Workshop and Lectures on Slope Stability, Residual Soils and Landslides: November 22-26/2010

By Professors Sunil Sharma, Charles Ng & Dr. Alex Li

Organised by: Centre for Infrastructure Engineering and Management and Griffith School of Engineering, Griffith University Gold Coast Campus

Date: November 22 – November 26, 2010

Venue: Griffith University Gold Coast Campus G30 1.15

See "Registration form" for daily registration

PLEASE NOTE THAT ONLINE REGISTRATION IS NOW AVAILABLE

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Introduction

An excellent Workshop & Lectures on Slope Stability, Residual Soils and Landslides will be presented from November 22-26, 2010 at Griffith University Gold Coast Campus by two out-standing Professors with more than three decades of experience and also an Engineer from GEO, Hong Kong. The lectures will be invaluable to practicing engineers as well as academics. The first two days of the lectures will be on slope stability design and analyses by Prof. Sunil Kumar. Prof. Sharma from University of Idaho in USA , has conducted slope stability courses for the American society of Civil Engineers (ASCE) on many occasions. These courses are well attended and involve lectures and computations. Prof. Sharma is a co-author of a book on Slope Stability and Stabilization Methods published by John Wiley and sons in 1995 and revised in 2001. Prof. Sharma also own copyrights on the Software XSTABL- an Integrated Slope Stability Analysis Program for Personal Computers. This software, originally released in 1991, is used by: Federal Highways Administration (FHWA), used at six national locations; U.S. Bureau of Land Management: adopted for use at eight locations in the Western US; State Departments of Transportation (DOTs): over 40 states; Over 50 universities in the U.S. and overseas for teaching and research; and Consultants in the United States and overseas.

The lectures on the 3rd day are by Prof. Charles Ng an authority on Landslide studies in Hong Kong. His lectures will be more on the behaviour of residual soils. And the mechanisms of static liquefaction of loose fill slopes and stabilization measures. Prof. Ng will deal with flow liquefaction, cyclic mobility and associated theoretical framework. Also, he will lecture on the saturated and unsaturated behaviour of loose granitic and volcanic saprolites. Prof. Ng has done some excellent work in the centrifuge and will present the principles of centrifuge modelling of completely decomposed granite. Soil nails are used extensively in Hong Kong and else where as slope stabilization measures and Prof. Ng will also deal with re-compaction of fill slopes and the use of soil nails. Most importantly, there will be a detail discussion on the Hong Kong Institution of Engineers Design Guidelines for slopes. Professor Charles W.W. Ng is a Professor at the Department of Civil and Environmental Engineering, the Director of Geotechnical Centrifuge Facility and an Associate Dean of Engineering at the Hong Kong University of Science and Technology. He obtained his Ph. D from the University of Bristol, UK in 1992; and subsequently joined the University of Cambridge as a Research Associate before returning to Hong Kong in 1995. He was elected as an Overseas Fellow at Churchill College, Cambridge, in 2005.

The lectures on the fourth and fifth day will be given by Dr Alex Li is currently the senior geotechnical engineer, heading the Landslip Investigation Section of the Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department, Government of the Hong Kong Special Administrative Region. Intense Urban development in a hilly terrain with high seasonal rainfalls has always posed geotechnical challenges with massive landslides and multiple fatalities. Thus the now Geotechnical Engineering Office of the Civil Engineering and Development Department of the Government of Hong Kong was formed in 1977 as a central body to regulate the planning, investigation, design construction and maintenance of slopes. Over the years the key strategies of this body is to incorporate the latest technological advances in enhancing the stability of natural and man made slopes and in educating the public on the importance of slope stability. Concurrently the lessons learnt from slope failures have contributed to improved geotechnical design of slopes, systematic landslide investigations slope improvement techniques, quantitative risk assessment and mitigation and reduction of landslide hazards.

As such the Course begins with a description of the engineering geology of deeply weathered rocks resulting in thick layers of residual soils, their engineering properties and the effect of intense annual rainfall averaging to some 2,300mm and occurring within May to September in a year. It will then continue with important correlations of rainfall and their intensity with landslides as established from the vast amount of data collected over some three decades. Common types of slope failures and their methods of prediction will then be discussed. The role of field instrumentation and the monitoring of landslide prone areas will also be included and these will concentrate on the planning, calibration, installation, and monitoring of ground water level, pore pressures, surface movements, subsurface movements, loads and stresses.

Several case histories of landslides as documented over a period of thirty or more years will be summarised and presented with lessons learnt from them with a view to improve the understanding of slope stability and landslide hazard reduction. The landslip preventive measures (LPM) program as implemented since 1977 and the reflections on its achievement and advancement in upgrading the safety standards of slopes will then be presented.

Technical Program

Technical Program on Slope Stability: 1st Day
Prof. Sunil Kumar (USA)

08:30 - 09:00	Registration
09:00 - 09:30	Introduction
09:30 - 10:15	Landslide features
10:15 - 10:45	Coffee break
10:45 - 12:00	Shear Strength of soils for slope stability analysis - drained analysis
12:00 - 13:00	Lunch
13:00 - 14:30	Analysis: Infinite slopes, planar surfaces (wedges), method of slices
14:30 - 15:00	Coffee break
15:00 - 16:15	Shear Strength of soils for slope stability analysis - undrained analysis;
16:15 – 17:00	Method of slices – examples*

*Computer based

Technical Program on Slope Stability: 2nd Day
Prof. Sunil Kumar (USA)

08:30 - 09:00	Registration
09:00 - 10:00	Computer Analysis of slopes*
10:00 - 10:30	Coffee break
10:30 - 12:00	Seismic Analysis*
12:00 - 13:00	Lunch
13:00 - 14:30	Case history – staged construction
14:30 - 15:00	Coffee break
15:00 - 16:30	Slope Stabilization
16:30 – 17:00	Closure

*Computer based

Technical Program on Mechanisms of Static Liquefaction of Loose Fill Slopes and Stabilisation Measures: 3rd Day
Prof. Charles Ng (Hong Kong)

08:30 - 09:00	Registration
09:00 - 09:45	Fundamental soil behaviour (flow liquefaction and cyclic mobility and associated theoretical framework)
09:45 – 10:30	Saturated and unsaturated behaviour of loose granitic and volcanic saprolites
10:30 - 11:00	Coffee break
11:00 - 12:00	Principles of centrifuge modelling and mechanism of static liquefaction of loose sand fill slope
12:00 - 13:00	Lunch
13:00 - 14:30	Centrifuge modelling of loose CDG* fill slopes with and without soil

	nails under both static and dynamic conditions
14:30 - 15:00	Coffee break
15:00 - 16:30	Fundamentals of recompaction and the use of soil nails in loose fill slopes
16:30 – 17:30	Discussion on HKIE** (2003) design guidelines and Q/A

*CDG= Completely Decomposed Granite, **HKIE=Hong Kong Institution of Engineers

Technical Program on 4th Day: Residual Soils, Slope Stability and Landslides -1: Dr. Alex Li

08:30 - 09:00	Registration
09:00 - 10:00	Geology and Residual Soil
10:00 - 10:30	Coffee break
10:30 - 11:15	Rainfall-Landslide Correlation
11:15 - 12:00	Site Characterisation
12:00 - 13:00	Lunch
13:00 - 14:30	Man-made Slope Failures
14:30 - 15:00	Coffee break
15:00 - 16:30	Soil-nailed Cut Slopes: Theory, Design and Construction
16:30 - 17:00	Slope Greening and Maintenance

Technical Program 5th Day : Residual Soils, Slope Stability and Landslides -2: Dr. Alex Li

08:30 - 09:00	Registration
09:00 - 10:00	Natural Terrain Hazards: Types and Impact
10:00 - 10:30	Coffee break
10:30 - 12:00	Natural Terrain Hazard Assessment
12:00 - 13:00	Lunch
13:00 - 13:45	Mitigation Strategies
13:45 - 14:30	Natural Terrain Landslides
14:30 - 15:00	Coffee break
15:00 - 16:45	Design and Construction of Mitigation Measures
16:45 - 17:00	Closing Remarks

Registration Can Now Be Done Online

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Country:

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- □ **AUD $ 480 –Tuesday , 23rd November 2010**
- □ **AUD $ 480 –Wednesday, 24th November 2010**
- □ **AUD $ 480 –Thursday, 25th November 2010**
- □ **AUD $ 480 –Friday, 26th November 2010**

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***For additional information please contact (preferably by e-mail)**
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Bio-data:

Prof. Sunil Sharma:

Prof. Sharma from University of Idaho in USA , has conducted slope stability courses for the American society of Civil Engineers (ASCE) on many occasions. These courses are well attended and involve lectures and computations. Prof. Shrama was educated in University of Leeds in UK where he obtained his B Sc in Engineering in 1975. His Masters and Doctoral Degrees are from University of Purdue in USA in 1980 and 1986 respectively. Hid research interests are on : Computer applications in civil engineering, numerical methods for solving static and dynamic geotechnical problems, slope stability, soil dynamics and earthquake engineering, foundation engineering, groundwater and seepage, computer assisted learning (CAL) using multimedia, software development. An excellent teacher, Prof. Sharma taught courses on Fundamentals of Geotechnical Engineering, Geotechnical Engineering Design), Numerical Methods, Engineering Properties of Soils), Seepage and Slope Stability, Soil Dynamics, and Earthquake Engineering.

Prof. Sharma is a co-author of a book on Slope Stability and Stabilization Methods published by John Wiley and sons in 1995 and revised in 2001. He has conducted Workshops for ASCE on:
"Soil and Rock Slope Stability Analysis' (2001), "Slope Stability and Stabilization" (1997-2001)- Twenty 3-day courses presented nationally for the American Society of Civil Engineers (ASCE). "Advanced Slope Stability Manual and Seminars" (1991-94): Comprehensive slope stability reference manual and presentation of three five-day courses for the Federal Highways Administration (FHWA). This work was jointly performed with Parsons-Brinckerhoff, a consultant from San Francisco, CA.
Prof. Sharma also own copyrights on the Software XSTABL- an Integrated Slope Stability Analysis Program for Personal Computers. This software, originally released in 1991, is used by: Federal Highways Administration (FHWA), used at six national locations; U.S. Bureau of Land Management: adopted for use at eight locations in the Western US; State Departments of Transportation (DOTs): over 40 states; Over 50 universities in the U.S. and overseas for teaching and research; and Consultants in the United States and overseas. He is also the author /co-author of the design manuals: Micropile Design and Construction Guidelines, Federal Highway Administration, FHWA - SA - 97 - 070, 382 pages; and A Hypermedia Micropile Design Manual - CD Version, Federal Highway Administration, Vancouver, Washington, December.

(2) Professor Charles W.W. Ng is a Professor at the Department of Civil and Environmental Engineering, the Director of Geotechnical Centrifuge Facility and an Associate Dean of Engineering at the Hong Kong University of Science and Technology. He obtained his Ph. D from the University of Bristol, UK in 1992; and subsequently joined the University of Cambridge as a Research Associate before returning to Hong Kong in 1995. He was elected as an Overseas Fellow at Churchill College, Cambridge, in 2005. Professor Ng is a Charted Civil Engineer (CEng) and Fellow of the Institution of Civil Engineers (FICE), the American Society of Civil Engineers (FASCE), the Hong Kong Institution of Engineers (FHKIE) and Hong Kong Academy of Engineering Sciences (FHKEng). Recently he has been elected as Chang Jiang

Scholar (Chair Professorship) by the Ministry of Education in China and appointed as a Board Member of the International Society of Soil Mechanics and Geotechnical Engineering. Currently he is Associate Editor of the *Canadian Geotechnical Journal.* He has published widely on slope instability problems, behaviour of saturated and unsaturated soils, soil-structure interaction problems such as tunnels, piles and deep excavations. He is the main author of two reference books including *Soil-Structure Engineering of Deep Foundations, Excavations and Tunnels* and *Advanced Unsaturated Soil Mechanics and Engineering.*

(3) Dr Alex Li is currently the senior geotechnical engineer, heading the Landslip Investigation Section of the Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department, Government of the Hong Kong Special Administrative Region. He is responsible for investigation of significant landslides. Dr Li obtained his PhD from Manchester University (U.K.) in 1988 and subsequently worked as a geotechnical engineer in Ove Arup & Partners (London), before joining the GEO in 1993. Dr Li is a Chartered Civil Engineer and a member of the Institution of Civil Engineers, and the Hong Kong Institution of Engineers. He has published many papers on investigation of landslides as well as slope greening. Dr Li has also assisted in the formulation of works policy to enhance slope safety in Hong Kong.