

**SOIL EROSION RISKS ASSESSMENT  
AT ITM MAIN CAMPUS SHAH ALAM BASED ON  
RAINFALL EROSIVITY AND SOIL ERODIBILITY  
FACTORS.**

By

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A Report submitted to the Faculty of Civil engineering  
in Partial Fulfilment of the Requirement for the award

Of

Bachelor of Engineering (Hons.)(Civil)

October 1997

## ACKNOWLEDGEMENT.

I had been observing the ITM Shah Alam topographical features in relation to soil erosion hazards for years while studying in this place. I wanted to know more about the features in relation to erosion hazards. At last, I was able to do the study on the subject, because the subject became the topic for the final year civil engineering qualification requirement. The subject is interesting and very challenging. To assess the erosion hazards at the campus based on the rain erosivity and soil erodibility, I applied my civil engineering knowledge on soil erosion taught at the faculty and wrote on it.

The report on the subject had been completed, for all its worth. I wish to express my sincere thanks to my adviser, Professor (Assoc.) Dr. Roslan Zainal Abidin, for his highly valuable guidance and advice to make this final year project report, successfully written.

I would also like to thank the Director JPS, Ampang, and to the staff of the department for the assistance given to me to make the report a reality. My sincere thank is also to the engineer Encik Kamaruzzaman of the Maintenance Office ITM for readily supplying facts on the campus.

And finally my special gratitude goes to my mum and dad, and to my younger sister for unflinching encouragement and support morally and materially to enable me to complete this report successfully. Alhamdulillah.

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October 1997

## ABSTRACT.

Soil erosion and its hazards are as old as the earth. Soil erosion is the nature's way of smoothening, sculpturing and levelling the earth's surface. In its process, soil erosion becomes a continuing problem for man, his life and property. Thus when developing hillslopes or undulating areas or plain areas, civil engineers have to bear in mind this natural phenomenon and will have to design the development of the land accordingly. Serious land erosion at critical slopes can trigger landslides which will bury and trample buildings, inhabitants and roads and vehicles on their paths if the landslides are of magnitude. Natural and man-made slopes are always subject to soil erosion threat. The soil erosion which is of small scale can make at least the landscape look unpleasant and ugly.

Soil erosion is largely influenced by rain erosivity and soil erodibility. The erosive power of rainfall depends upon its intensities and duration. Soil erodibility on the other hand depends upon such factors as the physical features of soil, its topography and land management. Thus when those rain erosivity and soil erodibility factors at the campus are known, soil erosion or soil loss at any slopes can be predicted and measured by employing those erosivity and erodibility factors. Measures are then can be taken to minimize and prevent soil erosions from occurring at the sensitive places in the campus. Civil engineers and planners when developing land in the campus will have to plan develop the land carefully to prevent and minimize the occurrence of soil erosion especially at critical slopes. The angle of inclination of slopes will have to be such that the slopes become stable. There should be no bare area in the campus which is at the mercy of the rainfall. Slopes will have to be stabilised by planting grass, trees and by maintaining bushes. These stabilization measures are environmentally acceptable. Bench-terraces have to be constructed at the slopes to slow-down the flow of rainwater thus to minimize the erosive power of rainwater.

ITM campus Shah Alam has sizeable critical slopes at which soil erosion incidences did occur. But the soil erosion hazards at the ITM campus are manageable. The ITM authority has, however, to be always on look out for any telltale signs of soil erosion. The erodibility factors at those critical slopes have to be compiled. Any indication of soil instability will have to be remedied quickly to prevent serious soil erosion occurrence.

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## CHAPTER ONE.

### BACKGROUND.

#### 1.0. THE ITM CAMPUS SHAH ALAM.

1.1. The ITM at Shah Alam is an institution of high learning established specially to train and produce professional Bumiputras in various technical fields. It is situated in Shah Alam, the capital of Selangor. The ITM campus is about 394 acres in area. It has, at the moment, 16 (sixteen) schools or faculties with about 17,565 fulltime student population. The out-campus student population are 2560. The staff strength are 90 (ninety). Please refer to Appendix A : Detailed Facts On ITM Shah Alam..

1.2. The capital of Selangor Shah Alam is to the west of Kuala Lumpur. It is bordered by the District Of Kelang in the west, the District Of Petaling in the east. It is about twelve miles from Kuala Lumpur, connected to the Metropolitan Kuala Lumpur by the Klang-Kuala Lumpur Expressway.

1.3. The topography of Shah Alam is almost flat, interspersed almost evenly in the township area with pockets of somewhat "hilly" areas. The hilly parts of Shah Alam are the "Bukit Kayangan" on which stands jubilantly the Istana Sultan Selangor, the "Bukit Megawati" on which stands the Istana Tengku Mahkota, the "Bukit Cerakah" where the recreational and park of Selangor is and the "Bukit ITM" on which stands proudly the ITM campus, the high institution of learning specially established to train Bumiputera professionals.