Geotechnical Engineering Journal of the SEAGS & AGSSEA **Vol. 43 No.1 March 2012 ISSN 0046-5828**

GEOTECHNICAL

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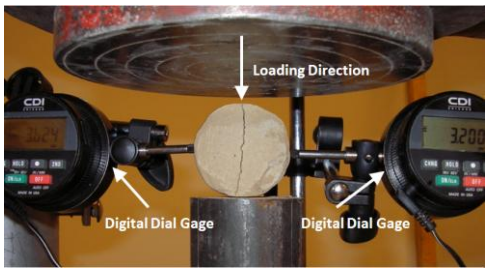
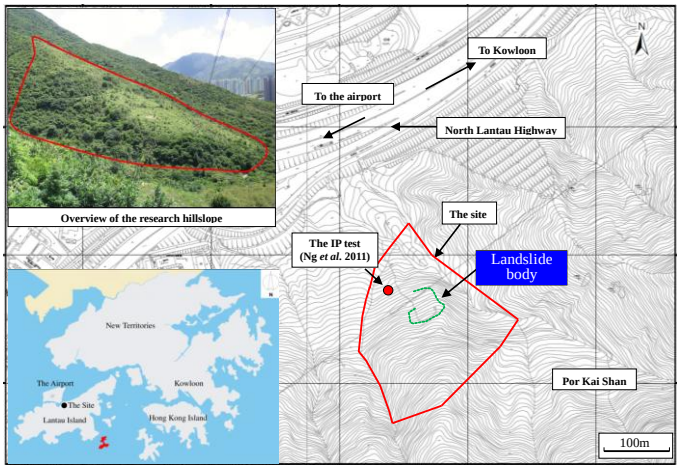
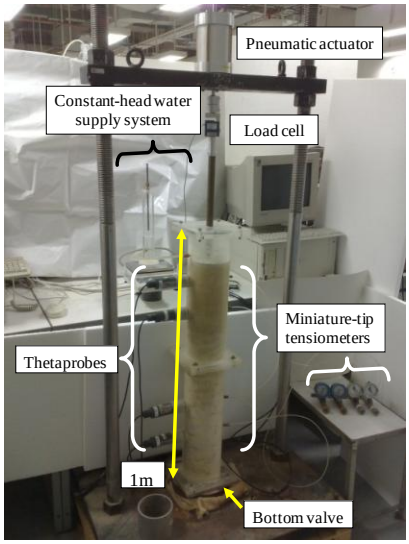
Guest Editors:
Charles W. W. Ng & Apiniti Jotisankasa



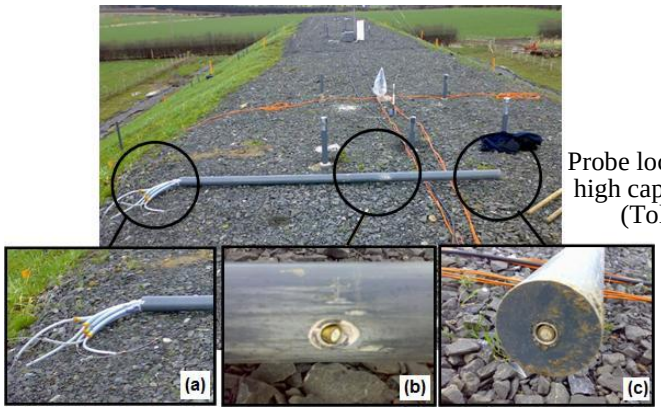
Indirect tensile strength testing on dry soil specimen (Puppala et al. 2012)



Saprolitic hillslope for full-scale field monitoring in Hong Kong (Leung *et al.* 2011)



Stress-controllable 1D soil column (Ng & Leung 2012)



Probe locator for installing high capacity tensiometer (Toll et al. 2012)

GEOTECHNICAL ENGINEERING

March 2012 ISSUE ON UNSATURATED SOIL MECHANICS AND ENGINEERING

Charles W. W. Ng & Apiniti Jotisankasa
Guest Editors

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 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 the Hong Kong Academy of Engineering Sciences (FHKEng). He holds the title of Chang Jiang Scholar (Chair Professorship) by the Ministry of Education in China and he is an appointed Board Member of the International Society of Soil Mechanics and Geotechnical Engineering. Currently Professor Ng is Associate Editor of the Canadian Geotechnical Journal. _He has published widely on slope instability problems, behaviour and mechanics 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".

DR. APINITI JOTISANKASA is currently an Assistant Professor at the Department of Civil Engineering, Kasestsart University Bangkok. After obtaining his BEng degree in Civil Engineering from Kasetsart University in 1999, he pursued his MSc and PhD in Soil Mechanics at Imperial College London with the generous support of the Anandamahidol Scholarship from Thailand. His research topics for the PhD degree was on the Collapse behaviour of a compacted silty clay: the work which culminated in several world-leading journal papers such as Geotechnique, and the ASCE Journal of Geotechnical and Geoenvironmental Engineering. After being awarded the PhD degree in 2005, he started working for Kasetsart University as a lecturer in geotechnical engineering and his research area has been mainly on application of unsaturated soil mechanics on practical geotechnical engineering problems, such as rainfall-induced landslide, excavation, embankment stability, bio-slope engineering, geohazard mitigation, etc. He also lead a team consisting of geotechnical as well as electrical engineers who develop a wireless system for monitoring of slope behaviour such as pore water pressure (negative/positive) and slope movement. Dr Apiniti is the recipient of the Best paper award (Geotechnical Engineering) in the National Convention in Civil Engineering 2009 from the Thai Geotechnical Society and Chai Mukthabhan foundation for his work on the behaviour of instrumented volcanic soil slope subject to rainfall. In 2011, he was awarded the Young Technologist Award from the Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King of Thailand. Dr. Apiniti has been secretary general of the Thai Geotechnical Society since 2009 and currently a member of the TC106 (Unsaturated soils) of the International Society of Soil Mechanics and Geotechnical Engineering.

GEOTECHNICAL ENGINEERING

PREFACE

Most of the Earth's land surface comprises unsaturated geomaterials, which often pose geotechnical hazards such as rainfall-induced landslides to societies and serviceability problems to high speed rail links founded on collapsible and expansive unsaturated soils. However, the vast majority of text books, conference proceedings and journal articles investigate mainly saturated soil mechanics, which is only a special case of unsaturated soil mechanics. With intensive building and construction activities in countries like China, India, Central and South America and Africa on foundation soils that are often unsaturated, geotechnical engineers can no longer ignore the complication of unsaturated soils and the challenges they present. In developed countries, many geo-environmental problems such as nuclear waste disposal also involve unsaturated soil mechanics heavily. Research on unsaturated soils has therefore been a major focus in many universities and research institutions over the last two decades.

This special issue contains eight keynote papers selected from the 5th Asia-Pacific Conference on Unsaturated Soils held in Pattaya, Thailand, between 29 February and 2 March 2012. The series of Asia-Pacific Conferences on Unsaturated Soils began in Singapore in 2000. With the continued support of the Technical Committee on Unsaturated Soils (TC106) of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), the 2nd, 3rd, and 4th conferences were held in 2003 in Osaka, Japan, in 2007 in Nanjing, China and in 2009 in Newcastle, Australia, respectively. These conferences have proven to be a fruitful forum where researchers and practitioners in the region and beyond gathered enthusiastically to present their latest research findings and development and to exchange ideas on the subject.

Guest Editors
Charles W.W. Ng
Apiniti Jotisankasa

GEOTECHNICAL ENGINEERING

ACKNOWLEDGEMENT

This March 2012 Issue of the Journal is on Soil Behaviour of Unsaturated Soils and Engineering Applications and it includes papers from well known researchers as drawn from Thailand, United States of America, Hong Kong, Australia, Singapore and the United Kingdom.

The Guest Editors of this Issue are Prof. Charles W. W. Ng at the Department of Civil and Environmental Engineering in the Hong Kong University of Science and Technology and Dr. Apiniti Jotisankasa at the Department of Civil Engineering, Kasestsart University Bangkok. Both Editors are internationally well known for their research and professional activities in Unsaturated Soil Mechanics and Engineering.

We are fortunate to have eight excellent contributions by authors who have spent a life time with unsaturated soil mechanics and engineering from:W. Mairaing, A. Jotisankasa and S. Soralump; J.D. Nelson, K.C. Chao, D.D. Overton and R.W. Schaut; C. W. W. Ng and A. K. Leung; A.J. Puppala, T. Wejrungsikul, V. Puljan and T. Manosuthikij; H. Rahardjo, A. Satyanaga, E. C. Leong; J.R. Standing ; D.G. Toll1, J. Mendes1, P.N. Hughes, S. Glendinning and D. Gallipoli3; and D.J. Williams. Among other topics it deals with the development of unsaturated soil mechanics as a discipline; unsaturated expansive soils and foundation problems; unsaturated soil slopes and stabilization measures; some mining applications of unsaturated soil mechanics and finally the most important area of climate change and the role of unsaturated soil mechanics in engineering applications.

The material contained in this issue of the journal would be of great value to engineers as well as researchers dealing with engineering activities in unsaturated soils. The Guest Editors Prof. Charles W.W. Ng and Dr Apiniti Jotisankasa and the contributors are thanked for their untiring efforts and meticulous work which made this special issue to be possible and released well in time. We have had great guest editors for the 2011 Issues as: Jie Han; Tatsunori Matsumoto, Der Wen Chang; Chang Yu Ou and Dariusz Wanatowski. It is a pleasure to begin the Year 2012 with this excellent issue with such eminent persons like Prof. Charles W. W. Ng and Dr Apiniti Jotisankasa . Likewise we look forward to the most valued help from Prof. Ikuo Towhata, Prof Der Wen Chang, Dr. Ivan Gratechev; Prof. Malek Bouazza and Mr Tom Lunne and Prof de Groot for the June, September and December Issues.

K.Y. Yong
D.T. Bergado
T.A.Ooi
A.S.Balasubramaniam

Geotechnical Engineering Journal of the SEAGS & AGSSEA **Vol. 43 No.1 March 2012 ISSN 0046-5828**

GEOTECHNICAL ENGINEERING

Special Issue on Unsaturated Soil Mechanics And Engineering

Guest Editors: **Charles *W. W. Ng & Apiniti Jotisankasa***

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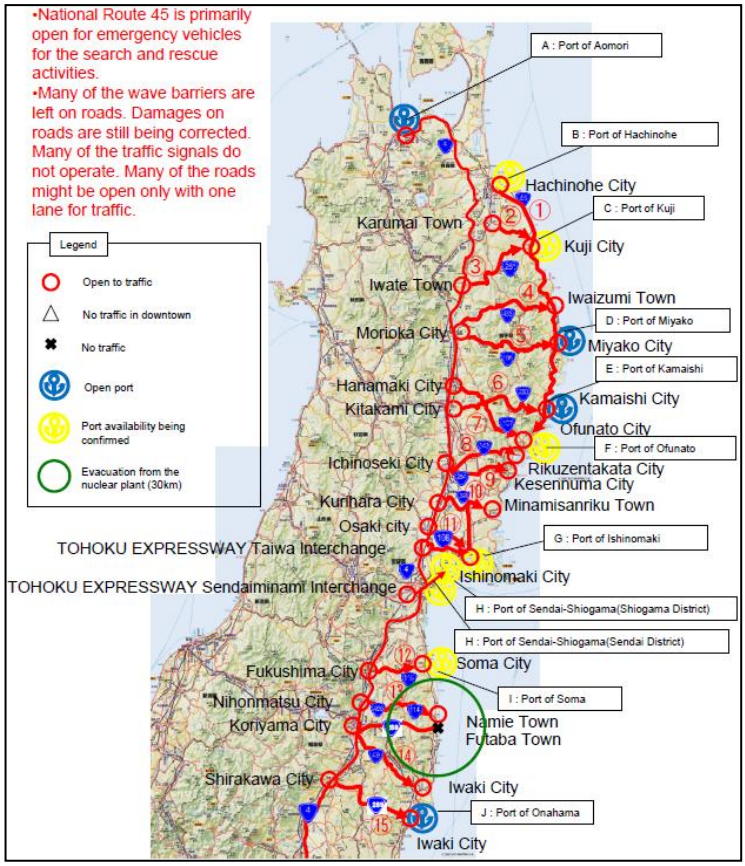
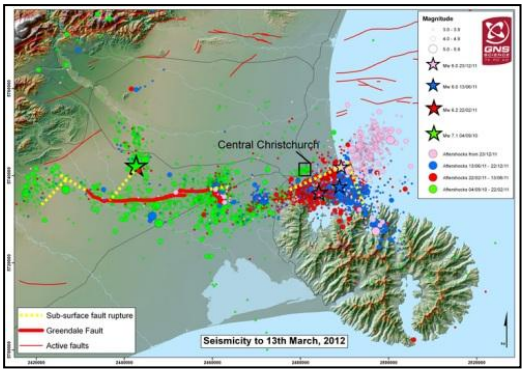
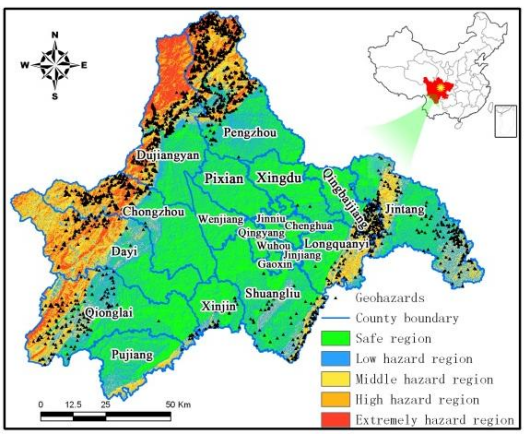


Tohoku (after Kazama *et al*, 2012)



Christchurch (after Orense *et al*, 2012)



WenChuan (after Yang *et al*, 2012)

GEOTECHNICAL ENGINEERING

March 2012 ISSUE ON GEOTECHNICAL EARTHQUAKE ENGINEERING

Guest Editors:Prof. Ikuo Towhata, Prof. Der Wen Chang & Dr. Ivan Gratchev

Prof. IkuoTowhata

Prof. Ikuo Towhata had his engineering education at the prestigious Tokyo University in Japan and is currently a Professor in the Department of Civil Engineering. Tokyo University is traditionally very strong in Soil Dynamics, Machine Foundations and Geotechnical Earthquake Engineering now for several decades. Also recently, Prof. Towhata has written a comprehensive and scholarly book in this discipline (see Geotechnical Earthquake Engineering, 2008: publisher Springer). Prof. Towhata was also the Editor in Chief of the well-known Journal, Soils and Foundations. He is an active member of several national and international committee on landslides, earthquake engineering. Recipients of several prestigious awards, Prof. Towhata's interests in Geotechnics is very wide and are on deformation characteristics of sands, dynamic analysis of earth structures, soil improvement by densification and grouting, stability of slopes and seabeds under static and dynamic conditions, landslides and debris flows, seismic performance based design of geotechnical structures. Author of more than 250 publications, Prof. Towhata has lectured in many leading universities in most continents.

Prof. Der-Wen Chang

Prof. Der-Wen Chang teaches at The Department of Civil Engineering of Tamkang University (TKU), Taipei, Taiwan for over 19 years. He received Ph.D. in Civil Engineering at The University of Texas at Austin in 1991 and MS in Civil Engineering at Michigan State University in 1987. Prof. Chang has supervised there search work of over 60 Master Thesis and 3 Ph.D. Thesis at TKU, and published more than 160 articles as the Journal, Conf. papers and reports. Nearly all his research studies are related to numerical modeling and dynamic analyses for the geotechnical structures. His research experiences include NDT methods on pavements, seismic behaviors of the pile foundation, constitutive modeling of the soils, and recent study on the performance based design for the earth structures. Prof. Chang is also the visiting Professor at University of Washington at Seattle, US in 2008 and LN Gumilyov Eurasian National University at Astana, Kazakhstan for research studies in 2010. Other than there search works, Prof. Chang devotes himself a great deal to serve the communities. He involves heavily and indeed shows his good performance in the public works related to education and constructions. Prof. Chang is now serving as the Secretary General of Chinese Taipei Geotechnical Society, GC member of SEAGS, Editorial Panel for SEAGS/AGSSEA J. of Geotechnical Engineering, Committee members for Public Construction and Hazard Prevention in Taipei City and Taipei County governments. He will continue to work in the academia and hoping that his studies can better improve the civil engr. technologies.

Dr.Ivan Gratchev

Dr. Ivan Gratchev has spent the last ten years conducting research in the areas of geotechnical and geoenvironmental engineering in Japan, in particular earthquake-induced liquefaction and landslides. He qualified to receive a prestigious scholarship sponsored by the Japanese Government to complete his master and doctoral courses at Kyoto University. After receiving a PhD degree in 2007, he was selected for a highly competitive fellowship by the Japan Society for the Promotion of Science (JSPS) to conduct postdoctoral research at the University of Tokyo. His expertise in field investigation and laboratory testing led to his selection for several reconnaissance teams to assess structural damage and slope failures follow in recent earthquakes in Japan as well as the 2008 Sichuan Earthquake in China, and the 2009 earthquake in Sumatra. Since2010, Dr. Gratchev has been a lecturer at Griffith University, one of the fastest growing universities in Australia. He has produced more than 30 publications in refereed journals, international proceedings, as well as book chapters on research topics such as slope stability, liquefaction, and cyclic behavior of fine-grained soils as well as the effects of contamination on the geotechnical properties of soil.

GEOTECHNICAL ENGINEERING

PREFACE

I would like to express my deep respect to the geotechnical colleagues in Southeast Asia who have been publishing this prestigious journal for more than 40 years. It is very important that a regional engineering community maintains its own place of publication and is able to freely express its own idea of importance and value. I wish this journal to continue its contribution for a long time from now on.

When I was asked in 2011 to take care of a special issue on geotechnical earthquake engineering, I felt reluctant. This was because of my domestic situations after the gigantic earthquake on March11, 2011, after which I have been working on such a variety of urgent issues as liquefaction vulnerability of subsoil, causative mechanisms of river levee damage, and post-earthquake public appeal among many others. Then fortunately two capable people started to jointly work with me for all the aspects of the publication of this issue. Upon this occasion, I would like to express my sincere appreciation to my Co-Guest Editors, Prof. Der Wen Chang and Dr. Ivan Gratchev without whom the editing and publication of this issue will not be impossible.

The mitigation of natural disaster is an important but difficult task. This is partially because we do not fully understand what happens during disasters. We can scarcely eyewitness the occurrence of a natural disaster. We can only visit sites of damage after the event and report the observation to colleague engineers. It is certainly possible that important and essential keys for mitigation are still overlooked or unknown. In this regard, the study of disaster mitigation is important and fascinating to capable and ambitious people.

In my personal opinion, earthquake problems deserve attention of capable people most significantly in mountain areas. In the mountain areas where many slope failures are triggered by earthquake shaking, not only the seismic shaking but also the ground condition is uncertain or not well known for design purposes. Accordingly, many unexpected things happen. This is the reason why many papers in this issue address earthquake-rainfall interaction, which is called the combined effects, as well as the long-term effect of past earthquakes. These new problems are not studied in details yet and the practice does not know how to deal with them. Conventional approach of geotechnical engineering such as limit equilibrium and factor of safety is too expensive because the action is combined and rare. Consequently, there is no practical approach yet and ambitious people are waited to start positive action to solve the problem. As the chief editor of this issue, I strongly expect such people to read this issue and be stimulated. I am confident that there are many challenges in this field of study that deserve deep devotion of good people. It is desired that this special issue would pave a road to solution of geotechnical earthquake problems that appear abundant in Southeast Asia and have not been well investigated.

Guest Editor
Ikuo Towhata

GEOTECHNICAL ENGINEERING

ACKNOWLEDGEMENT

The June 2012 Issue on Geotechnical Earthquake Engineering has Prof. Ikuo Towhata, Prof. Der Wen Chang and Dr. Ivan Gratchev as Guest Editors. Prof. Towhata has written a comprehensive and scholarly book in this discipline; see Geotechnical Earthquake Engineering, 2008: publisher Springer. We also had great guest editors for the 2011 Issues as: Jie Han; Tatsunori Matsumoto, Der Wen Chang; Chang Yu Ou and Dariusz Wanatowski. The March 2012 Issue had Prof. Charles W. W. Ng and Dr Apiniti Jotisankasa as Guest Editors.

We are most grateful to Prof. Ikuo Towhata, Prof Der Wen Chang and Dr. Ivan Gratchev for helping with the editorial works of the current issue. There are ten contributions as received from authors in Bangladesh, New Zealand, China, Iran, Japan and Chinese Taipei. The Authors are: Tahmeed M. Al-Hussaini, Tahsin R. Hossain and M. Hayeem Al-Noman; RP Orense, MJ Pender and LM Wotherspoon; Yingbin Zhang, Guangqi Chen, Jian Wu, Lu Zheng and Xiaoying Zhuang; Z. Yang, J. Qiao, H. Tian, D. Huang, M. Wang and H. Meng; Abbas Galandarzadeh and Alireza Ahmadi; Hirofumi Toyota M. Kazama, T. Noda, T. Mori and J. Kim; Meei-Ling Lin and Yu-Hung Shu; Ikuo Towhata; and Hongling Tian, Jianping Qiao, Taro Uchimura and Lin Wang.

The material contained in this issue relates to earthquakes in Canterbury (New Zealand), Tohoku, Chi-Chi in Taiwan and Northwest Chengdu, China. Geotechnical hazards including soil liquefaction and seismically induced slope failures are also the topics presented in this issue. Laboratory studies on soil liquefaction resistance and the role of tension-shear mechanism failure in numerical simulation of seismic slope stability are also presented. Changes to building codes incorporating geotechnical earthquake provisions are also described. These contributions will be of great interest to engineers and researchers who are dealing with challenges in geotechnical earthquake engineering.

The guest editors are thanked sincerely for their dedicated contributions. Prof. Der Wen Chang in co-ordination with Prof. Ikuo Towhata and Dr. Ivan Gartchev has worked in a meticulous manner in making this issue feasible and to be released in time. We now look forward to the September and December 2012 Issues as edited by Prof. Malek Bouazza and Tom Lunne and Prof. de Groot respectively.

K.Y. Yong
D.T. Bergado
T.A.Ooi
A.S.Balasubramaniam

GEOTECHNICAL ENGINEERING

Special Issue on Geotechnical Earthquake Engineering
Guest Editors: **Prof. Ikuo Towhata, Prof. Der Wen Chang & Dr. Ivan Gratchev**

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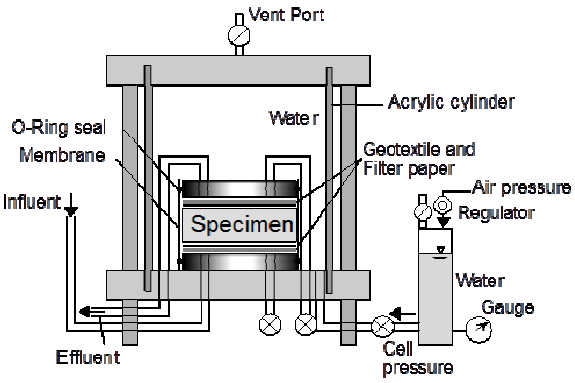
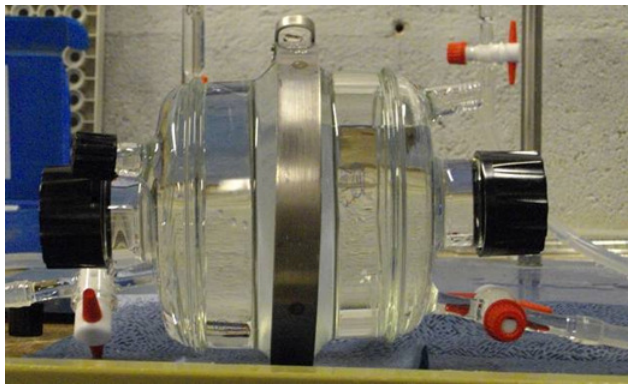
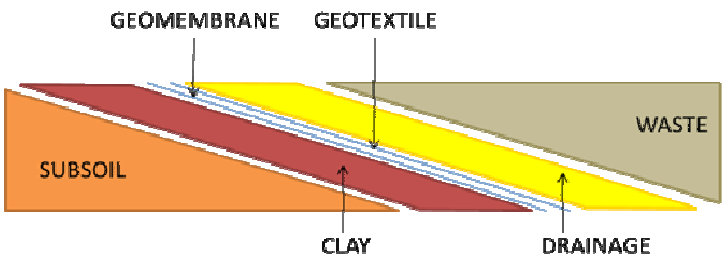


Scheme of a flexible-wall permeameter (After Naka et al, 2012)



Diffusion cell (After Touze-Foltz*et al,2012)*



Typical lining system (After Dixon et al, 2012)

GEOTECHNICAL ENGINEERING

SEPTEMBER 2012 SPECIAL ISSUE ON GEOSYNTHETCS AND SANITARY LANDFILL

Guest Editor: Prof. Abdelmalek Bouazza

PROFESSOR ABDELMALEK BOUAZZA is very prominent in technical and professional society activities and serves on a number of international technical committees. Currently, he is a member of the International Geosynthetics Society (IGS) council and chair of the Asian Activities Committee of the International Geosynthetics Society. He is a core member of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) Technical Committee No5 (TC5) on Environmental Geotechnics, Vice-President of the Australasian Chapter of the International Geosynthetics Society (ACIGS), co-chair of the International Geosynthetics Society Education Committee and a member of the Standard Australia committee C20 on Geosynthetics. He is editorial board member of 5 International Journals and very active as a reviewer for several international journals.

Professor Abdelmalek Bouazza has published widely in international journals and refereed conferences and is the author or co-author of more than 180-refereed publications... His skills and experience in the area of waste containment facilities and geosynthetics are well recognized in Australia and abroad. He has been invited to deliver and contribute to several keynote lectures and state of the art reports in international conferences in Africa, Asia, Europe and North America, and delivers short courses on geosynthetics, and liners and cover systems for waste containment facilities on a regular basis locally and internationally. In addition to his academic commitments, Professor Abdelmalek Bouazza gives specialist advice for the industry both nationally and internationally.

GEOTECHNICAL ENGINEERING

PREFACE

Geosynthetics are extensively used in waste containment facilities either as part of cover or bottom lining systems. Their aim is to reduce water ingress into the containment, to control gas migration in the case of the cover liners, and to limit contaminant migration to levels that will result in negligible impact in the case of bottom liners. This special issue gives an overview of the research effort conducted in various part of the world on the theme of this special issue. It contains ten papers addressing important aspects related to waste containment design including the important interaction between waste or soil and lining systems, geomembrane wrinkles, hydrocarbon diffusion, geosynthetic clay liners and interaction with acid mine drainage and acidic solutions, settlement and its mitigation through the use of geosynthetics and finally concluding with an overview of the use of geosynthetics in landfills in Asia and in Perth, Australia.

Finally, I wish to express my appreciation to the authors for their effort and time in the preparation of a set of very high quality papers. I am very much indebted to the reviewers for their highly competent efforts. Last but not least, I would like to gratefully acknowledge the assistance and encouragement of Professor A. Balasubramaniam, Editor in Chief, during the preparation of this issue.

Abdelmalek Bouazza
Guest Editor

GEOTECHNICAL ENGINEERING

ACKNOWLEDGEMENT

The September 2012 Issue of the journal has Prof. Abdelmalek Bouazza from Monash University as the Guest Editor. We are greatly indebted to Malek to bring this flavour of Geosynthetics and Sanitary Landfill to our Journal through the contributions from invited authors.

There are ten excellent papers authored by: N. Dixon, K. Zamara, D.R.V. Jones and G. Fowmes; R. K. Rowe, P. Yang, M.J. Chappel, R.W.I. Brachman and W.A. Take ; N. Touze-Foltz, M. Ahari, M. Mendes, C. Barral, M. Gardoni and L. Mazéas; P.J. Fox, C. Athanassopoulos, S. S. Thielmann and A. N. Stern; A. Naka, T. Katsumi, G. Flores, T. Inui, T. Ohta, T. Urakoshi and T. Ishihara; Y. Liu, W.P. Gates and A. Bouazza; S. Rajesh and B.V.S. Viswanadham; B.V.S. Viswanadham, S. Rajesh and A. Bouazza; H. B. Ng and B. Ramsey; and L. Du Preez, R. Beaman and I. Watkins. The topics covered waste/lining interaction systems; compacted clay liners in slopes; Diffusion of phenolic compounds through an HDPE geomembrane; Damages in Geomembranes due to Gravel in Underlying Compacted Clay; Mineral barriers against acid rock drainage; Geosynthetic Clay Liners Using Polymer Modified Geosynthetic Lining Systems for Modern Waste Facilities with Bentonite; Deformation Behaviour of Soil barriers of Landfill Covers; and Case studies in major metropolitan landfills These contributions will be of great interest to engineers and researchers who are dealing with Challenges in Geosynthetics and Sanitary Landfill Design Practice.
Prof. Abdelmalek Bouazza must be congratulated for single-handedly doing all the editorial works in bringing forth this Issue of the journal on an important and useful theme.
Sincere thanks are due to all the contributing authors.

The March, June and September 2012 Issues are all released well in time and the credits go to the Guest Editors and the in-house editorial teams.

K.Y. Yong
D.T. Bergado
T.A.Ooi
A.S.Balasubramaniam

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GEOTECHNICAL ENGINEERING

Special Issue on Geosynthetics and Sanitary Landfill
Guest Editor: Prof. Abdelmalek Bouazza

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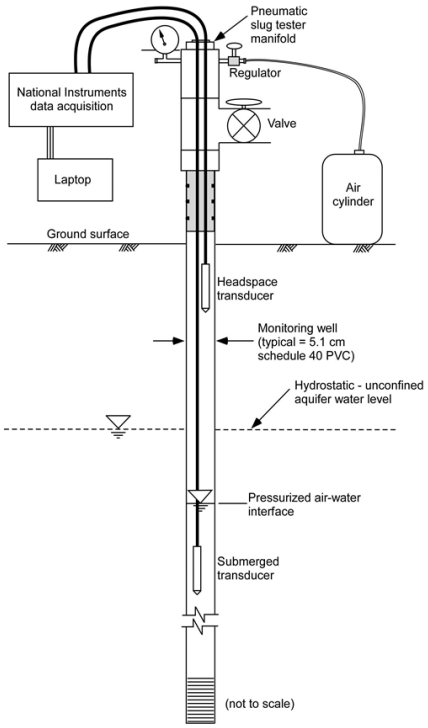
Tom Lunne & Don de Groot

CPT Testing in Peat (after Long &Boylan,2012)

Dilatometer Earth Pressure Cell
(after Lutenegger, 2012)



Hydraulic Conductivity Test
(After DeGroot et al, 2012;Dunaj et al. 2006)

GEOTECHNICAL ENGINEERING

DECEMBER 2012 SPECIAL ISSUE ON INSITU TESTING OF SOILS

Guest Editors: TOM LUNNE and Prof DON J. DEGROOT

TOM LUNNE

Tom Lunne was educated at Heriot-Watt University in UK and at University of California Berkeley. He is currently Technical Advisor and Manager of Offshore Soil Investigations at the Norwegian Geotechnical Institute (NGI), Oslo, Norway. He has a diverse geotechnical engineering background resulting from both his consulting and research and development activities. Major activities have included: laboratory testing, in situ testing, sampling and evaluation of sample disturbance, field observations, evaluation of soil parameters; and planning, specifying and managing large offshore soil investigations. Tom has worked on numerous major projects worldwide. Tom has given invited lectures and presentations at conferences and conducted short courses worldwide. He is an active member of several technical committees including: Core Member of Committee TC-16 on In Situ Testing, International Society of Soil Mechanics and Geotechnical Engineering (1982 - present); Scandinavian Committee on Field Investigations, 1993 - 2004; Chairman of the Norwegian Committee on Field Investigations, 1993 - 2004; Member of the Committee of European Standard of CPT, (2001 - present). He is the author or co-author of more than 100 papers, publications and technical notes to professional journals and conferences and is the lead author of the book Cone Penetration Testing in Engineering Practice.

Prof DON J. DEGROOT

Prof Don J. DeGroot is a professor in the Department of Civil and Environmental Engineering at the University of Massachusetts Amherst, Amherst, MA, USA and a registered Professional Engineer in the USA. He received his D.Sc. in geotechnical engineering at the Massachusetts Institute of Technology in 1989. His teaching, research, and consultancy experience is primarily in the area of soil behaviour and environmental geotechnics with an emphasis on site characterization practice. He has been a Principal Investigator on numerous sponsored research projects including the recently completed $2.4 million US National Science Foundation project on "Developing International Protocols for Offshore Sediments and their Role in Geohazards: Characterization, Assessment, and Mitigation." He has published refereed research findings in many of the major geotechnical engineering journals, ASCE Geotechnical Special Publications, ASTM Special Technical Publications and TRB publications. National and international conferences activities include several Keynote and State-of-the-Art papers, presentations, and short courses. He has served on the editorial boards of the Journal of Geotechnical and Geoenvironmental Engineering and the Geotechnical Testing Journal and served as Chair of the ASCE Geo-Institute Soil Properties and Modeling Committee. Teaching and research awards include the James L. Tighe Civil Engineering Distinguished Teaching Award, United Technologies Corporation Outstanding Laboratory Teaching Award, Research Council of Norway Guest Researcher Fellowship, University of Western Australia Gledden Visiting Senior Fellowship, and the CEE Research Excellence Award.

GEOTECHNICAL ENGINEERING

PREFACE

This special issue the journal is focused on in-situ testing of soils and covers recent developments in equipment and data interpretation, results from field programs conducted at research test sites, and case histories.

In-situ testing and soil sampling with subsequent laboratory testing are the key components of geotechnical site investigation practice. Because of the wide range of soils and soil behavioural response that can be encountered during a site investigation there is correspondingly a large variety of in-situ tools that have been developed and used in practice. Collectively, the eight papers in this special issue touch on aspects of many of the common devices including: standard penetration test, piezocone, seismic piezcone, field vane, seismic dilatometer, pressure-meter, full-flow penetrometers, and earth pressure cells. Topics include determination of key soil properties for design such as undrained shear strength, shear wave velocity, pre-consolidation stress, effective stress friction angle, lateral earth pressure, cyclic resistance, and hydraulic conductivity. Results presented in the papers cover the full spectrum of soils including low and high plasticity clays, sensitive clays, plastic and non-plastic silts, sands, gravels and peat. The data presented for the case histories and also that collected at the research test sites provide a valuable frame of reference for future investigations in similar soils.

The Guest Editors thank the authors for their contributions and all the reviewers for the time and dedication in reviewing the manuscripts. We also thank Prof A. S. Balasubramaniam and Dr T.A. Ooi for the opportunity to serve as Guest Editors and especially for their constant encouragement and assistance during the preparation of this issue and guiding its publication to fruition.

GEOTECHNICAL ENGINEERING

ACKNOWLEDGEMENT

The December 2012 Issue of the journal have Tom Lunne from Norwegian Geotechnical Institute (NGI) and Prof. Don J De Groot from University of Massachusetts, Amherst, USA as Guest Editors. This Special Issue is devoted to In-situ testing of soils. NGI is in the forefront of in-situ testing and instrumentation from early 1950 with Arild Andressen, Gunar Aas and Dr. Elmo Dibiagio, with Tom Lunne and others.

There are eight excellent papers authored by: A. S. Bradshaw, A. C. Morales-Velez, and C.D.P. Baxter; A. Emdal, M. Long, A. Bihs, A. Gylland and N. Boylan; Alan J. Lutenegger; T. Ku and P.W. Mayne; M. Long and N. Boylan; K.H. Goh, K. Jeyatharan and D. Wen; D.J. De Groot, D.W. Ostendorf, and A.I. Judge; and F. A. B. Danziger and T. Lunne. The topics covered include: Evaluation of Existing CPT Correlations in Silt; Characterisation of Quick Clay at Dragvoll, Trondheim, Norway;
Field Response of Push-In Earth Pressure Cells for Instrumentation and Site Characterization of Soils; Frequent-Interval SDMT and Continuous SCPTu for Detailed Shear Wave Velocity Profiling in Soils; In Situ Testing of Peat – a Review and Update on Recent Developments; Understanding the stiffness of soils in Singapore from pressuremeter testing; In situ measurement of hydraulic conductivity of saturated soils; and Rate effect on cone penetration test in sand.

Tom Lunne and Prof. Don J De Groot must be congratulated in having such excellent articles from well known authors in in-situ testing of soils. Sincere thanks are due to all the contributing authors.

All the four Issues in March, June, September and December for the year 2012 are released well in time and the credits must go to the Guest Editors, reviewers and the in-house editorial teams. We now look ahead for the Issues of 2013 for which the Guest Editors are in advanced stage with the preparation. Special Issues on important topics are covered in the 2011 and 2012 Issues and the articles would be of great value to practitioners as well as researchers.

K.Y. Yong
D.T. Bergado
T.A.Ooi
A.S.Balasubramaniam

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GEOTECHNICAL ENGINEERING

Special Issue on In-situ Testing of Soils
Guest Editors: *Tom Lunne and Don J. DeGroot*

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