

UNIT 4.4 SOIL AS A RESOURCE



MR. M. Grobbelaar. 2021. Hoërskool Carletonville



SOIL AS A RESOURCE

- While it is constantly being renewed it takes so long for soil to be formed that it can be regarded as a non-renewable resource.



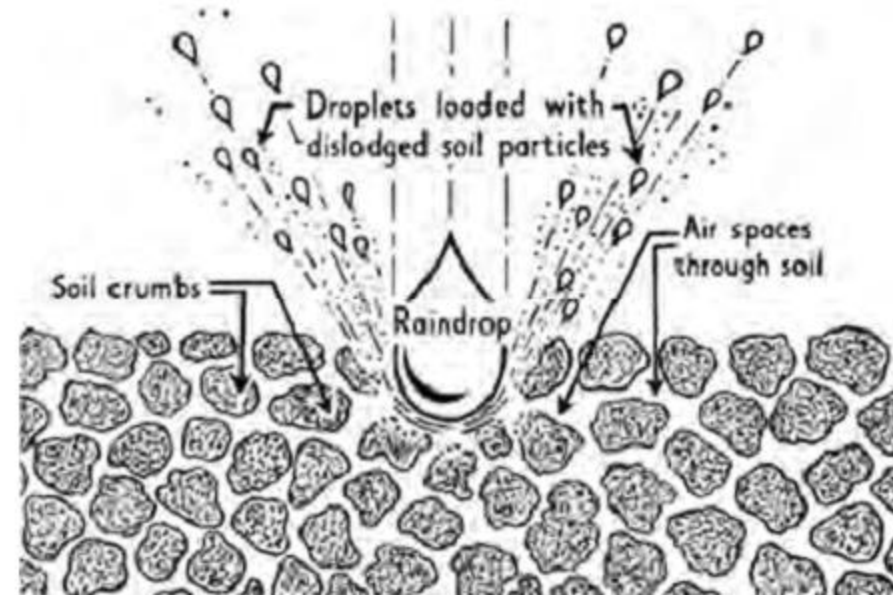
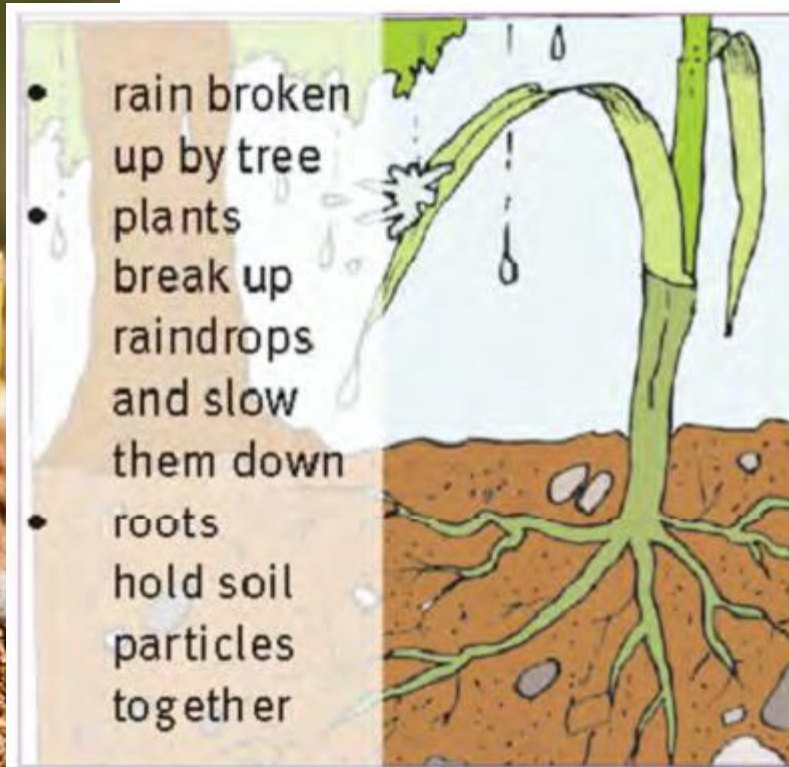
THE CAUSES OF SOIL EROSION

- Wind erosion.
 - On fields that have recently been ploughed strong winds can cause severe erosion. One single dust storm can blow away as much as six tons of soil per hectare.
- Water erosion.
 - In thunderstorms each raindrop acts as a tiny bomb which dislodges a small amount of soil. This is then carried away by run-off causing gullies or dongas.

THE CAUSES OF SOIL EROSION



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POOR FARMING PRACTICES

OVERGRAZING

Many of South Africa's farms are too small to make a living on so more cattle, sheep and goats are being kept on land that cannot provide enough food for them. The vegetation cover is reduced and erosion occurs.



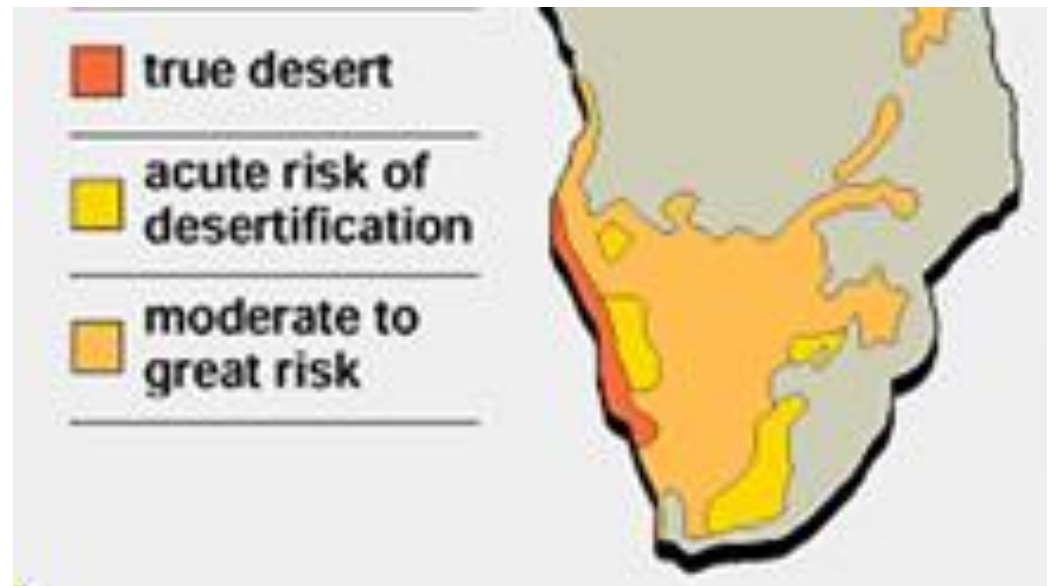
PLOUGHING AGAINST THE CONTOUR

Ploughing against the contour. Ploughing up and down the slope increases run-off and the water removes the soil.



PAST AND PRESENT EROSION

- While erosion has been going on for millions of years it is only recently that accelerated erosion has occurred as humans have attempted to produce more food from the same area.
- The average soil loss South Africa is 13 tons per hectare per year, which is one of the highest in the world.





THE EFFECTS OF SOIL EROSION ON PEOPLE AND THE ENVIRONMENT

- On-site effects.
 - The main on-site effect is the reduction in soil quality which results from the loss of the fertile upper layers of the soil.
- Off-site effects.
 - The eroded soil may be transported considerable distances.
 - This gives rise to off-site problems, mainly the movement of soil and agricultural pollution into rivers.
 - This can lead to the silting-up of dams, disruption of the ecosystems of lakes, and contamination of drinking water.



MANAGEMENT STRATEGIES TO PREVENT AND CONTROL SOIL EROSION

Once erosion has taken place nothing can be done to replace the lost soil. Management strategies must prevent and control further erosion occurring. This can be done by:

- Government limits in the amount livestock that can kept on an area
- Educating the public
- Fencing paddocks and using rotational grazing
- Controlling veld fires
- Contour ploughing
- Adding humus to bind the soil
- Maintaining a good vegetation cover
- Planting shelter belts of trees limits the loss of soil by wind erosion.