Formation

- Develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan plateau.

Characteristics

- Red in colour due to the **diffusion*** of iron in crystalline metamorphic rocks.
- Looks yellow when it occurs in a hydrated form.

Distribution

- Odisha, Chhattisgarh, southern parts of the middle Ganga plains, and along the **Piedmont Zone*** of Western Ghats.

4. Laterite Soil

Laterite has been derived from the Latin word 'later' which means brick.

Formation

- Develops under tropical and subtropical climate with alternate wet and dry season.
- Result of intense leaching due to heavy rain.

Characteristics

- Mostly deep to very deep, acidic, and generally deficient in plant nutrients.
- Poor in humus. Prone to erosion and degradation.

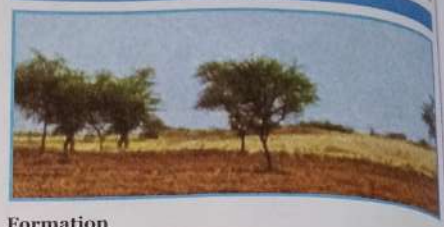
Distribution

- Southern states, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal, and North-east regions.

Crops grown

- After adopting appropriate soil conservation techniques particularly in the hilly areas of Karnataka, Kerala and Tamil Nadu, this soil is very useful for growing tea and coffee.
- Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for crops like cashew nut.

5. Arid Soils



Formation

- Due to the dry climate and high temperatures, water evaporates rapidly in these areas.

Characteristics

- Arid soils range from red to brown in colour.
- They are generally sandy in texture and saline in nature.
- The soil lacks humus and moisture.
- The lower horizons of the soil are occupied by Kankar because of the increasing calcium content downwards.
- Kankar layer formations restrict the infiltration of water.
- In some areas, the soil has a very high salt content.

Distribution

- With proper irrigation, these soils become suitable for farming, as seen in western Rajasthan.

6. Forest Soils

Characteristics

- Loamy and silty on valley sides.
- Coarse-grained in the upper slopes.
- In the snow-covered areas of the Himalayas, these soils face **denudation*** and are acidic with low humus content.
- It is very fertile in the lower parts of the valley, particularly on the river terraces and alluvial fans.

Distribution

- Hilly and mountainous areas where sufficient rainforests are available.

Diffusion: The Process by which something spreads from one place to another like gases or liquids.
Piedmont Zone: The area at the base of a range or mountain.
Denudation: The process of wearing away the Earth's surface, caused by wind, water, or ice.

6.2: Soil Erosion

What is soil erosion?

- Removal of the upper layer of soil from one place to another by any natural agents or human activities is called soil erosion.
- The processes of soil formation and erosion, go on simultaneously and generally there is a balance between the two.

Causes of Soil Erosion

- Human Activities: Deforestation, overgrazing, construction, mining, and poor farming methods.
- Natural Forces: Wind, glaciers, and water

Types of Soil Erosion

Gully Erosion
The running water cuts through the clayey soil and makes deep channels/ gullies.
The unfit land caused by gullies is called bad land or ravines (bad land called ravine in the Chambal basin).

Sheet Erosion
Water flows over large areas down a slope, washing away the topsoil.

Wind Erosion
Wind removes loose soil from flat or sloping land.

Defective Farming Methods
Ploughing in the wrong direction, such as up and down the slope, creates channels that allow water to flow quickly, leading to soil erosion.

6.3: Soil Conservation Measures

Soil conservation measures are practices aimed at preventing soil erosion and maintaining soil fertility.

Types of Soil Conservation

Contour Ploughing
Ploughing along the contour lines can decrease the speed of water flow down the slopes and soil erosion can be prevented.

Terrace Farming
Step or terrace cultivation on slopes restricts erosion. Western and Central Himalayas have well-developed terrace farming.

Strip Cropping
Large fields can be divided into strips and strips of grass are left to grow between the crops. This breaks up the force of the wind and prevents soil erosion.

Shelter Belts
Rows of trees are called **shelter belts***. They have led to the stabilization of sand dunes in the desert in western India.

Shelter Belts: Shelter belts are rows of trees planted around fields to protect the land from wind and prevent soil loss.