Technical Talk on "Area-based Slope Hazard Assessment"

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AN evening talk by Ir. Dr Mohd. Asbi bin Othman on "Area-based Slope Hazard Assessment" was delivered on 30 November 2010 at Wisma IEM. The talk was attended by 65 members. Ir. Dr Mohd. Asbi began his lecture with a definition of landslide hazard and went on to discuss landslide assessment methods, which include the geotechnical approach, and the direct and indirect methods.

Table 1: Landslide assessment methods

	Direct	Indirect	Qualitative	Quantitative
Geomorphologic mapping	√		√	
Heuristic analysis (Index-based)		√	√	
Analysis of inventories		√		√
Statistical modeling		√		√
Process based (Conceptual)		√		√

(Guzzetti, 2005)

Next, he provided an overview of the methods to assess landslide susceptibility, which include geomorphological mapping, heuristic analysis which is index-based, analysis of inventories, statistical modelling and process-based method. Data required for the use of these methods were discussed. These methods were further classified as direct method, indirect method, qualitative method and quantitative method, as illustrated in Table 1.

Ir. Dr Mohd. Asbi went on to talk about the direct method with the use of a geomorphological map, ground behaviour map and planning guidance map. He discussed the strengths of the direct method, which provides a direct assessment of the area and is highly accurate. The weakness of this method is the requirement of an extensive geomorphological map. It is suitable only for small areas and requires intensive manpower to implement in addition to the requirement for regular updates.

Table 2: Slope failures in Hulu Kelang

Date	Location of Slope Failure
11.12.1993	Highland Tower
14.05.1999	Bukit Antarabangsa, Ampang-Ulu Klang
15.05.1999	Athanaeum Towers, Ulu Klang
05.10.2000	Bukit Antarabangsa
29.10.2001	Taman Zoo View, Ulu Klang
08.11.2001	Taman Zoo View, Ulu Klang
20.11.2002	Taman Hill View
02.11.2003	Condominiums in Bukit Antarabangsa
07.11.2003	Jalan Bukit Mulia, Bukit Antarabangsa, Ulu Klang
31.01.2005	Jalan Tebrau in Dataran Ukay, Ulu Klang
01.02.2005	Jalan Tebrau, Dataran Ukay, Ulu Klang
31.05.2006	Taman Zoo View - Kg. Pasir, Ulu Klang

The selection of appropriate techniques for hazard assessment depends on the nature of the problem, the observation scale and the availability of data. Landslides are local phenomena controlled by a variety of internal and external factors.

Ir. Dr Mohd. Asbi illustrated area-based hazard assessment with the recently completed study of the Hulu Kelang area, an area covering about 100km² stretching from Cheras to the north of Taman Melawati. This area has witnessed a series of landslides as illustrated in Table 2.

Ir. Dr Mohd. Asbi discussed the assessment methods used and enumerated the stages of study which include geomorphological mapping in phase 1 of the study. This was accomplished by the combined use of LiDAR and field mapping works. Phase 2 included the preparation of the hazard map and required documentation.

Ir. Dr Mohd. Asbi ended his lecture with a lengthy discussion with the participants during the question and answer session. ■

Answer for 1Sudoku published on page 20 of this issue.

9	4	7	8	6	3	5	1	2
5	3	1	9	7	2	6	4	8
8	6	2	5	4	1	7	3	9
1	7	8	4	2	6	9	5	3
3	5	4	7	**1**	9	8	2	6
6	2	9	3	5	8	1	7	4
2	9	3	1	8	5	4	6	7
4	1	6	2	9	7	3	8	5
7	8	5	6	3	4	2	9	1