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# STABILITY OF NATURAL SLOPES

by

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This thesis has not been previously presented in whole or part, to any University or Institution for a higher degree.

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## ABSTRACT

Most of the slopes in Sri Lanka are composed of residual formations derived as a result of in-situ weathering of parent rocks which are predominantly of metamorphic origin. Due to the heterogeneous and anisotropic nature of this slope forming material, a lot of uncertainties exists with regard to the suitability in popular standard methods in assessing degree of stability of such slopes.

The present study proposes two models in order to overcome these uncertainties. One model is the semi-empirical approach which is essentially based on statistical and probability techniques. This can be used for a quick assessment of a slope using some simple parameters which can be easily recognized in the field. The other model proposes an analytical approach to choose realistic strength parameters of slope forming materials to be used in the already available stability analysis techniques.

On application, the semi-empirical approach would be able to recognize and identify the potential of instability of a particular slope while the other approach provides an opportunity to carry out a detailed geotechnical investigation to determine the degree of instability of a slope.

For slopes that are found unstable, remedial measures have been proposed with a view to increase their degree of stability.

## LIST OF FIGURES

### CHAPTER 2



### CHAPTER 3

CHAPTER 4

CHAPTER 5

LIST OF TABLES

## ANNEXURES

CHAPTER 1