

ENGINEERING GEOLOGIST'S INPUT IN HILLSIDE DEVELOPMENT IN MALAYSIA

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Abstract: Hillside developments are the trend for the development in Malaysia for two reasons. The first reason is because of insufficient flat lands for housing development in Malaysia as the population increases every year especially in major town like Kuala Lumpur and Penang. The other reason is the impressive views, good ventilation and better natural lightings which attracted people to own houses in hilly areas. The risk for hillside development in Malaysia is always related to erosion and landslide, which can endanger public safety and cause damage to properties. There are several slope failure cases in Malaysia which are related to landslide, debris flow or rock fall, such as the collapse of Block 1, Highland Towers Apartment (1993), landslide at Bukit Antarabangsa (1999), Taman Hillview Bungalow collapse (2002), rock slide at Bukit Lanjan (2003), and debris flow at Gua Tempurung, PLUS Highway (2004). The talk is aimed at the engineering geologist's role in hillside development, i.e. to provide adequate information to geotechnical engineers for slope design.

The speaker has been working as an engineering geologist for about 10 years. The speaker highlights the concerns and awareness on the hazards of hillside development which started after the collapse of Block 1 of Highland Towers on December 1993 that killed 48 people. Since then, government and private agencies have issued numerous regulations and guidelines related to hillside development. The agencies which have issued the guidelines include DOE, JMG, MPAJ, Ministry of Housing & Local Government, Urban & Rural Planning Department, IEM and IKRAM. The engineering geologist's input can be divided into three stages, which are the planning stage, mapping stage and construction stage. In the planning stage, the engineering geologist should do desk study using geological map, topography map and aerial photos. In the mapping stage, the engineering geologist would classify the proposed hillside area into Class I to Class IV following the JMG guidelines and indicate the geohazard areas. If rock slope is encountered during the field trip, the engineering geologist would also have to carry out geological rock mapping to study the stability of the rock slope. Construction stage involves detailed geological rock mapping for a rock slope and design of strengthening works for the rock slope. The speaker concludes the presentation by saying that hillside development can be safe provided there is a good engineering geological input, good geotechnical design for slope stability and foundation on top of hill slope, and that the design must finally be checked by an Accredited Checker.