

**ESTABLISHMENT OF SOIL EROSION SCALE
WITH REGARDS TO SOIL GRADING
CHARACTERISTICS**

FOTOSTAT TIDAK DIBENARKAN

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By

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DEDICATION

To my father and mother(Mukri & Rupiiah), my beloved husband Hasrin and my children Nur Shafiqah, Muhammad Aiman and Nur Shazliyana.

ABSTRACT

Recently, landslide occurrences in Malaysia have become one of the major environmental disasters in line with its geographical factors especially due to its heavy downpour. Before the collapse of Highland Tower, excessive developments along the hillside were uncontrollable, as those developments seemed to be luxurious for developers to attract customers. Without putting a great concern particularly on assessment at hill slopes prior to the development, slopes are extremely exposed to the disturbances of any sort.

Soil erosion has caused a series of deaths and destruction in human properties and assets. This ultimately gives a negative impact to the economy as it involves reconstruction of the affected areas. Various government and private agencies have carried out several researches related to soil erosion issues. Nevertheless, to date, there is no research of this kind in establishing soil erosion scale based on soil grading characteristics.

Earlier research had clearly established the relationship between soil erosion features and erodibility index. In this research, it was found that soil erosion scale can be established in linking the various soil erosion tragedy occurrence based on soil grading characteristics as used in the modification of the Bouyoucos equation.

Soil samples from each soil erosion site were taken and its grading characteristic identified. Using the Bouyoucos equation, the value of Erodibility Index (EI) can be obtained. From the EI value, a new equation that is modified from Bouyoucos was developed, tested and named as the “ROM” Scale. This equation is then used to get the new value of EI_{ROM} , thus leading to the establishment of “ROM” Scale, which indicates the degree of soil erosion category. The “ROM” Equation established is as follows:

$$\text{“ROM” Equation (} EI_{ROM} \text{)} = \frac{\% \text{ Sand} + \% \text{ Silt}}{2 (\% \text{ Clay})}$$

The equation is divided by 2 in order to standardize the range value obtained from Bouyoucos to those of the Ritcher Scale. The scale "ROM" is established as a result of the above equation. This scale can produce the level of erosion and its consequences equivalent to the Ritcher Scale.