ROADSIDE SLOPE RISK ASSESSMENT IN SRI LANKA

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Sri Lanka is experiencing frequent events of slope failures, cutting failures and landslides along the road network throughout the island. Considerably high number of events occurred recently, with the growth in the road sector through expanding the highway network, widening the existing road system and constructing an expressway network in the country. All these failures are triggered by rainy weather. Road closures, property damages and loss of human lives in some instances are reported due to these failures triggered by monsoonal rains. Usually, slope risk assessments are carried out after such failures or with the appearance of early signs of failure. Consequent risk mitigation design and construction are carried out considering only the area subjected to failure or susceptible to failure. Although a considerable region along a particular road may have the same geological and geomorphological conditions with a possibility of failure, currently, there is no proper methodology to assess the overall risk along the road. In the absence of that failures along the road network are repeatedly reported periodically.

The necessity to streamline the process of roadside slope risk assessment is addressed in this research, to ensure the minimisation of the probability of further failures along a mitigated road. A nationally applicable procedure should be implemented to assess the level of risk associated with slopes along the road network and to develop a proper mitigation plan, based on the identified risk levels. One of the most preferred methods for a proper assessment is to maintain a checklist as a tool that can be used by a professional with knowledge and experience regarding road slope failures. The checklist assesses the hazard and vulnerability of a road slope based on slope geometry, soil/rock properties, drainage condition, elements at risk, etc. 'Assessed risk factor' is calculated for each slope and categorised as High, Medium or Low risk. Verification of the outcome from checklist is done by slope stability analysis along with modelling of infiltration. This research focuses on the development of the checklist, application of the developed checklist, and verification of the results obtained from the assessment done through the checklist.

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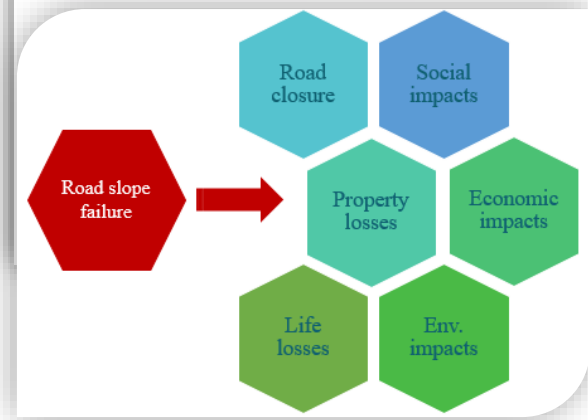
Roadside slope failures are reported around the country



Risk = Hazard × Vulnerability