

BENEFITS AND LIMITATIONS OF QUANTITATIVE RISK ASSESSMENT IN DEALING WITH NATURAL HAZARDS

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Abstract:

Society is exposed to both natural and human-induced risks. While the risk posed by natural hazards can never be eliminated, the goal of our profession should be to reduce the risk to levels that are tolerable. Protecting society from landslides and reducing exposure and risk to population and property are areas where the geo-profession can practice both its art and science. The lecture presents case studies of slope failure and examples of landslide risk management. Since factor of safety remains the practice's main indicator to ensure slope safety, the significance of factor of safety is discussed. Quantitative Risk Assessment (QRA) is a powerful tool for understanding the main drivers of risk and choosing the optimal risk mitigation strategy with the resources available. However, besides the issue of data availability, the usefulness of QRA is discussed. The lecture discusses the problems related to estimating the risk associated with extreme events, with focus on the uncertainty in hazard prediction and prediction of consequences in complex systems. Emerging approaches, such as stress testing of infrastructure, Bayesian networks and as mentioned. The geo-scientist's role is not only to act as technologist providing judgment on factors of safety. The role has evolved to providing input in the evaluation of hazard, vulnerability and risk associated with landslides. Our profession should be increasingly perceived as reducing risk and protecting people.