SOIL EROSION AND ITS PREVENTION TECHNIQUES

PROJECT REPORT

Submitted for the course: **ENGINEERING GEOLOGY**
CLE1011

By

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CERTIFICATE

This is to certify that the project work entitled **"Soil erosion and its prevention techniques"** that is being submitted by Ila Hari , Shashank Goswami, Jayashree , Angela Merlin and Lalit Ramachandra Dongare for **Engineering Geology** is a record of bonafide work done under my supervision. The contents of this Project work, in full or in parts, have neither been taken from any other source nor have been submitted for any other CAL course.

Place: Vellore

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INTRODUCTION

The project is based on soil erosion and its prevention techniques. Soil erosion is the displacement of the upper layer of soil, one form of soil degradation. A low level of erosion of soil is a naturally occurring process on all land. The agents of soil erosion are water and wind, each contributing a significant amount of soil loss each year. Soil erosion may be a slow process that continues relatively unnoticed, or it may occur at an alarming rate causing a serious loss of topsoil. The loss of soil from farmland may be reflected in reduced crop production potential, lower surface water quality and damaged drainage networks. In this project, we have done experiments to find out the effectiveness of each prevention technique in reducing the erosion.

OBJECTIVES OF THE PROJECT

To study about soil erosion, its effects, its prevention techniques and to experimentally prove the effectiveness of each method in reducing soil erosion.

To show that plants can stop soil erosion.

EXPERIMENT

APPARATUS USED:

Plastic pan of size 24cm x 16cm x 11cm
Soil 3kg (per pan)
Grass
Water
Cardboard

PROCEDURE:

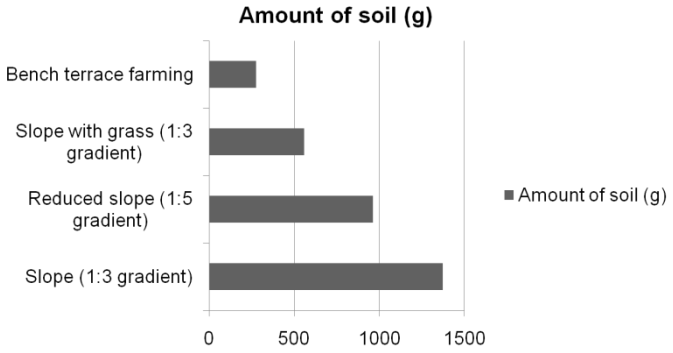
- Take a pan and remove one of its smaller faces.
- Fill the pan with 3 kg of soil.
- Make a slope with 1:3 gradient (base)
- Make a slope with 1:5 gradient
- Make a model of bench terrace farming.
- Make a slope with 1:3 gradient and plant grass.
- Let it set for 3 weeks.
- Take a pan and punch holes beneath it.
- Use a cardboard to cover the holes and fill the pan with water upto 10 cm.
- Take the earlier set of pans and pour water on it using the pan with holes in it. Remove the cardboard and let the water flow.
- The whole setup is kept in a tray.
- The mass running off is collected and let it dry for 2 days.
- Measure the amount of soil.
- Take a pan and punch holes beneath it.
- Use a cardboard to cover the holes and fill the pan with water upto 10 cm.
- Take the earlier set of pans and pour water on it using the pan with holes in it. Remove the cardboard and let the water flow.
- The whole setup is kept in a tray.

- The mass running off is collected and let it dry for 2 days.
- Measure the amount of soil.

OBSERVATIONS AND CALCULATIONS:

Type	Amount of soil (g)	Percentage
Slope (1:3 gradient)	1371	45.7
Reduced slope (1:5 gradient)	963.3	32.11
With grass (1:3 gradient)	559.8	18.66
Bench terrace farming	275	9.16

INFERENCE



- We observed that terrace farming is the most effective method of stopping soil erosion amongst the above used methods.
- Afforestation on slopes can reduce soil erosion to an extent, but not as effectively as terrace farming.
- Reducing the slope can also reduce soil erosion.

CONCLUSION

The project included the same methodology of finding the soil runoff on the the same type of soil kept on different slopes. This project gave us insight on how plants reduce soil erosion. It also helped us learn the benefits of terrace farming. Reducing the slope level and afforestation can also reduce the soil erosion upto an extent as well. We were also familiarized with different terminologies within geology.