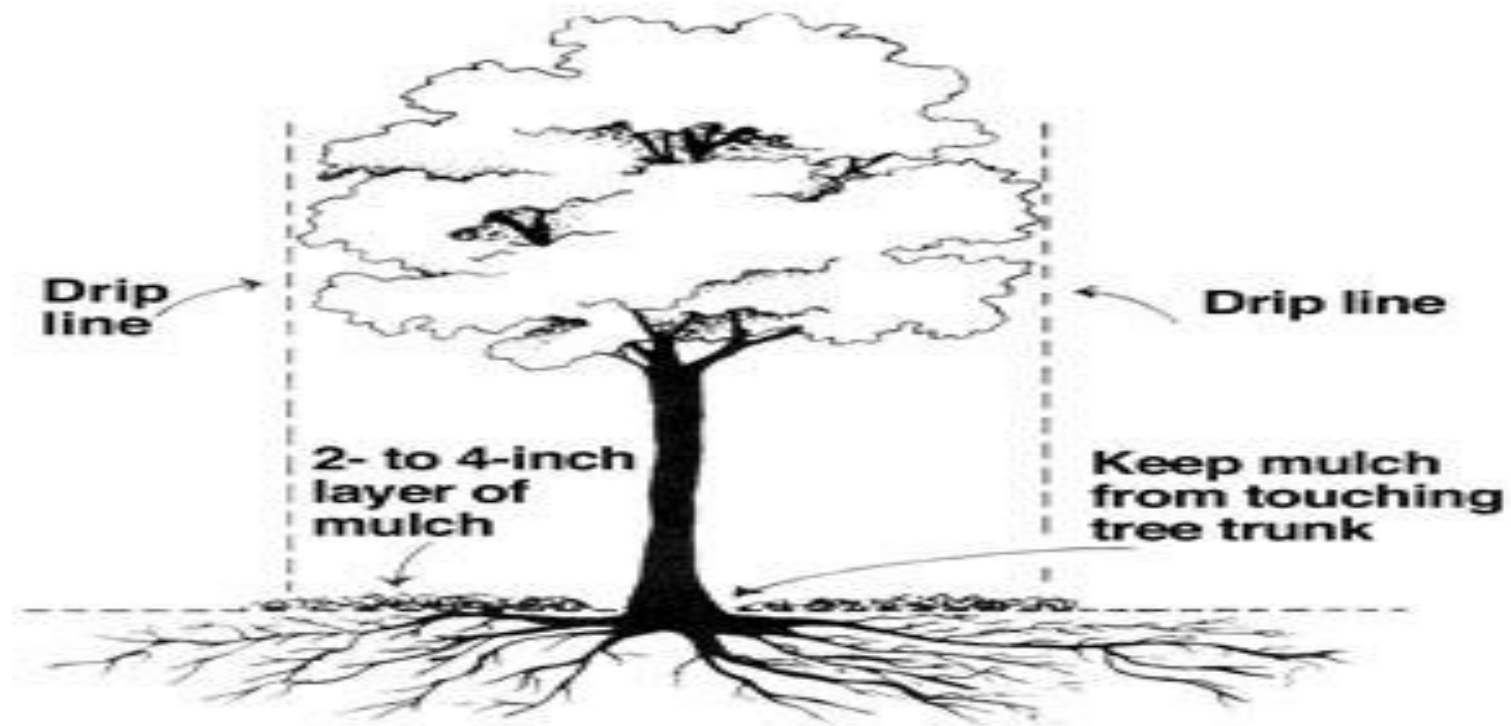


Improvement in fertility of Soil

- 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

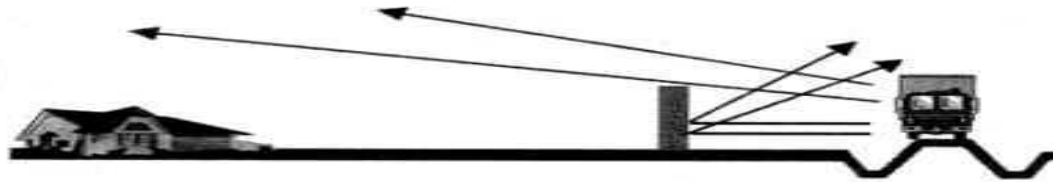
- They provide the habitat for high wild life species



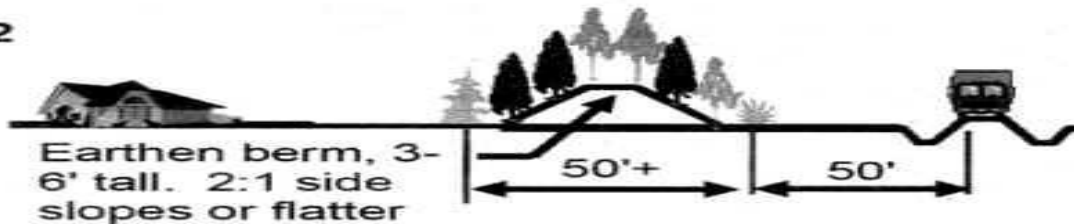
Absorption of Noise

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

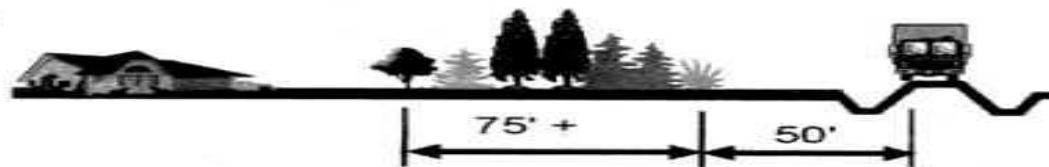
example 1



example 2



example 3



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.



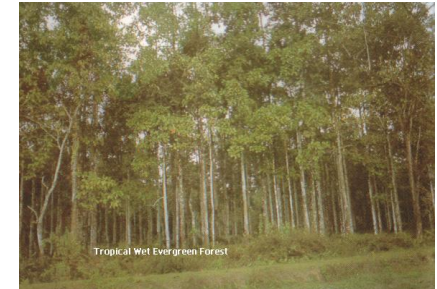
- **Food:** Fruits, roots, leaves of plants and trees along with the meat of forest animals provide the food to the tribal people.
- **Miscellaneous Products:** Miscellaneous products like, resin, gums, oils, medicines, Katha, honey are provided by forests



Types of Forests in India

Moist Tropical Forest

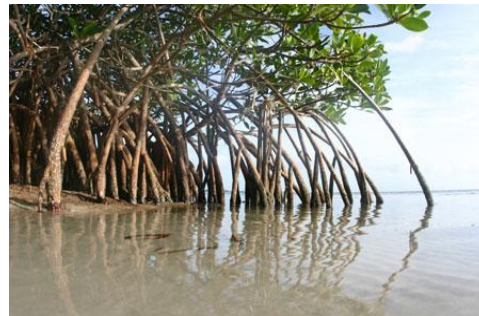
- a) Tropical wet evergreen: Western Ghats (Maharashtra, Karnataka, Kerala)
- b) Tropical semi evergreen: Lower hills of western Ghats.
- c) Tropical moist deciduous: Dehradun, mahableshwar
- d) Damp Forests: Sunder bans, Bengal delta, and Andaman.



a



b



d



c

- ***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)

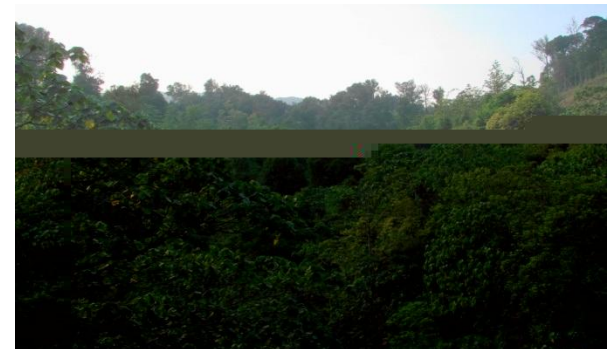
a



b



c



Mountain 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.



Mountain 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.

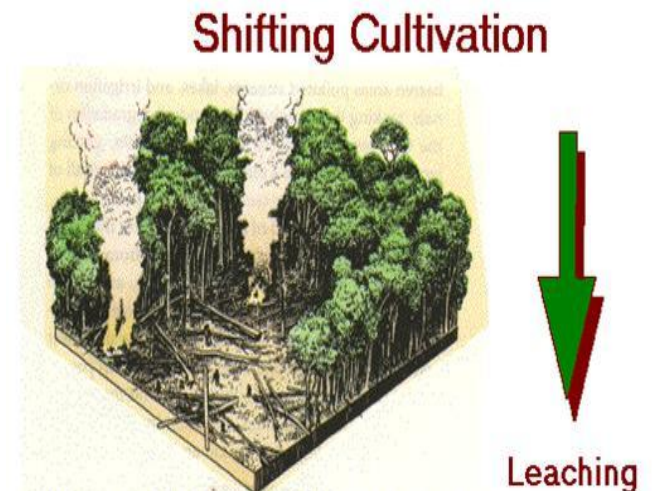
Deforestation

- 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

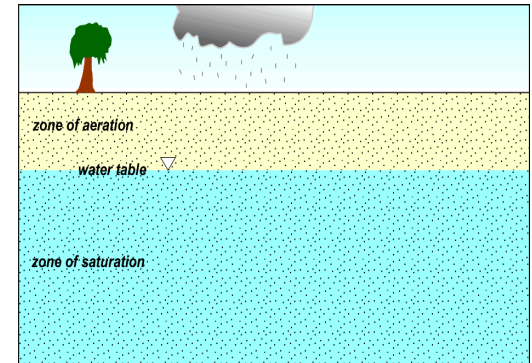
- Deforestation adversely affects and damages the environment
- The adverse effect of deforestation are discussed below:
- **Soil erosion:** The soil gets washed away with rain water on sloppy areas in the absence of trees leading to soil erosion.
- **Expansion of deserts:** Due to strong winds laden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



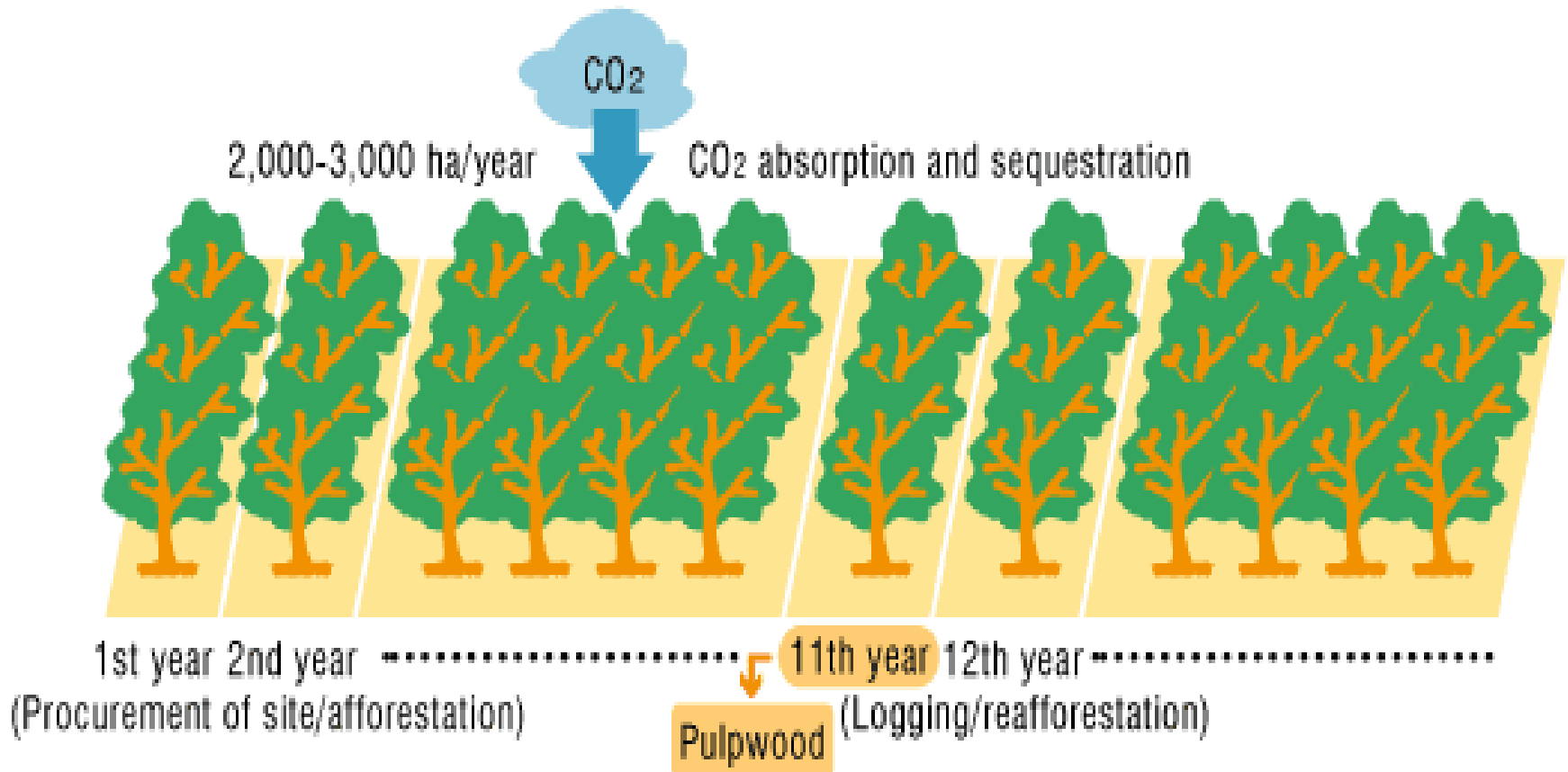
Afforestation

- 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

- 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.