

Geotechnical engineering for hillsite development

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Since the collapse of Tower 1 of Highland Towers on 11th December, 1993 that killed 48 people, both geotechnical engineers and engineering geologists have been put under the limelight. As a result of a shortage of flat or undulating land, housing and infrastructure developments on hilly terrain have become unavoidable. As such, the need for greater understanding of slope management and engineering practices has become more prominent and inputs from engineers and engineering geologists throughout the entire stage of hillsite development has been emphasised.

Improvements in slope engineering and slope management have been noticeable, since the notorious landslide incident in 1993. One of them was the establishment of the Slope Engineering Branch under the Public Works Department (PWD) in 2004, after the rock fall failure at Bukit Lanjan near Kuala Lumpur in 2003 which resulted in a 6 months highway closure. Numerous guidelines on policies for hillsite development were also introduced with more stringent conditions for approval. Furthermore, the introduction of Accredited Checkers in 2007 by BEM for geotechnical designs of hillsite development is also one of the initiatives implemented to improve slope engineering practices and mitigate the risk of landslides.

This keynote outlines the essential elements in slope engineering and management for both soil and rock slopes. The roles and responsibilities of both geotechnical engineers and engineering geologists are also emphasised especially on the importance of design checks and reviews. Furthermore, important considerations for subsurface investigation planning and recommendations on good engineering practices are also discussed. Finally, appropriate systems for construction quality assurance and control (QA/QC) as well as supervision by Design Consultants are recommended together with guidelines on long-term slope maintenance.