

Eroded Soil Types and problems

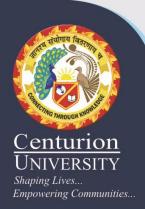
Dr. Arunabha Pal



What is soil erosion??

 Soil erosion is the washing or blowing away (by water or wind) of the top layer of the soil.
 Erosion whether it is by water , wind or tillage, involve three distinct action- soil detachment, movement & deposition.





Types of soil erosion...

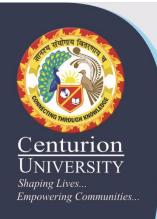
- 1. Geological Erosion
- 2. Accelerated Erosion
 - A) Wind erosion
 - **B) Water Erosion**
 - a) rain drop Erosion
 - b) rill erosion
 - c) gully erosion
 - d) bank erosion
 - e) Sheet erosion
 - f) landslide erosion
 - C) land slide erosion



Geologic Erosion

It is a normal process, representing erosion of land in natural environment. It is caused by effect of

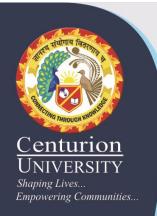
- Rainfall
- Run-off
- Wind
- > Topography
- >Atmospheric temperature



Accelerated Erosion

Accelerated erosion is due to man made activities, which have brought about changes in natural cover and soil condition. The activities includes

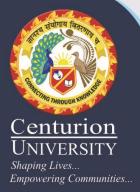
- > Land Preparation for raising crops,
- Land use patterns for building houses, infrastructures, industries, hill cutting, deforestation, lack of soil conservation and watershed management.



Water Erosion

- The impact of rain drops causes splash erosion
- Run-off water causes scouring, scraping and transport of soil particles, leading to sheet, rill and gully erosion.
- Flood water causes erosion of River Banks
- Water waves cause erosion of bank and sides of reservoir, lakes and oceans.
- Subsurface seepage water causes soil boiling, erosion and removal by piping.

Glacial erosion causes heavy landslide







Wind Erosion

It is primary responsible for creation and maintenance of desert areas
Finer soil particles from top soil along with organic matter and nutrients are easily detachable and removed by wind velocity.



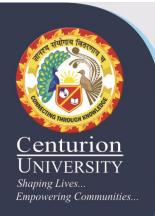
Erosion due to surface run-off





Bank Erosion





Sheet Erosion

- Sheet erosion is the movement of soil from rain drops splash and runoff water.
- It typically occurs evenly over a uniform slope and goes unnoticed until most of the productive topsoil has been lost.



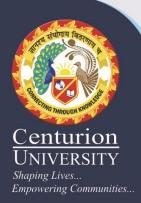
Sheet Erosion





Rill Erosion

- In general the sheet flow is carried out by very small definable channels called interrill.
- When the process of soil erosion and deposition through interrill is prolonged, the interrills are widened, leading to formation of small channels called rills.







Gully Erosion

- Rills are smaller in size and depth, they can be destroyed by tillage operation.
- If their occurrence is prolonged, rills become larger in size and can not be destroyed by tillage operation, and they become Gullies.







Tillage Erosion





Land slide Erosion





Problems of Erosion

- Loss in agricultural production
- Loss of nutrients
- Reduction of infiltration rates
- Increased cost in tillage operation
- Flood may occure in Rivers
- Decreases in useful life of reservoir
- Survival of wild life
- Land degradation
- Cost of removal of sedimentation
- Desertification.