

Paper Title: Quantitative risk assessment of landslides - a case history from Hong Kong

Author(s): A.D. Hardingham, K.K.S. Ho, A.R.H. Smallwood & C.S. Ditchfield

Abstract:

Given the combination of steep terrain, high sub-tropical rainfall, deep weathering profiles and rapid post-war development in Hong Kong, landslides are recognized as a significant hazard to public safety. The formation of the Geotechnical Control Office (renamed as Geotechnical Engineering Office, GEO, in 1991) in 1977 and the development of a formal slope safety system had resulted in substantial reduction in landslide fatalities over the years. Following a series of fatal landslides in recent years, there appears to be an increasing public expectation, albeit unrealistic, that landslide risks should be completely eradicated.

Qualitative risk assessment of landsliding has long played a part in the slope safety system, both in setting acceptable safety standards and ranking of slopes for priority action by the GEO. More recently, quantitative risk assessment (QRA) techniques are recognized as an additional valuable tool to conventional deterministic methods in providing a measure of the risk of landslide and allowing comparison with acceptability criteria and other everyday's risks. In this respect, QRA can be an effective way of communicating the realities of landslide risks to the public and assist in the establishment of a more appropriate level of public expectation regarding risk mitigation. In conjunction with cost-benefit studies, the cost of remedial works can also be critically examined and expenditure more effectively targeted.

This paper describes the development of an approach to QRA of landslides at a squatter area in Hong Kong through a recent case history.