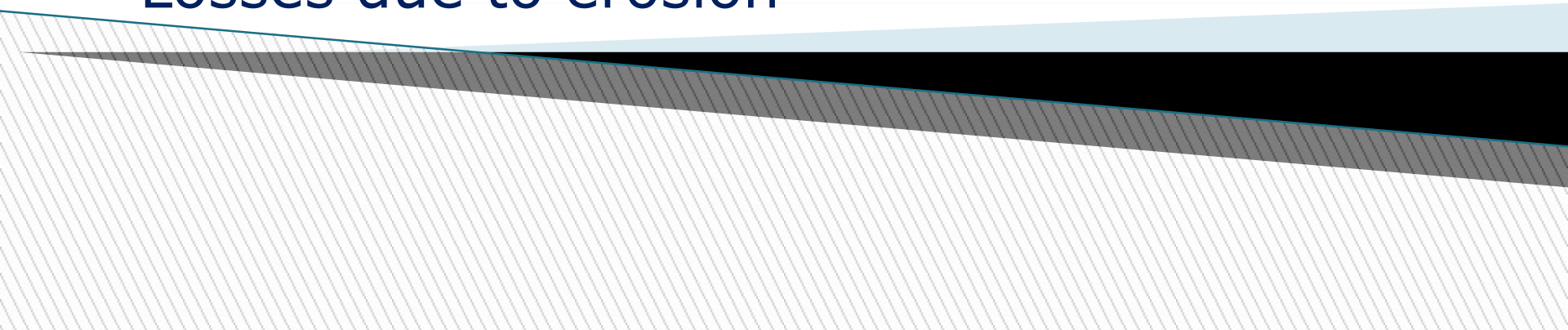
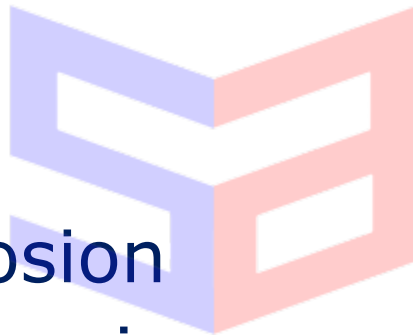


UNIT - III

SOIL EROSION AND CONSERVATION

Soil Erosion

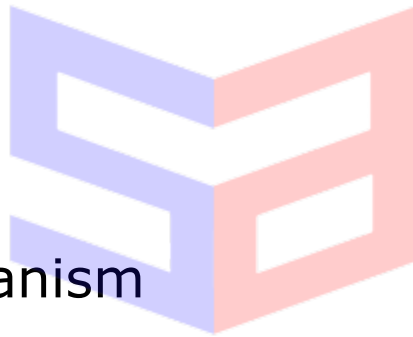
- Introduction
- Soil erosion
- Types of soil erosion
- Causes of Soil erosion
- Losses due to erosion



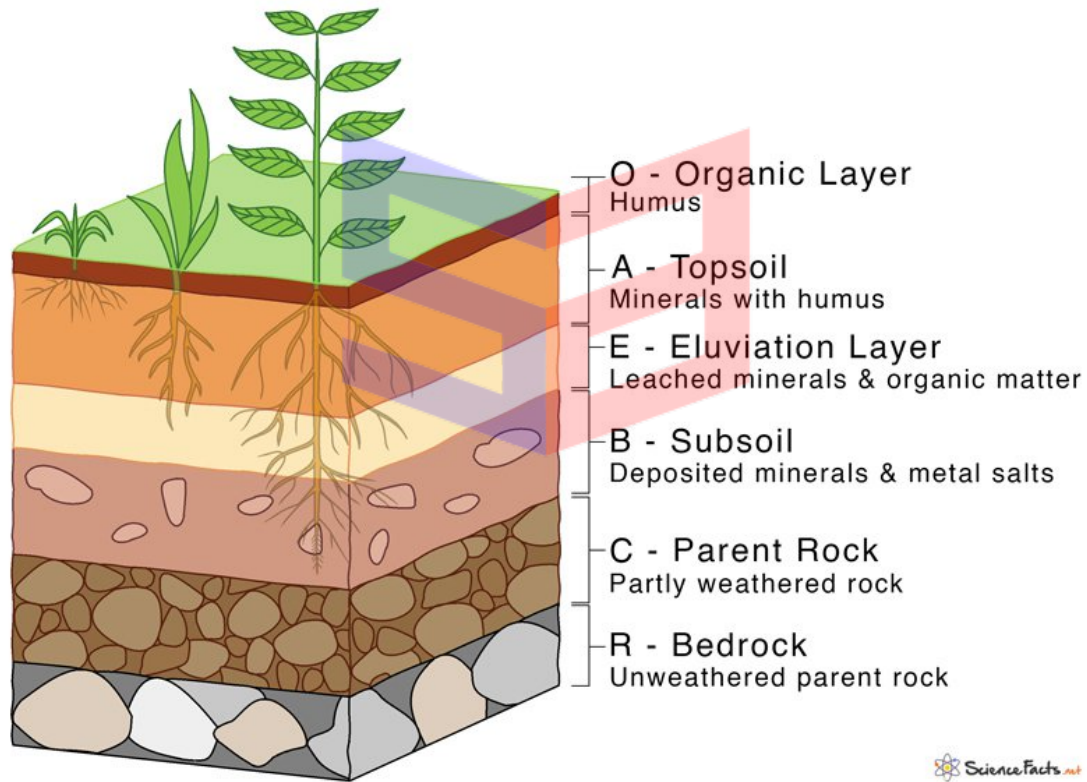
INTRODUCTION

✿ Importance of soil

- Soil is the one of the most valuable natural resource
- Medium of Plants
- Habitat of many organism
- Soil fulfilled vital need of human – food, clothing, furniture, medicine etc.



Soil Horizons



Soil Erosion

- It is the process of detachment of soil particle from the parent body or surface of the soil and transportation of the detached soil particle by wind or water



- Mechanism
 - ❖ Detachment
 - ❖ Transportation

Detaching agent – Rain drops, Channel flow & wind
Transporting agent – Flowing water & wind

Causes of soil degradation

- Extensive Farming
- Deforestation
- Excess use of Pesticide and Fertilizer
- Why we need to conserve soil ?
 - 1cm of soil 8 to 10,000 years to form



Types of soil erosion

Water Erosion

Wind Erosion

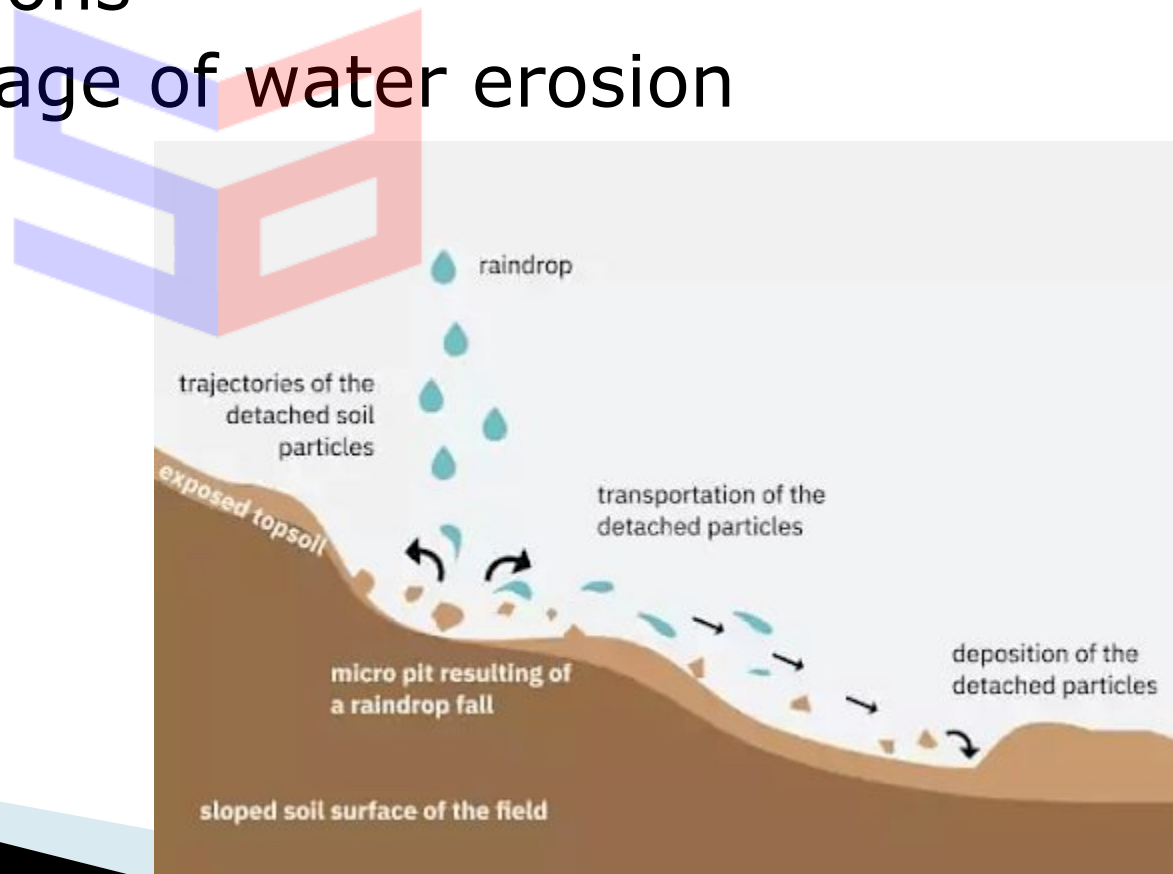
➤ Type of water erosion

- Splash erosion
- Sheet erosion
- Rill erosion
- Gully erosion
- Ravine erosion
- Landslide erosion



Spalsh Erosion

- Caused by the impact of raindrops
- Soil particles are detached and splashed in different directions
- It is the first stage of water erosion



Sheet Erosion

- It is uniform removal of top soil in thin layer from the field



Rill Erosion

- Small, shallow channels are called rills
- Rills are formed when run-off flows over soil
- These channels can usually be removed by normal tillage



Gully Erosion

- When rills become deeper and wider, they form gully
- Gullies cannot be removed by normal forming operations and may require special control measures



Ravine Erosion

- It is the result of prolonged process of Gully Erosion



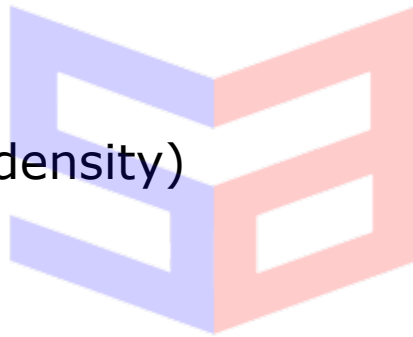
Land slide

- Sliding down of large chunk of soil due to steep slopes is called land slide



Factors influencing soil erosion

- ❑ Rain fall
 - Duration
 - Amount
 - Intensity
- ❑ Vegetation
 - Type of vegetation (density)
 - Plant height
- ❑ Soils
 - Type of soil
 - Soil structure, texture
- ❑ Man & animal - Excess farming or grazing



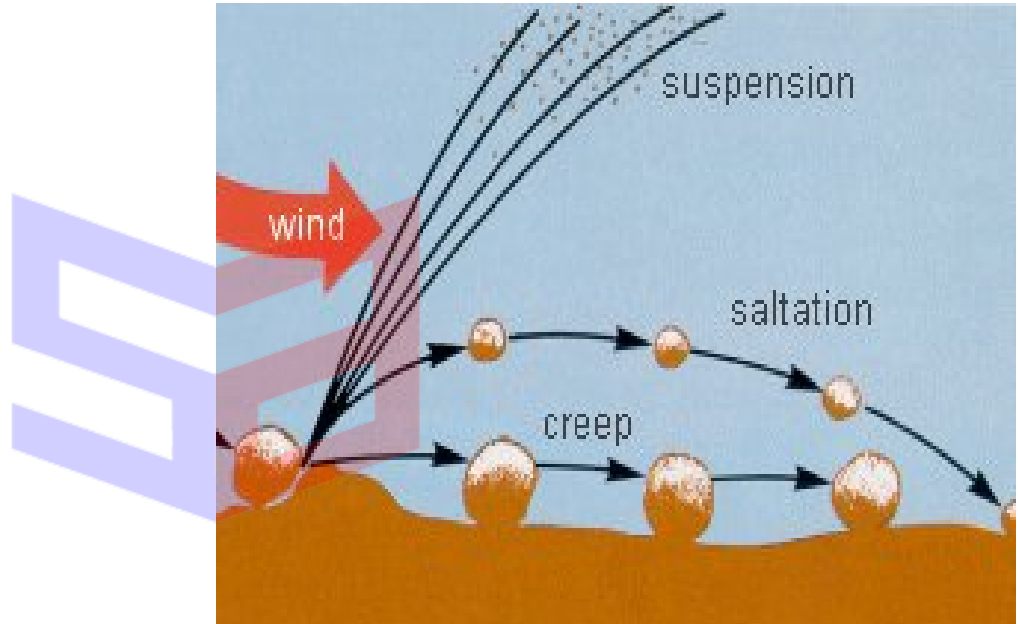
Wind Erosion

- It is a process of detachment, transportation and deposition of soil material by wind. Winds pick up lighter particles, lift them from the surface and transport them to long distance



Types of Wind erosion

- ❑ Saltation
- ❑ Surface Creep
- ❑ Suspension



Saltation – Bouncing movement of particles

- Soil particle jump up vertically into air and rise to a height of 30-60cm & fall through the air.
- Soil particle of 0.1- 0.5mm in Diameter
- 50-70% weight of soil eroded



Surface Creep – Fine dust carried in air

- Coarse sand particles rolled over the surface
- Soil particle of 0.5 – 0.3mm in Diameter
- 5 – 25% weight of soil eroded

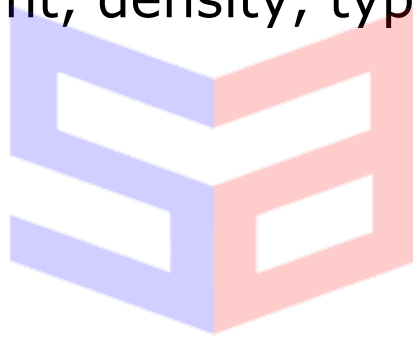
Suspension — Rolling/Sliding of large particles

- Fine dust particle float in the air
- Soil particle of $<0.1\text{mm}$ in Diameter
- 3-4% weight of the soil eroded



Factors affecting wind erosion

- Wind velocity
- Soil (texture, Structure, organic matter, Moisture content)
- Vegetation (Height, density, type of vegetation)

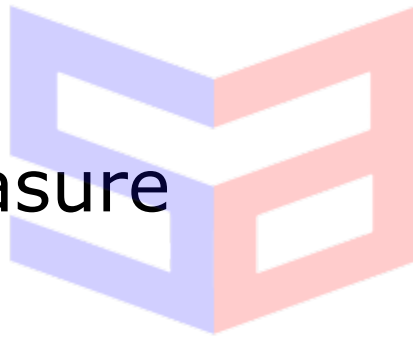


Wind Erosion Control

- Vegetative Measure

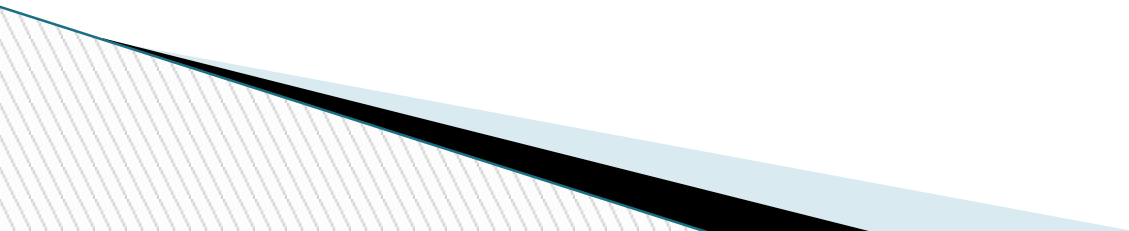
- Tillage

- Mechanical Measure



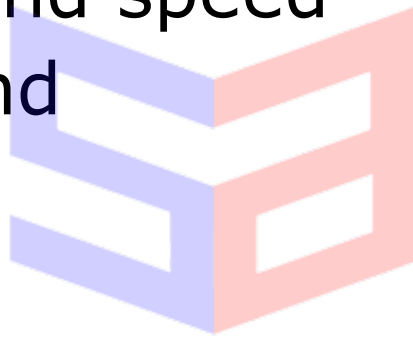
Erosivity

- ✱ It means the ability of rain or flowing water to cause erosion
- ✱ It describes rainfall is in how powerful detaching and moving soil particles



Factors that affects erosivity

- Rainfall intensity
- Rainfall duration
- Raindrop size and speed
- Slope of the land



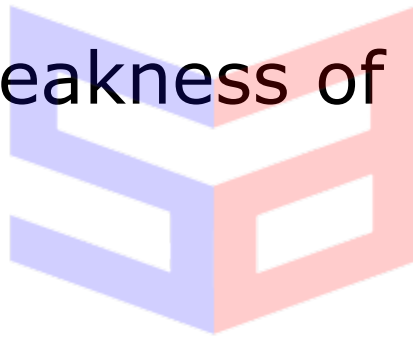
High erosivity area may be needed

- Contour forming
- Mulching
- Cover drop
- Terracing



Erodability

- ✿ I means the susceptibility of soil to be eroded
- ✿ Erodability = weakness of soil



Factors affecting Erodability

- ✿ Soil texture – Sandy/ silty soil eroded easily
 - ✿ Soil structure – Well aggregated soil resist erosion
 - ✿ Organic matter – More organic matter reduces erosion
 - ✿ Permeability – soil that absorbs water well erodes less
 - ✿ Vegetation cover – Plants protects soil from erosion
-
- ❖ Ex – Loose sandy soil – High erodability
 - ❖ Clay soil with good structure – low erodability

The logo consists of two interlocking geometric shapes. The left shape is a light blue square with a white 'S' inside. The right shape is a light red square with a white 'A' inside. They are positioned such that they appear to be part of a single, larger, stylized letter 'SA'.

THANK YOU