## Report on Talk on "Landslide Debris and Baffles"

by Dr Ooi Teik Aun, Hon FIEM

Ir. Dr Ooi Teik Aun is a committee member of GETD. He is the current Chairman of Dispute Resolution Practice (DRP) Subcommittee. He is also an Advisor for Consulting Engineering Special Interest Group (CESIG).

On 14th of June 2014 Prof. Charles Ng delivered the lecture on "Landslide Debris and Baffles – The Interaction Mechanisms and Case Histories" (see Fig. 1). This lecture was well attended by more than 100 participants including ICE Student Members from the University of Nottingham Malaysia Campus (UNMC) (See Fig 2.).

Professor Charles W.W. Ng is Chair Professor at the Department of Civil and Environmental Engineering and the Director of Geotechnical Centrifuge Facility at the Hong Kong University of Science and Technology. He is Editor-in-Chief of the bulletin and Chairman of the Awards Committee of ISSMGE. He is also Chairman of Hong Kong Geotechnical Society, HKGES and Treasurer of AGSSEA.

Natural landslide debris commonly occurs in mountainous regions around the world including Hong Kong. Debris flow can potentially result in disastrous consequences to downstream facilities. Flow impeding structures are often constructed along the flow path to reduce this hazardous debris. Baffles are a type of flow impeding structure regularly installed using empirical and prescriptive design methods, since the interaction mechanism and the influence of baffle configuration on flow impedance is not well understood. A series of flume experiments were commissioned by the Geotechnical Engineering Office (GEO) of the Hong Kong Government and carried out at the Hong Kong University of Science and Technology to investigate flow characteristics of landslide debris impacting an array of baffles. The influence of baffle height, row number, and spacing between successive rows on flow interaction mechanisms was examined. Photoconductive sensors were used to estimate flow velocity, laser sensors were installed to measure flow depth profiles, and high speed cameras were used to capture flow kinematics. Numerical back-analysis of the flume experiments using the discrete element method (DEM) was also conducted to provide insight on flow interaction with an array of baffles.

Fig. 1 Prof Charles Ng delivering his lecture

The lecture gave some details of the flume experiments and DEM analyses. Key findings and flow mechanisms for various configurations of baffle height, number of rows, and spacing between successive rows were reported and explained. Upstream and downstream kinematics were discussed and compared in terms of Froude number, kinetic energy, and discharge resulting from each baffle configuration. Some case histories and applications from Hong Kong were illustrated. The lecture started at 9am and ended at 11am with active participation from the floor. Fig. 3 shows Ir Liew Shaw Shong, outgoing Chairman of GETD presenting a token of appreciation to Pof Charles Ng. The IEM GETD AGM that followed after the lecture elected the new committee with Ir Yee Thien Seng as the New Chairman. Fig. 4 shows the group photo with Prof Charles Ng and Ir Yee Thien Seng.


Fig. 2 Part view of participants at the Prof. Chin Fung Kee Auditorium


Fig. 3 GETD Chairman Ir Liew Shaw Shong presenting a token of appreciation to Prof Charles Ng

Fig. 4 Group photo with Prof Charles Ng and Incoming Chairman Ir Yee Thien Seng