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A Study Of Soil Erosion And Lessons To Be Learned.

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SOIL EROSION- Is the washing off of soil layer .Erosion leaves large holes in the earth which affect crop production. Agriculture plays a vital role in the lives of millions of people in sub-Saharan Africa where many rely on commercial farming for their livelihood and many more rely on subsistence farming to feed their families. This is very much the case in Tanzania in East Africa where one-third of the population (13 million people) live in extreme poverty. While Tanzania boasts the second largest economy in East Africa agriculture accounts for almost 40% of GDP despite the fact that only 4% of the land is arable and suitable for farming. It also employs 80% of the workforce. For these reasons it is vitallyimportant that all arable land is protected.
In this project, we look how the type of soil affects how much erosion can occur. Soil is a mixture of **inorganic** materials (rocks, sand, silt, or clay) and **organic** materials (decomposing leaves and organisms). The ratio of these components to each other determines the kind of soil and its texture. In turn, the texture of soil determines how well the soil can support plants and withstand erosion.

Methods to prevent erosion:
Contour farming – ploughing and growing crops along the contour rather than up and down the slope.
• Grass strips – planting grass strips to break the flow of water down the slope.
• Mixed cropping – planting a mix of crops to protect the soil from heavy rain and to maintain soil fertility.
• Crop rotation of maize, tomatoes, and nitrogen-fixing legumes such as groundnuts and beans to prevent the build-up of pests, diseases and weeds, to improve the soil structure and to maintain fertility.
• Mulching – using crop residues to protect the soil surface, prevent erosion and conserve moisture in the soil.
• Fanya juu – a trench dug along the contour, with the soil piled into a ridge upslope to control water flow, prevent erosion, and encourage the natural formation of terraces. The ridges are planted with grass and trees to stabilize them. Fanya juus are useful on gentle to moderate slopes of up to 8% gradient.
• Terracing – moving large amounts of soil to form a series of flat terraces suited for irrigation. Terraces are appropriate for steeper slopes, up to 13% gradient.
• Check dams – barriers across a gully or stream to slow down the flow of water, so preventing further erosion.

METHODS
Two square troughs covered with boxes lined with plastic was prepared
The trough was filled with loam soil which is in hill structure.One trough was covered with grasses and labeled as **trough 1**. The remaining trough was not covered with grasses and was labeled as **trough 2.**
Water was poured to both troughs from water source in high speed which implies heavy rain.

Results:

Trough 1
Erosion was not observed in the area covered by grasses .The speed of water was low in the area covered with grasses.
Trough
The speed of water was very high and erosion was observed .Large holes appeared.

CONCLUSION
Erosion was not observed in areas with grasses.
Erosion was observed in the bare area.

References:
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www.soilerosion.com

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