



Slope Remediation Techniques and Overview of Landslide Risk Management

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Abstract

Slope failures are common in many parts of the world which occur due to manifold reasons and they result in huge losses to the respective locals. This study evaluates the initiatives that can enhance the safety of slope by considering the remedial measures to deal with the factors causing slope instability and discusses the application of risk management strategies to address the problems that can cause the slope to fail. The methods for the remediation of slope include modification in slope geometry, drainage, use of retaining structures and internal slope reinforcement. This study also discusses the risk management process which is a hierarchical procedure that includes assessment and control of risk through different techniques in order to manage the uncertainties associated with the slope. It has been observed that the implementation of risk management strategy aids in the proper identification of risk and its severity which dictates the selection of appropriate remedial measure for the rectification of slope. For reducing the number of landslides, this study suggests the use of risk based strategies to curtail the chances of slope failure.

Keywords: Slope Failures; Slope Geometry; Drainage; Retaining Structures; Internal Slope Reinforcement; Risk Management Process.

1. Introduction

Landslides have resulted in the loss of human lives and properties in many parts of the world. To combat landslide risk, a wide range of risk mitigation measures are available. These range from hard engineering measures of slope stabilization and landslide protective works to soft community means of public education. Stabilization works aim at reducing the likelihood of failure of a slope whereas the other measure reduces the risk by minimizing the consequences of slope failures. The range of slope stabilization works may be categorized as follows [1]:

- a. Surface protection and drainage
- b. Subsurface drainage
- c. Slope grading
- d. Retaining structures
- e. Structural reinforcement
- f. Strengthening of slope-forming material
- g. Vegetation and bioengineering
- h. Removal of hazards
- i. Special materials and techniques

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