

SUMMARY

Title: Risk Assessment and Environmental Protection in Landslide
Prone Areas of Sri Lanka

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Period of Contract: 1 August 1997 - 30 September 1998

Reserch Background, Objectives, Methods, Results and Conclusions

Developing a landslide risk assessment methodology based on an analysis of risk, involves a preliminary assessment of the type and frequency of hazards, the vulnerability of categories of community elements within a hazard area, and an estimate of the exposure in the hazard area. Risk identification allows to focus the hazard management work plan on those issues that generate the greatest potential losses for the community. Typically, information available to adequately describe risks in the community will be haphazard. Use of probabilistic methods helps to sort direct and indirect risks which allows an assessment where resources should be used to collect additional information to better describe the risks and to determine which risks should be addressed in the work plan.

The first step in the preparation of a methodology for landslide risk assessment is the definition of goals and objectives of the risk management program. For example if the primary objective is to reduce loss of life, the first priority would be to identify risk control options related to managing landslide hazards to save loss of life. Direct as well as indirect hazards may result in significant loss of life that should be considered in a comprehensive risk management program. Such a program should include traffic accidents, disease related to sanitation and water quality, indirect loss due to destruction of storage facilities, etc. Risk identification and assessment broaden the focus from immediate more frequent losses to include less frequent but potentially catastrophic losses.

The hazard zonation map has been used to determine those risks for which number of cost effective risk control measures would be appropriate. Risks that fall within the high consequence, low frequency area of the map may be best addressed initially with lower cost options, such as public awareness information and emergency plans. Medium risks may merit additional options related to new developments. High risks will require the addition of options related to reducing the severity of losses within areas of existing development.

The present study was based on an investigation carried out in Yatiyantota area. The area was severely affected by the landslide incidents that occurred in 1997 during the north-west monsoons. The methodology proposed in this report may assist in the designing of cost effective solutions and mitigatory actions for the area.

The methodology addresses the geotechnical conditions, human settlement issues and environmental aspects involved in the risk assessment process as major components. Due to time constraints, the study was confined to the Yatiyantota area. Initiatives will be made in future to assess the limitations of the methodology. These method has to be field tested to assess the

applicability under different conditions to suit the events of different degrees of severity depending on the changes of physical environment as well as the socio-economic structure.

Publications:

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