

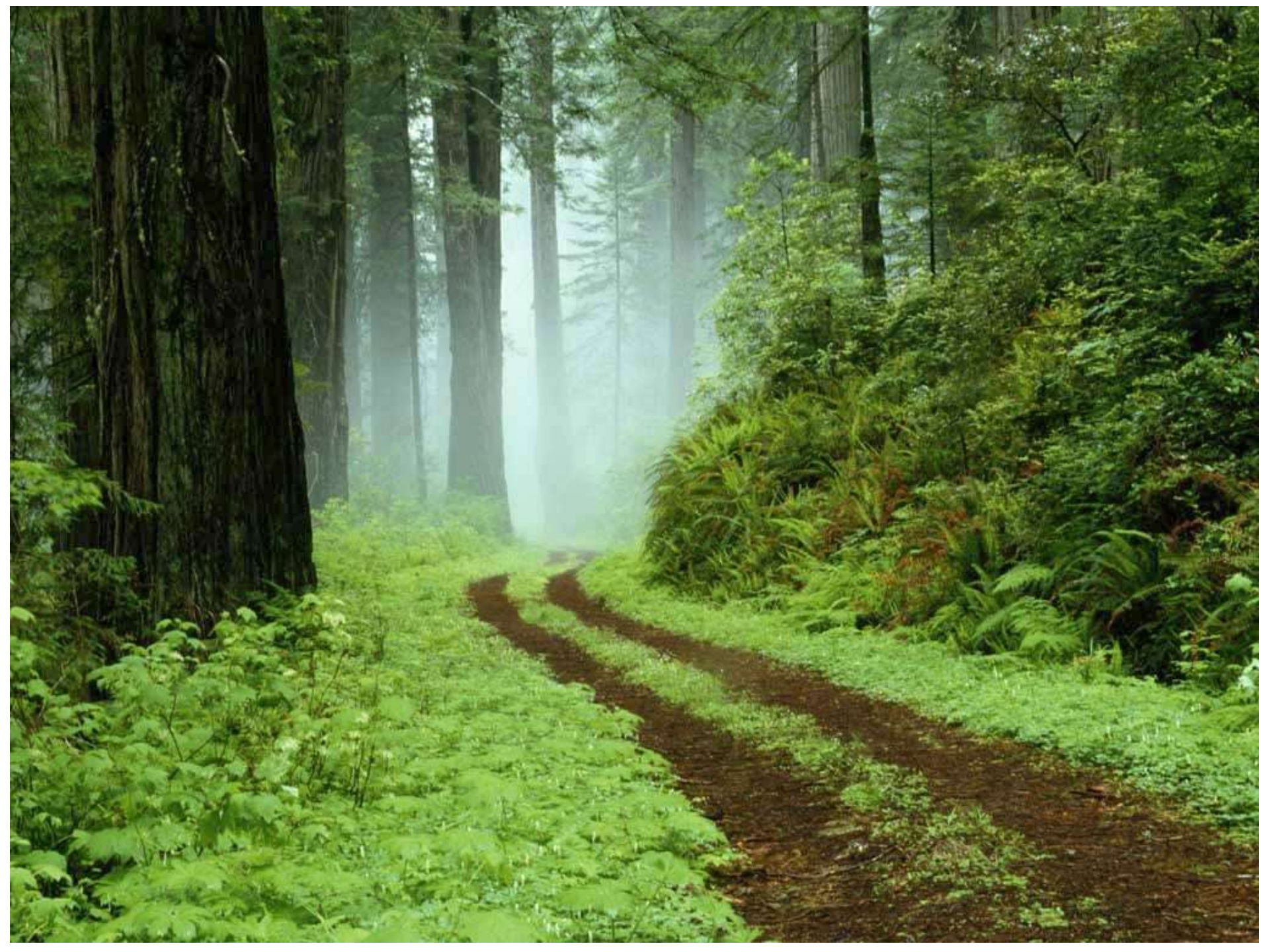
# Forest Resources

A *forest* is a biotic community with a predominance of trees; it is an important renewable resource.

Forests restore oxygen in our atmosphere through photosynthesis and also provide solvents, medicines, fuels, and many other products that are important for our health and comfort.

India is rich in forest resources with a great diversity of flora and fauna.





# Importance of Forests

## Direct Benefits

- Forests provide timber for construction of buildings and furniture.
- They provide raw material for a number of large- and small-scale industries. (bee keeping, Furniture, beedi, sal seed oil, bamboo sticks)
- They provide a variety of edible products for human beings and animals.
- They provide natural habitat to tribal people.

- They make manure (organic matter used as organic fertilizer in agriculture) and fuel wood available to humans.
- They are an important source of national income.
- They provide various medicinal plants.
- They increase the beauty of landscape and attract tourists.
- They are extremely helpful in generating employment opportunities.

# Indirect Benefits

- Forests help in minimizing natural hazards.
- They help in reducing soil erosion and siltation of downstream water bodies.
- They help in reducing desertification and land degradation.
- They help in maintaining biodiversity by providing habitat to wild animals.
- They help in regulating hydrological cycle.
- They help in regulating the gases in atmosphere.





A conifer forest in the Swiss Alps



Mixed deciduous forest in Serbia



Temperate rainforest in Tasmania's



Amazon Rainforest in Brazil

## Indian top five states with largest area under forest cover

According to India's 2013 forest survey report, thus obtained and published by the Government of India suggests the **top five states with largest area under forest cover**:

**Madhya Pradesh:** 7.75 million hectares

**Arunachal Pradesh:** 6.73 million hectares

**Chhattisgarh:** 5.6 million hectares

**Maharashtra:** 5.06 million hectares

**Odisha:** 5.03 million hectares

The seven north-eastern States of India have nearly 1/4th of the country's forest cover.



# Deforestation

**The term *deforestation* refers to the removal or reduction of forest cover.**

## **Causes of Deforestation**

- Encroachment of forest land for agricultural use to meet the growing demands of foods.
- Expansion of cities to accommodate the growing population
- Construction of dams, canals, and highways
- Establishment of industrial areas
- Demand for firewood
- Mining



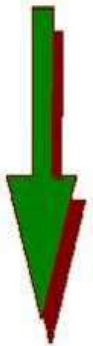
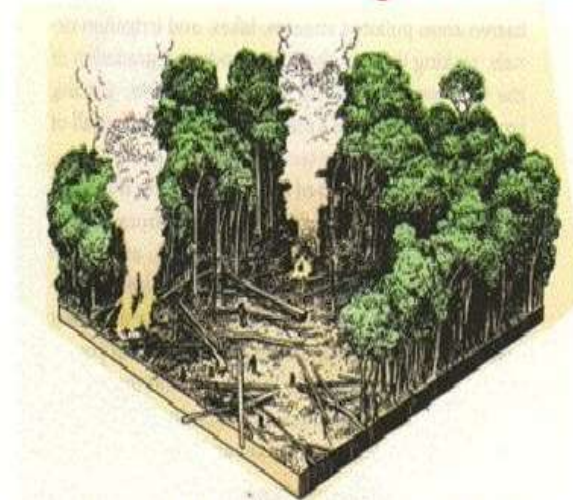
# Causes of Deforestation

**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 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.

## Shifting Cultivation



Leaching





***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



*Human activities have a very adverse  
impact on forests*

*Even  
deserts are  
affected by  
human  
activities*





*Mountain ecosystems provide vital ecosystem services, but they are facing severe degradation due to climate changing.*



## Effects of Deforestation

- Loss of natural habitat of wild animals and plants
- Increased intensity and frequency of floods
- Land degradation
- Loss of forest products
- Change in climatic conditions
- Siltation of rivers and lakes
- Loss of revenue
- Change in hydrological cycle and reduced rainfall
- Increased socio-economic problem in the long run

**Cherrapunji** was famous because it received the largest volume of rainfall in the world It still does but ironically, experiences acute water shortages. This is mainly the result of extensive deforestation (no trees to hold the water and the water run off to rivers. Because proper methods of conserving rainwater are not used. There has been extensive soil erosion.

Only rain water harvesting can sort out the problems of the world's wettest town. Scientists point out the example of **Jaisalmer**, one of the driest towns in India in Rajasthan, with rainfall levels as little as 100 mm of water per year, where it was found that if you harvest water on just one hectare of land, you have captured as much as one million litres of water --enough to meet drinking and cooking water needs of 182 people at 15 litres per day for one year.

# Control of Deforestation

- Mining activities should be prohibited in areas declared as protected forests.
- Cutting of trees should be followed by massive plantation.
- The environmental laws and legal provisions should be strictly enforced.
- Public awareness should be created regarding medicinal and other economic and environmental significance of forests.

# The story of Wangari

**Maathai**

**Nobel Prize for noble  
work**

**First woman in Africa to  
get a Ph.D.**

**Green Belt Movement  
(GBM) in 1977.**

**Empower the people**



# *Participation of locals in forest conservation*



# The story of *Chipko*: The local women who saved the trees





Afforestation



# Functions of Forests

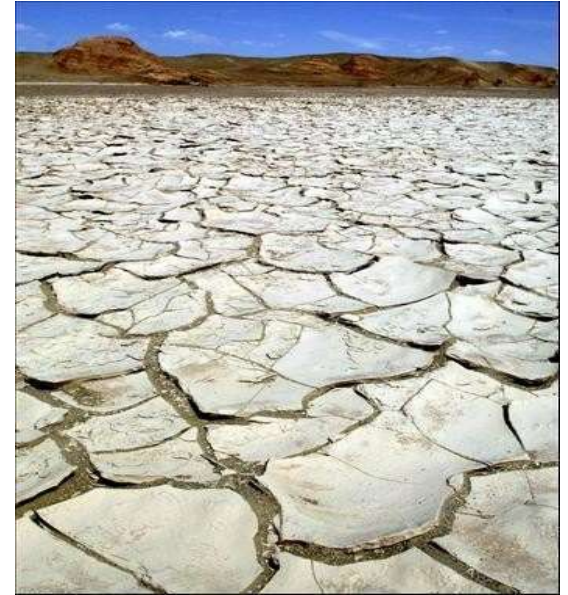
The functions of forest may broadly classified into following categories

- ***Protective Function***
- ***Productive Function***
- ***Regulative Function***
- ***Accessory Function***

# *Protective Functions*

## ➤ **Forest Provide protection against**

- **Soil erosion**
- **Droughts**
- **Floods**
- **Noise**
- **Radiations**



**Droughts**



**Soil erosion**



**Soil erosion**



**Floods**

# *Productive Functions*

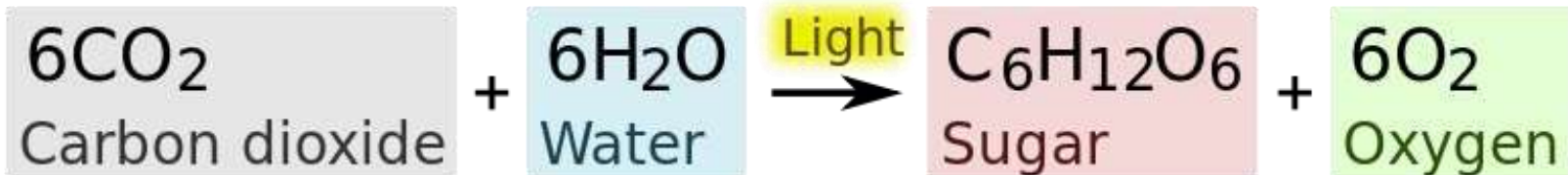
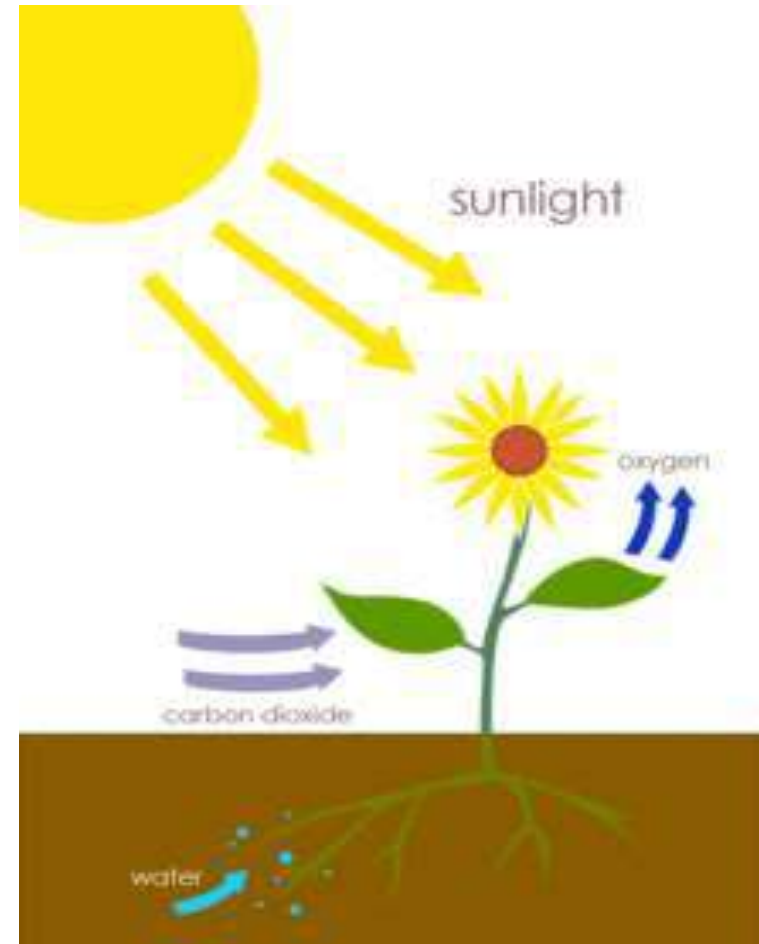
Forest Provide various products like, gum resins, medicines, honey, pulp, bamboo, timber, Vegetables and fruits.





# 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

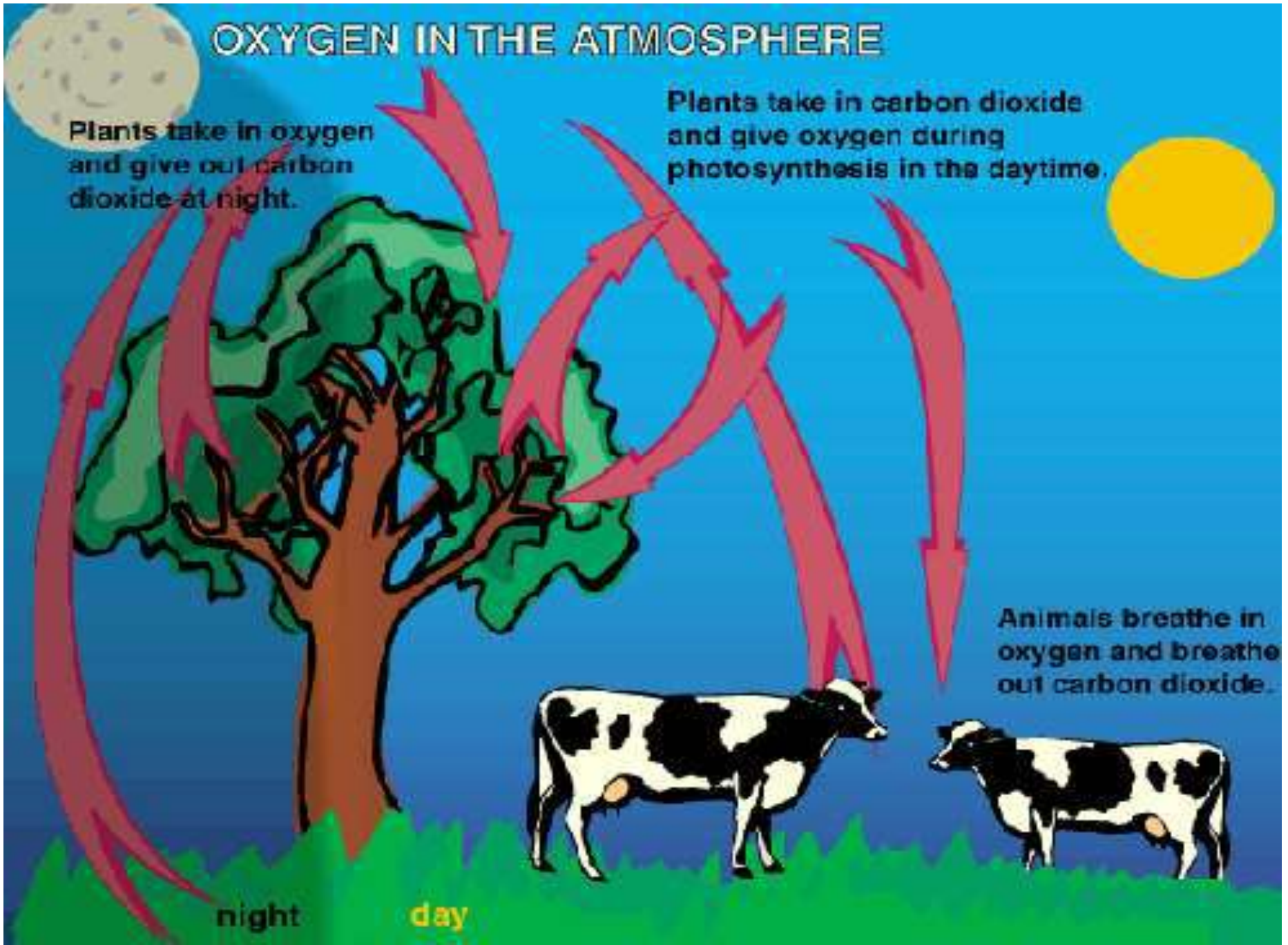
Plants take in oxygen and give out carbon dioxide at night.

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 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

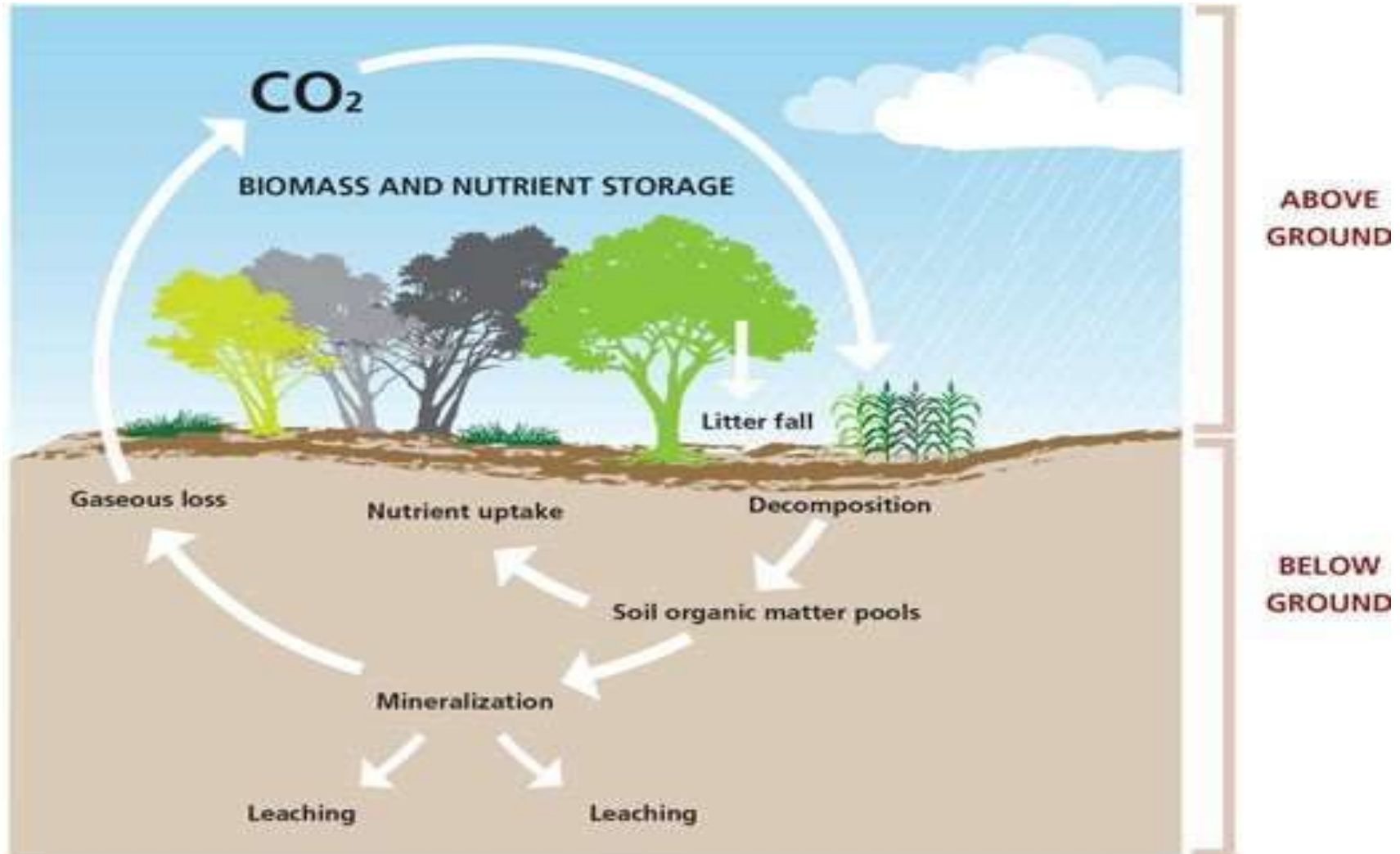
## *Reduction of Global Warming*

➤ The main green house gas  $\text{CO}_2$  is used by forests for photosynthesis process the **forest act as a sink for  $\text{CO}_2$**  there by reducing the green house effect due to  $\text{CO}_2$ .



# *Production of Oxygen*

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



# *Conservation of Soil*

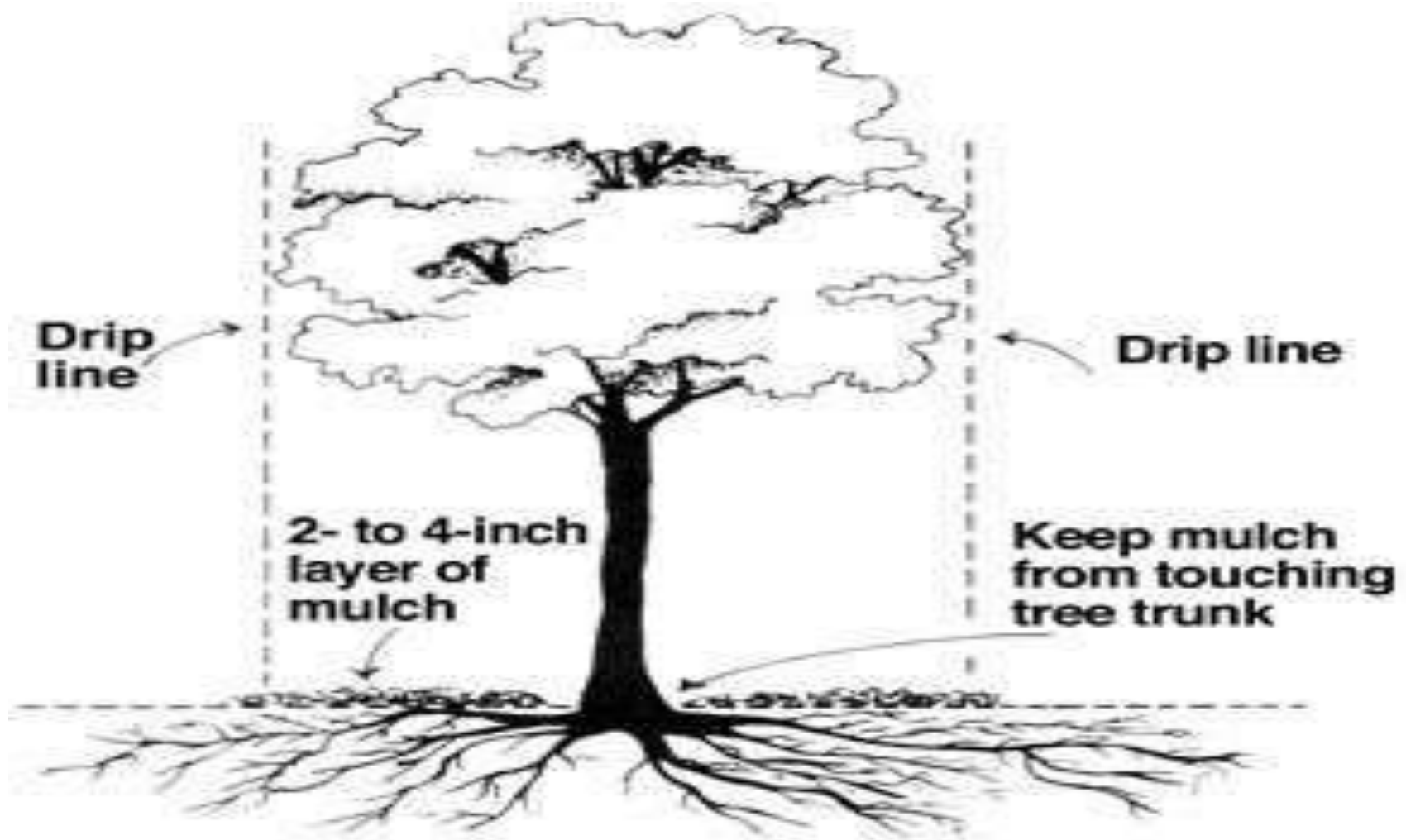
They prevent **soil erosion** by

- binding the soil particles tightly in their roots.
- reducing the velocity of wind and rain which are chief agents causing erosion

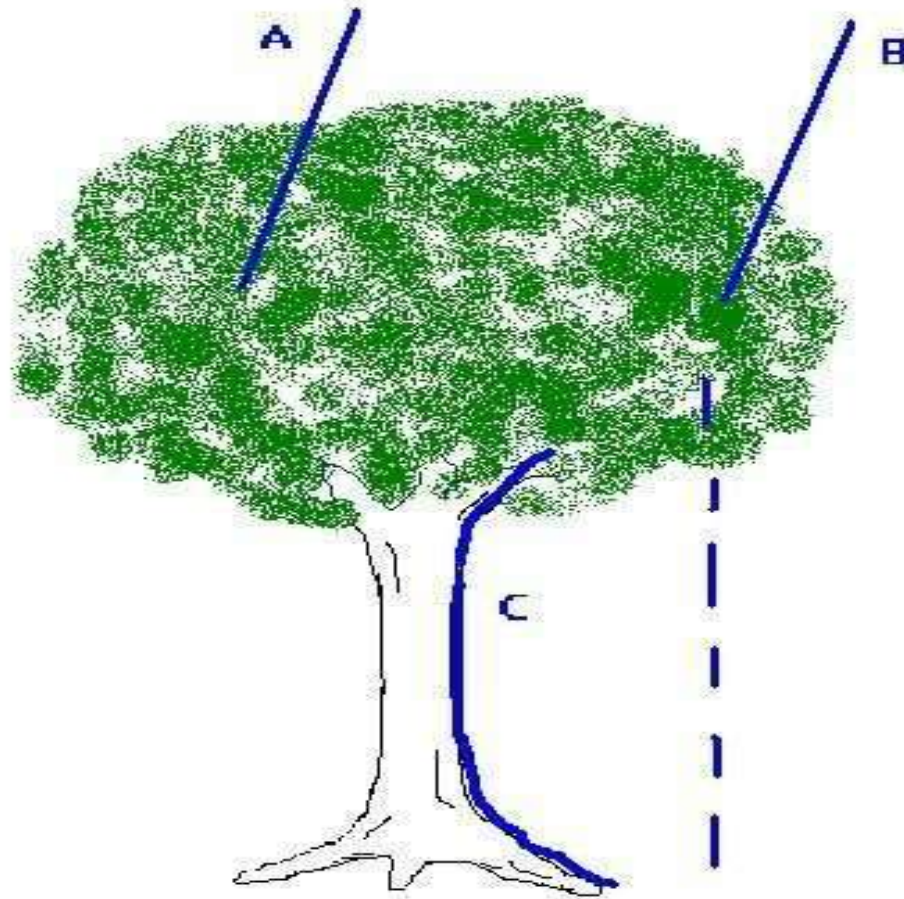


# *Improvement in fertility of Soil*

The fertility of soil increases due to humus formed by the decay of forest litter (leaves, branches, stems roots etc.)



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*

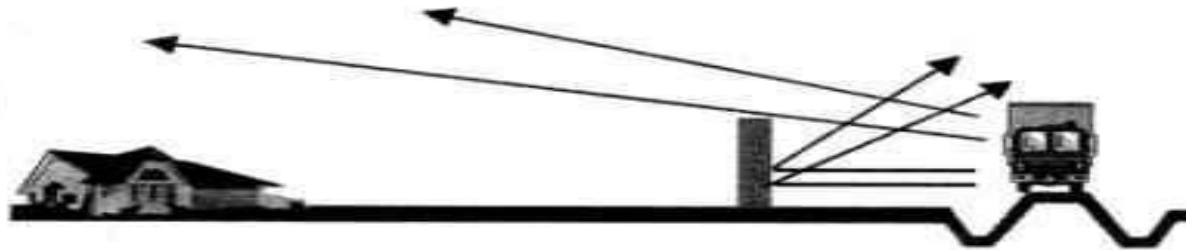
They provide the habitat for high wild life species



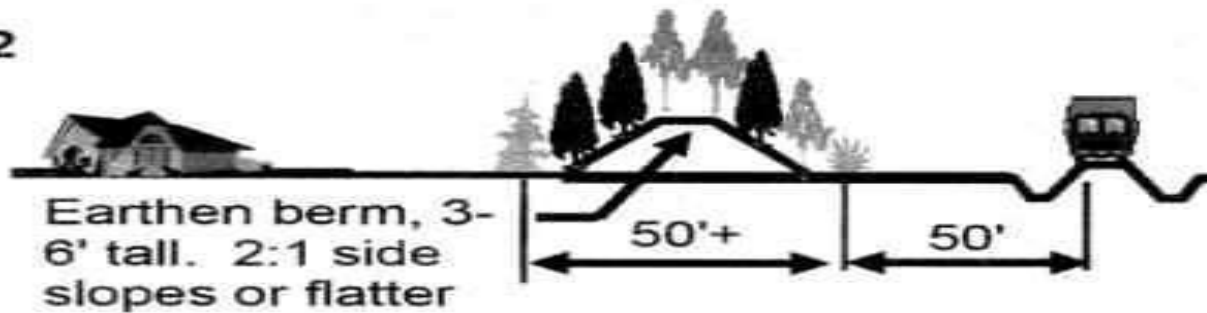
# *Absorption of Noise*

Forest cover absorbs the noise and helps in preventing noise pollution

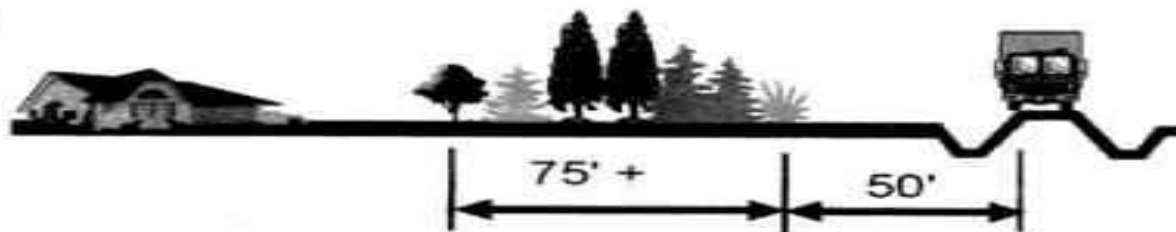
**example 1**



**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.**

