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A Message from the Vice President

By Professor Mounir Bouassida

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As vice president of ISSMGE, it is my great pleasure to inform the international community about the activities in the field of geotechnical engineering and soil mechanics in Africa. When I started my bid in September 2005, to act on behalf of Africa, I was convinced, for several reasons, a hard job awaited me. How to communicate much better with African geotechnical engineers was an obvious difficulty. However this technical handicap, in such way, might be tackled. Thinking about manners for setting up tools to make Africans geotechnical engineers more involved in ISSMGE activities was also another challenge. Indeed, as first statement, Africans countries or member societies affiliated in ISSMGE remain very few. Adding the fact more than 50% of African societies are unable to pay their ISSMGE subscription fees in due time. Another relevant handicap is the rate of participation of African GE, either as members or core-members, in ISSMGE TCs. Just less than ten members participated in activities of ISSMGE TCs from 2001 to 2005.

Hence, the first priority was to initiate rapidly and efficiently contacts between African geotechnical engineers. Obviously, setting up an updated file of electronic addresses revealed necessary to diffuse news and information via internet. By October 2005, I was collecting about forty (40) addresses from about ten countries. To date it is possible to communicate with more than one hundred sixty GE through about twenty eight (28) African countries. This database will surely be more enriched. Coming to TCs, for 2005-2009 bid, the total number of African members and (or) core-members is about of twenty two.

From my first contacts with Professors Pedro Sêco e Pinto (ISSMGE President) and R. N. Taylor (ISSMGE Secretary General) we agreed, for Africa region, to schedule at least two Touring Lecture sessions (2007-2008) and to organise the 2nd YGEC in 2007 prior to the 14th ARC to be held in Yaoundé (Cameroon) November 26-28th. To date, from this programme, two events were successfully held: a touring lecture on "Soil improvement" took place in Tunisia December 15-16th 2006, followed by the organisation of 2nd YGEC also in Tunisia March 16-18th 2007 which was preceded by the first 2007 meeting of ISSMGE board members in Tunis, March 15th. Next Touring Lecture session is scheduled in Nigeria (September, 2007) on Environmental Geotechnics.

At this time full attention is being made for the preparation and venue of 14th ARC. First official data confirm this big event the most successful with wishes of African geotechnical engineers. Twenty three countries submitted papers, 70% of which were from thirteen African countries. Five themes cover problems as related to African soils. It is worth noticed the big efforts deployed by the organising and advisory committees to make the 14th ARC much excited. In parallel, the scientific committee is trying to ensure a good scientific level for accepted papers as it is usually done for international conferences.

Another great positive fact is expressed by some countries which went through or being in way to become officially affiliated member societies in ISSMGE. In particular, Algeria, Cameroon, Senegal, Libya and Mozambique stand tentatively as the "serious" candidates for giving a better implication of Africa in ISSMGE activities.

It cannot be missed the unique and so valuable opportunity offered to Africa for the venue of 17th ISSMGE in Egypt (October 2009), in Alexandria Bibliotheca on the Mediterranean coast. The preparation, particularly by the Egyptian Geotechnical Society, of this biggest ISSMGE event is being in good progress. It will largely contribute, the coming decade, for the emancipation of geotechnical and soil mechanics cultures in Africa.

Finally, I greatly express my sincere regards and thanks for all my African colleagues who both supported me and provided positive collaboration to make substantial progress in the geotechnical field. Also, my great thanks go to my all ISSMGE board colleagues who, especially, participated to overcome some specific African issues. Special thanks go to my friend M. Gambin who endeavoured great efforts to access much helpful information for the African region.

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View of Young Geotechnical Engineers

Report of the Second Young African Geotechnical Engineering Conference (2nd YAGEC)



Site Visit to Radès La Goulette Bridge

The venue of the 2nd YAGEC was at Yasmine Hammamet located 60 km from the capital Tunis. This conference, co organized by the International Society of Soil Mechanics (ISSMGE) and Geotechnical Engineering and the Tunisian Society of Soil Mechanics (ATMS), was preceded by the board meeting of ISSMGE held March 15th 2007 at National Engineering School of Tunis (ENIT).

About seventy (70) participants, from nineteen (19) countries, attended the 2nd YAGEC. Five industrial institutions exhibited their products in geotechnical field. In the opening ceremony, after welcome by the ATMS president, the president PS Pinto briefly exposed the activities of ISSMGE and expressed his support for a better emancipation of geotechnical engineering in Africa.

The proceedings of 2nd YAGEC included thirty six (36) papers among which twenty eight (28) oral presentations were given by young geotechnical engineers from seven countries (Algeria, Burkina Faso, Ghana, Libya, Senegal, South Africa and Tunisia). For several reasons some young geotechnical engineers from Egypt, Nigeria and Sudan were unable to attend the 2nd YAGEC.

Board ISSMGE members contributed in this event by five keynote lectures presented by professors and chairing sessions for oral presentations (PS Pinto, N. Taylor, W. Van Impe, O. Kusakabe and M. Bouassida). The jury composed by the presidents of sessions selected the two best oral presentations for each ATMS awarded 250 Tunisian dinars.

The 2nd YAGEC ended by a technical excursion, the participants visited the project in progress "Radès La Goulette Bridge" and have been informed about soft soil improvement by geodrains.

All participants warmly expressed the good organization as well as well quality of papers presented in the 2nd YAGEC. This successful achievement greatly benefited the supports from the presidency of Tunisian Republic and the Ministry of High Education, Scientific Research and Technology.

Reported by M. Bouassida, Vice President of International Society of Soil Mechanics and Geotechnical Engineering for Africa

TC Activity

TC 28: Underground Construction in Soft Ground

In recent decades there has been a massive development of large cities throughout the world. Due to the lack of surface space and the need for extensive transport infrastructure systems, there is an increasing rapid growth in underground construction in these urban environments with significant tunnelling and excavation works.

Technical Committee TC 28 has a major commitment towards consolidating and sharing technical knowledge and experience in the investigation, design, analysis and construction of underground works in the urban environment, including tunnels, caverns and deep excavations. The main topics addressed by the committee are:

- Tunnelling in soft ground;
- Deep excavations;
- Monitoring the effects of underground works;
- Numerical analysis of tunnels and deep excavations, assessing both stability and induced movements and deformations;
- Protective measures, ground treatment, control of groundwater inflow and deformations (e.g. by compensation grouting);
- Safety, risk and hazard management.

The primary activity of TC28 is the organising of an international conference every three years. After the first symposium at New Delhi in 1994, symposia have subsequently been regularly organised: London (1996), Tokyo (1999), Toulouse (2002), Amsterdam (2005). These symposia, for all of which comprehensive proceedings have been produced containing the written papers, selected and reviewed by members of TC28, along with general reports and special lectures, thus provide a regular means of presenting information about the latest construction projects and research linked to the theme of Underground Construction in Soft Ground.

The next TC28 symposium is to take place in Shanghai in April 2008 and will be organised by the University of Tongji in Shanghai (HW Huang, & GB Liu) with the support of Hong Kong University of Science and Technology (CWW Ng). To date the organising committee has received more than 260 abstracts. Further information can be obtained on the conference website: <http://www.tc28-shanghai.org>.



Site visits during the TC28 International Symposium in Toulouse (2002)

TC28 is supporting a regional one-day workshop on 12th September 2007 to be held in Perth, Western Australia. This is being organised by Eric Hudson-Smith (TC28 core member representing Australia) with the support of the Australian Tunnelling Society (ATS). Further details can be found on the website: <http://www.ats.org.au/whatson.php>. TC28 also plans to hold a workshop in Budapest in 2008, to be organised by József Mecsí (core member representing Hungary). Two new activities have recently been launched by TC28 following the committee meeting held during the Amsterdam conference in 2005. The first concerns the creation of a database relating to tunnelling and deep excavation works and the second the preparation of guidelines for comparing field or physical model observations with numerical simulations.

Database for tunnelling and deep excavations

Databases relating to tunnelling and deep excavation works potentially have great benefit from modelling, validation and case study viewpoints. Experience in this field has shown that there are often many difficulties with such databases when they are created within the framework of committees or associations. A typical example is that the pre-established form to be completed by those compiling the database, is rarely compatible

with the information available from the actual working cases. There are also frequently issues relating to the maintenance of the database after its creation. It was decided at the meeting that a well-organised database could provide significant benefit to the committee, providing information from international sources. Therefore work has been initiated to set up a new database, taking into account recent developments that allow a more flexible organisation and identify key input information required. A group from INSA at Lyon (R. Kastner and F. Emeriault looking after the geotechnical aspects and R. Louis-Sydney the information technology aspects) have started creating this database. A working meeting concerning its organisation was held in Lyon in December 2006 with J. Standing, and an initial version is now available. This version will be provided to interested members of TC28 and presented and discussed at a meeting to be held at the forthcoming ECSMGE in Madrid for critical review and final implementation.

Guidelines for comparing field or physical model observations with numerical simulations

Currently many papers are published comparing numerical or theoretical simulations and predictions with data from field or physical model observations. These are often too basic. The intention with this second proposed theme is to write simple guidelines on this subject, e.g. taking into account basic scientific rules and making sure that sufficient information is provided so that the paper can be considered useful. A sub-committee is soon to be set up to take charge of the organisation of this activity and to progress this activity.

The next meeting of members of TC28 will take place on 27 September 2007 at the next 14th European Conference on Soil Mechanics and Geotechnical Engineering being held in Madrid.

Reported by Richard Kastner, chairman of TC28 and Jamie Standing, secretary of TC28

TC Activity

TC 35: Geo-Mechanics from Micro to Macro

The activity of TC35 in 2006 was concentrated on organizing the International Symposium on Geomechanics and Geotechnics of Particulate Media (IS-Yamaguchi 06) in Yamaguchi Japan.



Group photo of the symposium attendees

The International Symposium on Geomechanics and Geotechnics of Particulate Media (IS-Yamaguchi 06) was held on September 12-14, 2006, with the Faculty of Engineering, Yamaguchi University in Ube City, Japan serving as the main venue of the event. This symposium was sponsored by the Japanese Geotechnical Society (JGS) and the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), with the collaboration of ISSMGE Technical Committee on Geotechnics from Micro to Macro (TC-35), Japanese domestic TC35 and Yamaguchi University. The symposium was attended by 162 engineers, researchers and educators, including 38 overseas participants from 12 countries. The symposium, which focused on the particulate nature of soil from microscopic point of view to the macro-level, consisted of paper presentations and active discussions. For three days, the technical as well as special exchange programs proceeded very smoothly.

In the technical program, there were six technical sessions, three poster sessions, and three keynote addresses. Each technical session focused on a certain theme and selected papers were presented orally. The other papers were presented in a poster session, which was conducted in a style such that after a short presentation by the paper author, active discussions were conducted in front of each poster. The session topics were as follows: first day - engineering applications of microscopic evaluation of particles; second day - discrete element and continuum modeling of granular materials; and third day - micro and macroscopic characterization. Moreover, a booth exhibition was conducted in the lobby in front of the main hall by more than ten companies and enterprises to showcase their products.



Technical Session



Booth Exhibition



Symposium Banquet

For the exchange program, a welcome reception was staged on the night of September 11th, while a special session and symposium banquet were held on September 13th (refer to the photos). With particle characteristics and slope failure as keywords, the special session consisted of special lectures on case histories of slope failures in Hong Kong, the Philippines and Japan followed by a panel discussion. The special lectures were delivered by Prof. M. Bolton of Cambridge University (U.K.) who talked about slope failures in Hong Kong and centrifuge testing; Prof. H. Murata of Yamaguchi University (Japan) who explained the collapse of the Iwakuni Expressway embankment; and Dr. M. Gutierrez of Virginia Tech (U.S.A.) who presented the results of his discrete element modeling of the massive Leyte, Philippines landslide. For any of these case histories, the general consensus was that treating soil as a continuous body may be difficult, and it would be more appropriate to handle it as a set of either discontinuous or discrete bodies. Questions raised by the audience included whether predicting future disaster would be possible, and the lecturers suggested some prospects but cautioned that such undertaking may still be difficult under the present situation.

During the banquet, which was attended by several local personalities including the mayor of Ube City, the President of Yamaguchi University and the Dean of the Faculty of Engineering, great interactions were done by representatives of each country. "Noh", a traditional Japanese entertainment which has been registered as a World Heritage, was performed on the stage. In addition, there were magic shows, choral presentation and piano performances, all contributing to a happy and significant international exchange. The banquet was closed with the typical Japanese cheer "banzai sansho" by Prof. M. Bolton of Cambridge University and TC-35 Chairman.

Reported by Masayuki Hyodo, secretary of TC35

Activity of Member

The Russian Society for Soil Mechanics, Geotechnical Engineering and Foundation Construction

50 Year Jubilee Congress of RSSMGFE

On 14-15 of May a 50 year jubilee congress of the *Russian society for soil mechanics, geotechnical engineering and foundation construction (RSSMGFE)* was held in Moscow. The first ever ISSMGE congress took place in 1936 in the USA where the International Society for Soil Mechanics and Foundation Engineering was established. An outstanding Russian geotechnical researcher Prof. N. M. Gersevanov participated in that congress and from that moment on Russian geotechnical specialists have played an active role in the work of the Society. In 1957, a Russian National Association was founded and accepted into the ISSMGE. One of the most important figures in the Russian National Association was Prof. N.A. Tsytoich, who became its first President. Professor N.A.Tsytoich was a soil mechanics scholar of considerable renown. He attained scholarly recognition soon after his early works on construction in permafrost conditions were published.

From 1986 and until the present day, Russian Society on Soil Mechanics and Foundation Engineering has been headed by Prof. V.A. Ilychov. In 1973 the 8th congress of the Society was successfully held in Moscow made possible by the endeavours of the Russian geotechnical specialists. This congress hosted 2355 specialists from 51 countries. That large congress enjoyed active participation of Russian geotechnical researchers and practitioners who were also able to establish far-reaching and long-term ties with world-leading specialists in the area of foundation construction. That congress was a milestone event for Russia and was conducive to integration of Russian soil mechanics into the scientific context of the world. This can be proved by active participation of Russian scientists in international conferences, congresses and workshops. Russian researchers also work actively in a majority of technical committees created within the framework of the ISSMGE.

In the 1990s Russia hosted 2 TCs: Construction on Soft Solis (Chair: Prof. P.A. Konovalov) and Interaction of subsoils and structures (Chair: Prof. P. A. Klepikov). Result of those two committees' 4-year long endeavours was the Second Baltic International Conference held in Tallinn in 1988. Since 1983-1993 the TC on saline soils was chaired by Prof. V.P. Petrukhin. Currently Russia is hosting TC 38 - Soil Structure Interaction chaired by Prof. V.M. Ulitsky. One could also make a note of a series of successful International Conferences Kishinev (Danube European conference, Moldova, 1985), Raubichi (Young geotechnical engineering conference, Byelorussia, 1989) and St. Petersburg (Reconstruction of historical cities 2003, Soil-Structure Interaction, 2005).

Close-knit ties were established between the Russian National Society and the leading Russian Institute of Foundation and Underground Engineering (NIIOSP). This Institute was for a long time led by Prof. V. A. Ilychov, imparting a positive charge to the activities of both the Institute and of the Society. In 1990 Prof. V.A. Ilychov was elected a member of the ISSMGE board and since 2005 the board of ISSMGE includes Dr. M.B. Lisyuk. Russia has been proud of its RSSMGFE members – such world renowned researchers as N.A. Tsytoich, V.V. Sokolovsky, N.N. Maslov, M.I. Gorbunov-Posadov, V.A. Florin, and D.D. Barkan. Unquenchable activities and up-keeping of the unbroken ties with the leading world scientists are characteristic features of the Russian National Society and its dynamic development, which is far from being surprising, as the leader of the Society is a world famous specialist in the area of soil dynamics - Prof. V.A.Ilychov.



A group of Russian geotechnical researchers just as the anniversary banquet is about to commence

Reported by Professor V.M. Ulitsky, Chairman of the North-West Branch of RSSMGFE, Chairman of ISSMGE TC 38 "Soil-Structure Interaction"

Reminiscences

The Past President- Prof. Victor F.B. de Mello

The following interview with Prof. Victor F. B. de Mello, has been previously published, in Portuguese, in the Newsletter of the Brazilian Society for Soil Mechanics and Geotechnical Engineering (e-ABMS, n. 22, August, 2006).

Interviewer: Brazilian Society for Soil Mechanics and Geotechnical Engineering

ABMS stands for Brazilian Society for Soil Mechanics and Geotechnical Engineering



Victor's photo taken in 1977
for the Rankine Lecture

Name: Prof. Victor Froilano Bachmann de Mello

Citizenship: Brazilian (1951) and, in parallel, Portuguese-European (re-acquired)

Undergraduate studies: MIT, B.Sc. in Civil Engineering, June '46

Graduate studies: MIT, M.Sc. in Civil Engineering, September '46 and D.Sc. in Civil-Geotechnical Engineering, December, '48

Main awards: world-wide (that is, OUR HOMELAND) recognition and from co-citizens in the wide-encompassing profession and outside it, in activities with a firm, unique objective (e.g. Academies of Science and Engineering, Rotary, etc.). Invention Patent U.S. (Patent n. 2651619, 1951 – chemical solidification of soils). President of the ISSMFE, Golden Jubilee, San Francisco, 1985. Global network of dedicated friends.

Main activities: learn insatiably, inquire, update and innovate by cross-fertilisation: decide and act in any jobs where he could be useful, always counting on dedicated and enthusiastic disciples.

ABMS: What facts led to your interest in Civil Engineering?

VFBM: When I was about 7 years old, I was impressed by a bridge being built to replace the ferry-boat. I was immediately ravished by the purpose of Civil Engineering, to conform Nature to the benefit of the quality of life and of the environment.

ABMS: Tell us about your graduate studies at MIT.

VFBM: Out of high school, in December 1941, I was admitted to the Polytechnic (ETH-Zurich), however inaccessible. Incredibly fortunate coincidences led me to advance 2,5 years in College in Allahabad and Lahore (India), and to be admitted to MIT, where I should be on July 1st, 1944. Sailing from Bombay, in a boat carrying some 6700 souls, among which the Rector (Lahore), brother in law of Pres. Compton (MIT), we were lucky enough to leave ahead of time, thus escaping the third largest explosion of the war, on April 14, 1944, which destroyed 6 x 15 blocks in the dock area.

End of war period, 70% of the students in the armed forces, the rest from neutral countries, especially from Latin America. I accelerated taking about 150% of the curricular units, and also working in the Central Library and in the Cafeteria for self-maintenance, in addition to the fellowship received from the end of the first quarter on. The "Brave New World" (Huxley) and the horrendous military successes (e.g. Los Alamos and the Atomic Bomb) strengthened my priesthood attitude and goal.

Finished my M.Sc., I was hired by COBAST-LIGHT, just to be subsequently dissuaded in favour of a RESEARCH ASSISTANTSHIP to head a research project in GEOTECHNICAL-CHEMISTRY, solidification of soils for rapid construction of airfields, while dedicating about one third of my time to my D.Sc. studies.

It has all been quite intense, both academically and socially (e.g., creation of the International Club, support to Antonio de Almeida, Baron, student coming from Buenos Aires, in his efforts to establish a 100-member symphony orchestra). Cycle of lectures at the Rotary about colonial policies. The privilege of making personal acquaintance with Norbert Wiener (CYBERNETICS) and many Nobel prize winners.

ABMS: What is it that attracts you most in the geotechnical profession?

VFBM: What attracts me most is the aforementioned priesthood purpose. It occurred to me, in a lecture, to declare "Choose your love and love your choice". From the professional viewpoint, I am attracted by (1) the immeasurable Divine creativity of never presenting us with two simple, identical cases, everything being complex and random, except after the diagnosis of being amenable to simplification and thereby reasonably similar; (2) the Challenge of Diagnostic, of Determination, of Decision in spite of Uncertainty.



Victor delivering a speech in
the Delhi Conference

Reminiscences (continued)

The Past President- Prof. Victor F.B. de Mello



Victor working in his book in the New Year of 2005/2006 in the Varanda of his farm



Victor at home

ABMS: Is it better to be a designer, a professor or a consultant?

VFBM: All of them, and I would add Executor. It all depends on the attitudes, and in the end combination of it all is what makes it most fruitful and stimulating. A good professor, who stimulates inquiring interruptions from his students, learns a lot from them, if he so desires. We are students all along our lives. Apparently the Consultant and the Designer have more access (chronologically?) to creativity. However, without the experience of the Executor, much is lost. "He who wants, makes it happen, he who does not, simply orders"? Not just that: at present, creativity is flourishing in execution, while theorisation is rather stagnated.

ABMS: What were the most interesting practical problems you tackled?

VFBM: Difficult to summarise 60 years of professional life. In addition, everything can be made interesting. I learned this in the challenge of joining colloidal chemistry and polymerisation with géotechnique (Invention), including the need to reject it as premature and not practical for the civil profession. One unique job was

Edif. Garage América, R. Riachuelo, São Paulo (ISSMFE, London, 1957), with the pioneering driving of soldered double I piles: 7 basement floors being constructed simultaneously with 12 floors above ground level, infra-structure optimisation with resort to all types of foundations. Also the Paranoá dam, Brasília, heightened 32m in 45 days on $\pm 1V:1H$ slope in compacted porous clay to avoid overtopping (such as Orós, 1959). Dramatic underpinning of building on caissons settling 5mm/day, Brasília, 1960. World record discharge of Tocantins river, diverted for the construction of Tucuruí dam, 1980. Jaguará dam. Investigations up to $\pm 20m$ deep to check viability of pneumatic caissons (finally discarded) for Edifício Itália, São Paulo. I have learned surprisingly much in all of them, and always.



Victor in the Torino Slope Stability conference in 2003, with Michele Jamiolkowski, David Carrier and Dick Chandler

ABMS: List particularly significant events in your career.

VFBM:

- A job: several already mentioned.
- A lecture: Rankine Lecture, London, March, 1977.
- A conference: State-of-the-Art Report, Foundations, Mexico, ISSMFE, 1969.
- A tribute: Manuel Rocha Award, Lisbon, 1986.
- A success: Having co-opted 2nd, 3rd and 4th year undergraduates for Civil Engineering, at Mackenzie University, São Paulo, to be later chosen as their PATRON, January, 2006.
- A failure: Many, continuous. Less and less progress by means of symbiosis among Consultant-Designer-Contractor, with support from the Owner and Inspection, which used to be the propelling force of progress in the years 1960-1986.

ABMS: Mention 1 or 2 great names in the history of international geotechnical engineering. And in Brazil?

VFBM: Skempton, Manuel Rocha, Kérisel, Bishop, Bjerrum, Zeevaert, Brinch Hansen, de Beer, Morgenstern, Burland, Jamiolkowski.

In Brazil: Odair Grillo, Dirceu Velloso, Evelyn Souto, Homero Caputo.

Reminiscences (continued)

The Past President- Prof. Victor F.B. de Mello



Victor and his good friend "brother" Michele
in Torino in 2003

ABMS: Comment on some important benchmarks in the history of ABMS.

VFBM: The fantastic underpinning of the "Cai-Cai" building, severely inclined, R. Libero Badaró, São Paulo, by soil freezing, etc. ... pre-ABMS (founded in 1950), but later published by Arnaldo Dumont Villares, *Géotechnique*, 1956. Intense initial effort of conference cycles, to create and introduce codes. Samuel Chamecki, Curitiba, innovating in soil-structure interaction. Dominant contribution to CBGB (Brazilian Committee on Large Dams) during the period of multiple dams (1950-1985).

ABMS: How does one keep abreast of technological change nowadays?

VFBM: Honestly, it is not a matter of keeping abreast, but rather of recovering from time wasted in accumulation of degenerative practices. "Caminante, no hay camino; el camino se hace al andar ... etc" (*Wanderer, there is no trail; the trail is laid by walking...* Antonio Machado). Inquire always, and know how to reject as much as (or even more than) absorb. Banish the ACADEMY-PRACTICE dichotomy.

ABMS: What important advice would you give to young geotechnical engineers?

VFBM: Try to know yourself and your preferences, Divine gift. Listen, observe, investigate: "choose your love and love your choice". Dare differ from the much followed trail ("engine engineering") towards Ingenuity Engineering. Physics and common sense. Dedicate yourself to the generic "other". Above all, humbly admire complexity and simple probabilistic-statistic randomness. Forgive one's lapses.



Victor speaking at the ICOLD Beijing Conference



Victor and his grandsons and granddaughter in 2006 at his home

Case History

A Case History of a Major Construction Period Dam Failure

By Victor F. B. de Mello
Prof. USP, Consulting Engineer, São Paulo, Brasil
with minor updating contributions by Luiz G. de Mello

Full version published on *Amici et Alumni EM, Prof. Dr. ir E.E. De Beer, 1982*, available at the website www.victorfbdemello.com.br

Initial Words (by Luiz G. de Mello)

Prof. de Mello wrote this technical paper reporting and discussing a major construction period dam failure in Brazil. In a recent presentation, the 2006 Jennings Lecture, I had the possibility and privilege to see that all his philosophical and technical discussions are pertinent and relevant to this time. For this reason publication of a simplified version of the original technical paper was decided, leading the interested readers to the full version.

Introduction

In the recent past there have been some very disconcerting failures that, upon analysis, tend to indicate the onset of an unfortunate cycle of misplaced application of geotechnical knowledge. Many a case may be recalled, and in most of them the post-failure analyses unearth a consistent undertone that would almost shame one into apologies for a possible injustice of a-posteriori judgements. Truly, though, the sequence of identifiable errors is bewildering, even when surrounding an old and well-recognized problem. The impression arises that the spread of geotechnical analysis-synthesis has reached circles quite insensitive to the fundamental behaviors and the conventional simplifications. Sow the wind and reap the whirlwind. Our great mentors of the early days of soil engineering faced the humbling complexities of the unquantified problems, and made an effort to achieve conventional solutions, that they well recognized as conventional, idealized, and simplified; thus, when applying a simplification they carried with them the full benefit of the wisdom of those that start from the bewilderment of reality and painfully reach the ability to distill it to the essences of simplicity required to solve the problem. A new generation of geotechnicians has been taught the simplified solutions, oft without sufficient emphasis on hypothesis and recognition of closed-cycle conventional practices, and so the rational simplicity of rationalizations has suppressed all humility towards Nature. Also, what is insufficiently understood has been totemized. Then, time and again, suddenly one is shocked into the realization of how dearly Society will pay for old problems, of the classical 1940's, erroneously handled. One such case is herein summarized with an attempt to pick out the fallacies that accompanied an intended high-level cognizance and application of soil mechanics and earth dam engineering.

Original Design and Specifications Start of Construction

The principal problem faced in the design of the dam shown in figure 1 was recognized to be the need of a positive cutoff across the sandy alluvia. Two types of borrow pits were identified and investigated in conventional laboratory tests: one was a dark-gray to black flood-plain silty-clay: the other was an unsaturated terrace red clayey-sand with gravel. It was recognized and conventional triaxial tests dully confirmed, that the blackish silty-clay had poor shear strength parameters, and thus its use was confined, both in the impervious blanket backfilling of the cutoff trench and in a central core. For more appropriate and guaranteed construction scheduling between flood seasons the cutoff trench was situated near the upstream toe of the dam, so that its construction could be developed in parallel with some of the embankment placement. An upstream partial embankment of the red gravelly material would be raised on top of the impervious element of the trench, to serve as upstream cofferdam against floods: this impervious shell would also tie the cutoff to the black clay impervious core.

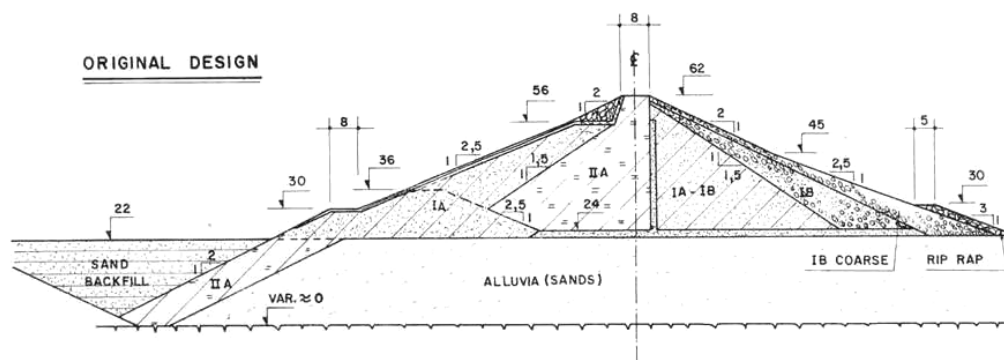


Fig.1 Original design cross section for dam

Case History (continued)

A Case History of a Major Construction Period Dam Failure

The bid documents included some recognizedly questionable geotechnical analyses, but, to an experienced earth dam engineer, visual appreciation of the cross section and analyses should suffice to indicate overall acceptability of the plans, and easy design-as-you-go adjustment. Awkward hypothesis associated to the flownets are discussed in the technical paper.

Human Discontinuities in Engineering Organization and Conduct

The owner organization has a considerable backlog of dams built and other dams under construction: its technical staff includes teachers of soil mechanics and earth dams. Tenders were put out for field inspection and design-as-you-go engineering. The Supervisors engaged an international specialist consultant to assist them in contractual obligations "to offer specialized services of design revisions if and when the optimization of the project would suggest or require them". Administratively there were significant discontinuities in the professional attributions and chain of responsibilities. These and other administrative problems may well be singled out as the most persistent cause of the failures faced.

Significant Design Revision Suggested, Documented, and Disclaimed

While the execution of the cutoff trench was pushing ahead, the international specialist consultant was firstly engaged by correspondence to revise instrumentation plans, and the "flow-net analysis of the as designed section". It resulted in a special consulting visit by the international specialist, and a significant revision of the design section was suggested essentially along line finally adopted as shown in figure 2. The main reason for the need to revise the design section was related to the gravel contents of the gravelly clayey-sand which were interpreted to be too high, so that the Zone II material might not be impervious¹ to constitute an acceptable connection between the black clay cutoff and core. Two alternate schemes were proposed to rectify the design shortcomings discussed. However, before either scheme was adopted it was recommended that upstream stability analyses be made for both schemes for steady state and drawdown conditions. A buttress of the upstream toe of Zone IA material was recommended to increase the path percolation and to strengthen the toe stability because of the replacement of Zone IA clayey sand-gravel soils with more plastic black clay soils (IIA).

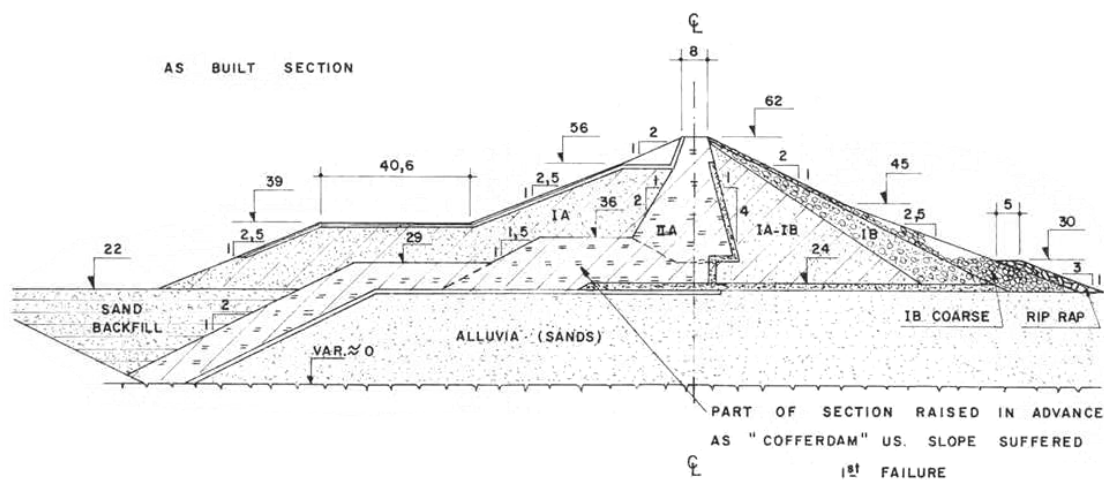


Fig 2 Revised design cross section for dam

Although the rectified design, to provide a continuous connection of fat plastic clay at the base of the upstream section was recognized to reduce stability, no mention was made, at any time, of construction period stability analyses, either on the proposed section or on ensuing discussions and ratification. The flood-plain borrow area, submerged every year, or dark gray plastic clay, generally CL to CH, and the core placement were inspected and the material and the construction procedures were declared to appear to be good². It may be remarked as ironical that the powerful modern excavation and hauling equipment on big earthmoving jobs has generated a new problem often serious.

¹ Inferences based on indirect index testing should never substitute direct tests in situ when construction is ongoing. Gravelly materials have led to surprises of very low permeabilities principally because the continuity and shape of the grainsize curves (and grains) has not been considered

² In such a material that frequently occurs close to saturated in situ and wherein drying is only at the surfaces of clods subjected to intense shrinkage cracking, it would have been essential to check the percent saturations in situ since one only compacts air pores. At any rate, it is surprising that mention be made of a first layer moistened to near the liquid limit moisture (very wet) worked into the smooth rock contact and that two additional layers at about optimum +2 to +4% moisture be placed above this. For any excess construction pore pressure development and stability it is well known that a single weak preferential surface has very often been the culprit

Case History (continued)

A Case History of a Major Construction Period Dam Failure

More heavily preconsolidated clays (higher dry densities) can be excavated easily, and even indicate a need of watering (cf. fig 3) to bring the moisture content to Proctor optima; if the soil is close enough to saturation, what the compaction equipment does is to remould, shear and laminate the clay, and not compact it [de Mello, 1981].

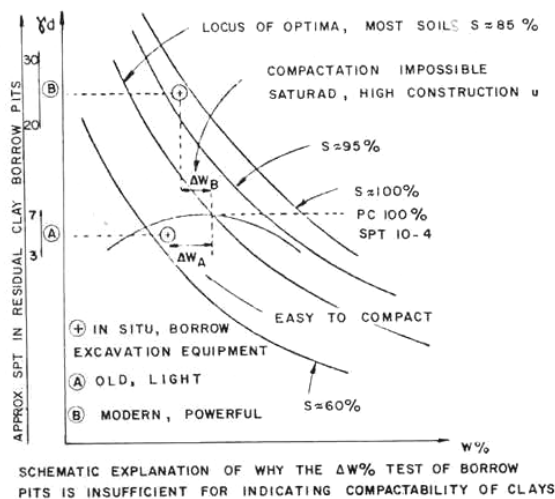


Fig 3 Analysis of Proctor tests in preconsolidated borrow clays

The “necessary” backup design computations for the international consultant’s recommendations were conducted; regarding soil parameters used it was pointedly stated that “I adjusted some of the soil parameters for strength based on my experience with some similar soils tested in the past”, and “I used a higher value of cohesion than the designers used in their analyses. As a result “the upstream section of the dam should be stable with either of the two alternate modifications...”. Finalizing such a definitive consulting intervention backed-up by design computations, the report served the Owner with a truly astounding disclaimer general statement to the effect that the consultants were not “involved in the design of the dam nor were commissioned to review the design. Our present work was solely to review the construction and provide any suggestions which, at this date, would provide a better and/or more economical structure. In no way should it be inferred that I have approved the present design of (the) dam”.

Ratification of the Revised Design, First Construction-Period Failure and Back Analyses

The local consultant was requested to examine the newly proposed section under indications (questionable) that the red clayey-sands with gravels were becoming scarce. No reference was made, at the time, to the international consultant’s reports and analyses. For reasons of prospective economy - shorter haul from the black clay borrow - and a concern with differential settlements, a third alternate was proposed “similar to alternate 1” of the international consultant. Discussions extended for about 6 weeks and finally 4.5 months after the first proposal, a section was adopted by consensus at a meeting. In anticipation of the rain-and-flood season it was decided to advance the raising of a central section of the core, to serve as cofferdam for part of the work area. In slightly more than one month the black clay compacted fill was raised by 14 m on a 1V:1.5H upstream slope. Two sudden slides developed, concomitant, along lengths of about 150 m each, separated by a stretch of tens of meters. A construction-period failure was recognized and the need to revise parameters and analyses was declared. Thus ensued the most tragically absurd sequence of exchanges of geotechnical debates, until, about one year later, the major construction-period slide took place over a total length of about 600 m, absolutely homogeneous from end to end of the dam about to reach the crest. It is surprising that on two simultaneous text-book slides involving a total earthmoving volume of about 160000 m³, the back-analyses should have been limited to such simplified hypotheses as are incorporated in those charts. Attention concentrated on the immediate reconstruction slope of the black-clay “cofferdam part of the dam”, and it was concluded to require a 1:2 slope, which was constructed as 1:2.5 by the Contractor, to gain time pending the outcome of discussions. Full three months later, with the oddest visceral discussions still raging, a revised section of the rectified section was ratified at a meeting called to establish consensus: the direct consequence was to flatten the berm slopes for construction period stability, and the Supervisors, with their international consultants, were charged with the responsibility to document the stability, which was asserted to be assured. It would be tedious to expatiate on the discussions, despite the surprising lessons on levels of misplaced cognizances and preoccupations. In short, they centered on comparative use of total stress vs. effective stress analyses as standardized design criteria; occasion even arose of having Terzaghi’s effective stress principle transmitted by international telex. Discussions further raged with regard to validity of the samples, respectability of laboratory tests, and questionability of inspection tests (both regarding consistent errors and concerning dispersions on the very small-dimension specimens).

Case History (continued)

A Case History of a Major Construction Period Dam Failure

Major Construction-Period Slide

Almost exactly one year after the above construction-period sliding, the entire dam developed a major slide as the fill reached 5 meters below the final crest. Eye witness descriptions of the failure, which developed in about 30 minutes, vividly depict the sequence, starting with tension cracking at the top - more brittle behavior - followed by a rotational slip in the higher reach and a massive pushing outwards of the flatter lower section and berm along a distance of about 25 m. The photos attached are self-explanatory. Ironically, a letter yet discussing the insertion of pore pressures in the computer stability analyses had been written and posted the day before the failure.



Case History (continued)

A Case History of a Major Construction Period Dam Failure

The conditions of the failure were duly identified both by the surface evidence of the kinematics (fig. 4), and by the careful identifications of orientations of planes (shear planes and lift layering) in inspection pits.

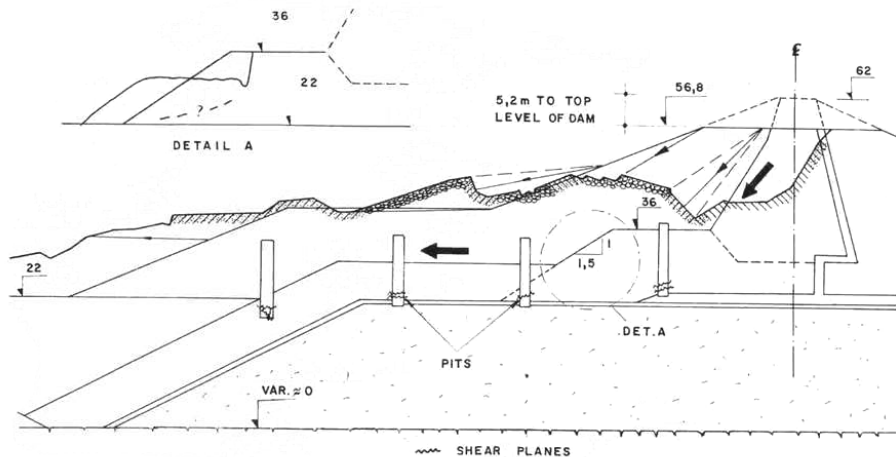


Fig 4 Failure surface and displacement vectors

Surprisingly, despite the early warning on construction period sliding of the black clay, no piezometers had been installed to accompany pore pressure development; a first piezometer had been installed but a few days before the major failure, but no readings had been taken. During the excavation of the inspection pits, many of the layers were detected to be intensely laminated by overcompaction. Further, in the pits in the upper part of the slide mass considerable tension cracking was evident. All three slides were so perfectly homogeneous, didactic, and bidimensional, that absolutely no question can persist of unsatisfactory homogeneization of the compacted black clays. There can hardly be so well defined a failure except when a theoretical (design) aspect is intrinsically wrong.

Questions and Lessons

In a recent paper entitled "Practice, Precedents, Principles, Problems and Prudence in Embankment Dam Engineering" [de Mello, 1980] emphasis was placed on prudence as indispensable whenever an unusual situation seems to be at hand. It need hardly be repeated that the completely unexplainable point in this case history is how a textbook problem of classical soil mechanics was permitted to drag through a full year without any satisfactory and demonstrably confident solution. Administrative action could have well averted, or compensated for the technical failings. Conventional rules, simplified, insufficiently understood, but/and therefore used with unwarranted faith, may be the general criticism. Straight-line shear strength equations, extrapolated with no consideration to limitations; in the case of an extensive potential shear surface in a preferentially weak material, the questionable use of a Mohr envelope of maxima under different confining stresses irrespective of such maxima occurring at noticeably differentiated strains. Imposed circular failure sliding surfaces, not permitted to select the critical preferentially weak composite surface; further, in the case of an extensive surface, the questionable implicit assumption of rigid-body movement, rigid-plastic behavior presumed at coincident failure strains. How many of the geotechnicians dedicated to eager study of publications and to intimate communication with equations, computers and laboratory tests, would be preserved from treading a similar failure path in gallant faith? It is sad that we should, in geotechnical engineering, have so much to learn from failures. It would be sadder that we should have to relearn from additional failures what could have been calimed as known.

References

- de Mello, V.F.B. [1977]. 17th Rankine Lecture: Reflections on Design Decisions of Practical Significance to Embankment Dams - London, 1977 - *Geotechnique*, 27 (3): 281-355.
- de Mello, V.F.B. [1980]. Practice, Precedents, Principles, Problems and Prudence in Embankment Dam Engineering, *Symposium on Problems and Practice of Dam Engineering in Asia*, Dec. 1980, Bangkok, in print.
- de Mello, V.F.B. [1981]. Facing Old and New Challenges in Soil Engineering, *Symposium on Past, present and Future of Geotechnical Engineering*, Massachusetts Institute of Technology, Sep. 1981, in print.

News

16th Southeast Asian Geotechnical Conference

8 - 11 May 2007, Sheraton Subang Hotel & Towers, Subang Jaya, Malaysia

The 16th Southeast Asian Geotechnical Conference has just been concluded in Kuala Lumpur in a suburban township known as Subang Jaya. The Conference was attended by the President and the Vice President for Asia of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), Professor Pedro S. Sêco e Pinto and Professor M. R. Madhav. It was well attended by about 500 participants from 23 countries. The Honourable Minister of Housing and Local Government of Malaysia Dato' Ong Ka Ting who was the guest of honour, declared opened the 3-day Conference with one day of site visits. Professor Pinto; Professor Madhav and Professor K. Y. Yong, the President of the Southeast Asian Geotechnical Society (SEAGS), Datuk Paduka Engr. Keizrul Abdullah, President of the Institution of Engineers, Malaysia, Dato' Ir. Annies Bin Md Ariff, Deputy Director General of Public Works Department, Malaysia, gave their addresses at the conference.

This Conference has one Opening Keynote Address, one Chin Fung Kee Lecture, 8 Keynote Lectures, 4 Special Lectures, 5 Special Session Lectures and 11 technical sessions with about 130 papers. The theme of the Conference is "Geotechnical Innovations in Practice, Tsunami and Debris Flow". A forum on the conference theme was held before closure of the conference technical sessions. There were active discussions from the floor. Post conference proceedings will be published in due course. All participants are encouraged to send in their discussions within 3 months from the date of the close of the conference. A farewell Banquet was held with cultural performances on 10th May 2007 to reward the Keynote Lecturers, Special lecturers, authors, participants and others who have in one way or another contributed towards the success of the conference. A cake cutting ceremony was also held at the banquet to celebrate the 40th anniversary of the Society. The President and Vice President of Asia of the ISSMGE took active part in the conference sessions, meeting with SEAGS Council Members and participated in the ISSMGE Technical Committee meetings.

This Conference is jointly organized by the SEAGS, the Institution of Engineers, Malaysia (IEM) and the Public Works Department of Malaysia and supported by Construction Industry Development Board of Malaysia, Nehemiah Reinforced Soil Sdn Bhd, Tourism Malaysia, Konsortium LPB Sdn Bhd, TenCarte (Malaysia) Sdn Bhd, Keller (Malaysia) Sdn Bhd and many others including the Institution of Engineers, Hong Kong. The registration fee was kept at very affordable level so that all those who wish to attend the Conference could benefit. In recognition of the contribution from the authors of papers, very special rate has been accorded to them. The hard bound Conference proceedings containing about 1000 pages, the 40th Anniversary Commemorative Volume of the SEAGS and the bound volume of the Professor Chin Fung Kee Memorial Lecture Series 1991-2006 were given to all participants. The General Committee of the SEAGS decided at its meeting that the next SEAGS Conference will be held in Taipei City in 2010. The meeting also elected Dr. Chung-Tien Chin as the New President for session 2007/2010. Dr. Teik-Aun Ooi was elected as the Protem Chairman for the proposed formation of the Association of Geotechnical Societies of Southeast Asia.



A group photo taken during the farewell party



The celebration of the 40th anniversary of the SEAGS

Prof. Victor de Mello's Website

A website has been launched by Prof. Victor de Mello and his family to share with all interested engineers his thoughts and scientific production. Most of his technical papers are already available for free downloading, to be followed by interviews, thesis, some photos and poetry. His family is proud to invite all colleagues to visit and use the site www.victorfbdemello.com.br.

News

Touring Lectures on Soil Improvement and Foundation Engineering in Vietnam



The International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) and Vietnamese Society for Soil Mechanics and Geotechnical Engineering (VSSMGE) jointly organized the Touring Lectures in Hanoi (on 2-3 May 2007) and in Ho Chi Minh City (on 4-5 May 2007). The Advance Associates Consulting Corporation (AA-Corp) is the secretary of the Touring Lectures. The Guest Lecturers of this Touring Lectures include Prof. Pedro Seco e Pinto (President of ISSMGE), Prof. Madhira Madhav (Vice President of ISSMGE for Asia), Prof. Georg Heerten (Germany), Prof. Serge Varaksin (France), Prof. Eun Chul Shin (South Korea), Prof. Nguyen Ba Ke (Vietnam), Prof. Nguyen Truong Tien (President of VSSMGE), and Prof. Le Ba Luong (Vietnam).

The Subjects and Topics of the Touring Lectures cover different methods of soil improvement in soft clays and loose sands. Cases histories of soil improvement are presented and discussed. About 200 delegates participated in Hanoi Touring Lectures and 150 delegates involved in Ho Chi Minh City Touring Lectures. All delegates were very interested in the Lectures and Discussions. The

Touring Lectures are very successful. This is the first time in the development of Soil Mechanics and Geotechnical Engineering in Vietnam that we can arrange Touring Lectures with the participation of the Leading experts from ISSMGE and developed countries. These Touring Lectures will open new opportunities, projects and programs of cooperation between Vietnam and other countries for sustainable developments and for a better quality of life.

Touring Lectures in Tirana Albania

The Touring Lecture "Design, Construction, Monitoring and Management of Earth Dams and Embankments" was held on the 19-20 April 2007 in Tirana Albania. The event, which attracted the participation of 60 - 70 Civil Engineers, had been organized by the Albanian Geotechnical Society in close collaboration with ISSMGE.

The main themes were:

- Design of Embankment Dams (Prof. Sêco e Pinto)
- Seismic Coefficients for Slope Stability and Displacement Analysis (Prof. George Bouckovalas)
- Reasons and Conditions of Tensile Crack Development in the Core of the Earth and Rock fill Dams (Prof. Ivan Vanicek)
- Eurocode-7 - Introduction (Prof. Roger Frank)
- French Recommendations for the Stability Analysis of Gravity Dams by Limit States (Prof. Roger Frank)
- Embankment Dams - Quality Control and Monitoring (Prof. Sêco e Pinto)
- Design Construction and Exploitation of Large Dams in Difficult Soil and Rock Conditions (Prof. Kristo Goga)
- Monitoring of Dams by Geophysical Methods (Prof. Alfred Frasher)
- Problems of Hydropower Dams in Albania during their Exploitation (Prof. Niko Naska)
- Behaviour of Small Earth fill Dams (Prof. Ivan Vanicek)



The themes were of great interest, and provoked lively discussion amongst the participants. The AGS would like to express their warm gratitude to Prof. Sêco e Pinto, Prof. Roger Frank, Prof. Ivan Vanicek, Prof. George Bouckovalas for their contributions and their excellent lectures, as well as to the Albanian professors Alfred Frasher, Kristo Goga and Niko Naska. After the Touring Lectures, technical visits were organized to the Koman and Vau Dejes dams in northern Albania and to the cities of Shkoder, Kruja, Durres and Berat. The Touring Lecture was very successful, and was shown to be a very useful activity.

Event Diary

ISSMGE SPONSORED EVENTS 2007

18th European Young Geotechnical Engineers Conference

Date: 17 - 20 June 2007
Location: Ancona, Italy
Contact person: Prof. Evelina Fratalocchi
E-mail: e.fratalocchi@univpm.it

IV Pan-American Conference on Teaching and Learning Geotechnical Engineering

Date: 11-13 July 2007
Location: Havana, Cuba
Contact person: Prof. Rolando Armas Novoa
Website: www.lvcongressogeotecnia.unaicc.cu

IV International Conference on Earthquake Geotechnical Engineering

Date: 25 - 28 June 2007
Location: Thessaloniki, Greece
Contact person: Prof. Kyriazis Pitilakis (kpitilaki@civil.auth.gr)
Website: 4icege.org

13th Panamerican Conference on Soil Mechanics and Geotechnical Engineering

Date: 16 - 20 July 2007
Location: Margarita Island, Nueva Esparta, Venezuela
Contact person: C.E. Isaura Romero R. XIIIPCSMGE Chairwoman
E-mail: cpmsig2007@cantv.net
Website: www.xiiicpmsig.org

First Sri Lankan Geotechnical Society (SLGS) International Conference on Soil and Rock Engineering

Date: 7 - 11 August 2007
Location: Galadari Hotel, Colombo, Sri Lanka
Contact person: Prof. Pinnaduwa /H.S.W. Kulatilake
E-mail: kulatilaka@u.arizona.edu
Website: www.slgssr2007.org

14th European Conference on Soil Mechanics and Geotechnical Engineering

Date: 24 - 27 September 2007
Location: Palacio de Congresos y Exposic , Madrid, Spain, Spain
Contact person: Prof. Enrique Dapena
Website: www.ecsmge2007.org

10th Australia - New Zealand Conference on Geomechanics

Date: 21 - 24 October 2007
Location: The Hilton, Brisbane, Queensland, Australia
E-mail: anzgeo2007@ccm.com.au
Website: www.anzgeo2007.com

5th International Symposium on Earth Reinforcement (IS Kyushu '07)

Date: 14 - 16 November 2007
Location: Fukuoka, Japan
Contact person: Prof. Jun Otani, Chairperson of IS Kyushu '07
E-mail: iskyushu@kumamoto-u.ac.jp
Website: www.nda.ac.jp/cc/users/miyamiya/is-kyushu07/index2.htm

14th African Regional Conference on Soil Mechanics and Geotechnical Engineering

Date: 26 - 28 November 2007
Location: Yaoundé, Cameroon
Website: www.CRA-YDE-2007.org.cm

13th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering

Date: 10 - 14 December 2007
Location: ITC Sonar Bangla Sheraton, Kolkata, India
Contact person: Dr N. Som
Website: www.13arc2007.com

2008

The 3rd International Conference on Site Characterization

Date: 1 - 4 April 2008
Location: Taipei Int. Conv. Center, Taipei, Taiwan
Contact person: An-Bin Huang (abhuang@mail.nctu.edu.tw)
Website: www.elitepco.com.tw/ISC3/

VI International Symposium Geotechnical Aspects of Underground Construction in Soft Ground - IS- Shanghai 2008

Date: 10 - 12 April 2008
Location: Shanghai, China
Contact person: Dr. Xiongyao Xie (secretary@tc28-shanghai.org)
Website: www.tc28-shanghai.org

2nd International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation- GEDMAR08

Date: 30 May - 2 June 2008
Location: Nanjing, China
Contact person: Dr. An Deng (GEDMAR08@hhu.edu.cn)
Website: www.GeoHohai.com/GEDMAR08

Development of Urban Areas and Geotechnical Engineering

Date: 16-19 June 2008
Location: Saint Petersburg, Russia
Contact person: Dr. Michael Lisyuk (mbi@georec.spb.ru)

10th International Symposium on Landslides and Engineered Slopes

Date: 30 June - 4 July 2008
Location: Xi'an, China
Contact person: Zuyu Chen (chenzy@iwhr.com)
Website: www.landslide.iwhr.com

E-UNSAT 2008: First European Conference on Unsaturated Soils

Date: 2 - 4 July 2008
Location: Durham University, Durham, UK
Organizer: Durham & Glasgow Universities
Contact person: Dr Charles Augarde
E-mail: e-unsat@durham.ac.uk
Website: www.e-unsat.dur.ac.uk/

1st International Conference on Transportation Geotechnics

Date: 8-10 September 2008
Location: Nottingham, UK
Contact person: Ed Ellis (tc3conference@nottingham.ac.uk)
Website: www.nottingham.ac.uk/ncg/

Event Diary (continued)

5th Bored and Auger Piles Conference

Date: 8 - 10 September 2008
Location: Ghent, Belgium
Contact person: Prof. William Van Impe
E-mail: william.vanimpe@ugent.be

Stress Wave 2008 - 8th International Conference on the Application of Stress Wave Theory to Piles

Date: 8 - 10 September 2008
Location: Lisbon, Portugal
Contact person: Prof. Jaime Santos (sw2008@civil.ist.utl.pt)
Website: www.civil.ist.utl.pt/sw2008

11th Baltic Sea Geotechnical Conference - Geotechnics in Maritime Engineering

Date: 15 - 18 September 2008
Location: Gdansk, Poland (BC11@pg.gda.pl)
Website: www.pg.gda.pl/~BC11

4th International Symposium on Pre-Failure Deformation Characteristics of Geomaterials and Symposium on Characterization and Behavior of Interfaces

Date: 21 - 24 September 2008
Location: Global Learning Center, Atlanta, Georgia, USA
Contact person: Glenn J. Rix (glenn.rix@ce.gatech.edu)

2009

XVII International Conference for Soil Mechanics and Geotechnical Engineering

Date: 5 - 9 October 2009
Location: Bibliotheca Alexandrina, Alexandria, Egypt
Website: www.2009icsmge-egypt.org/

NON-ISSMGE SPONSORED EVENTS 2007

I North American Landslide Conference - Landslides and Society: Integrated Science, Engineering, Management, and Mitigation

Date: 3 - 8 June 2007
Location: Vail Marriott Mountain Resort, Vail, Colorado, USA
Contact person: Via website
Website: www.mines.edu/academic/geology/landslidevail2007/

8th International Geotechnical Conference- Improvement of Soil Properties

Date: 4-5 June 2007
Location: Yuzhno- Sakhalinsk, Russia
Organizer: Slovak University Technology
E-mail: olga.rikovska@stuba.sk

Geotechnical Engineering for Disaster Prevention & Reduction

Date: 25 - 27 July 2007
Location: Yuzhno-Sakhalinsk, Russia
Contact person: Prof. Askar Zhushupbekov (askarz@nets.kz)

60th Canadian/8th CGS_IAH Conference

Date: 21 - 24 October 2007
Location: Westin Hotel, Ottawa, Ontario, Canada
Contact person: K. Tim Law (tlaw@ccs.carleton.ca)
Website: www.ottawageo2007.ca

International Symposium on Geotechnical Engineering, Ground Improvement and Geosynthetics for Human Security and Environment Preservation

Date: 6-7 December 2007
Location: Bangkok, Thailand
Contact person: ACSIG Secretariat (acsig@ait.ac.th)

2008

International Conference on Geotechnical Engineering

Date: 28-30 March 2008
Location: Tunis, Tunisia
Contact person: Dr. Essaieb Hamdi (essaieb.hamdi@enit.rnu.tn)

GEESD IV - Geotechnical Earthquake Engineering and Soil Dynamics IV

Date: 18 - 22 May 2008
Location: Sacramento, California, USA
Contact person: Ross W. Boulanger (rwboulanger@ucdavis.edu)
Website: www.geesd.org

2nd British Geotechnical Association Conference on Foundations- ICOF2008

Date: 24 - 27 June 2008
Location: University of Dundee, Dundee, Scotland, UK
Contact person: Dr. Michael Brown
E-mail: m.j.z.brown@dundee.ac.uk
Website: www.dundee.ac.uk/civileng/icof2008

33rd International Geological Congress

Date: 4 - 15 August 2008
Location: Oslo, Norway
Contact person: 33rd IGC
Website: www.33igc.org

6th International Conference on Case Histories in Geotechnical Engineering

Date: 11 - 16 August 2008
Location: Washington, D.C., USA
Contact person: CShamsher Prakash (prakash@umr.edu)
Website: www.6icchge2008.org

XII International Conference of IACMAG

Date: 1 - 6 October 2008
Location: India
Contact person: Dr. D. N. Singh (dns@civil.iitb.ac.in)
Website: www.12iacmag.com

NUCGE 08: International Conference on Numerical Computation in Geotechnical Engineering

Date: 27-29 October 2008
Location: University of Skikda, Skikda, Algeria
E-mail: larmacs@univ-skikda.dz, nucge08@gmail.com
Website: www.univ-skikda.dz

Announcement

ISSMGE Council Meeting

You are already probably aware that the ISSMGE will be holding its biennial Council Meeting on the 21st October 2007, on the occasion of the 10th Australia - New Zealand Conference on Geomechanics (21-24 October) in Brisbane, Queensland, Australia. The previous one was held in Osaka, Japan at the time of the XVI International Conference in September 2005. As usual, this is an opportunity for representatives of the Member Societies to interact with each other, to make their voices heard on matters affecting their individual membership, as well as help design the future of the Society.

The Council Meeting Agenda and Papers will be distributed to the Member Societies in June/July 2007, for these to be passed on to their nominated representatives who will attend the meeting.

(Further information on the 10th Australia - New Zealand Conference on Geomechanics "Common Ground" is available from the website <http://www.anzgeo2007.com/>)

Editorial Remarks

The editorial board is pleased to send the ISSMGE members ISSMGE Bulletin Vol.1, Issue 2 in June 2007, which includes a message from the Vice President for Africa, Reminiscences of Past President Prof. Victor F.B. de Mello, and other interesting articles. Contributions from member society, TC, or individual members are very much welcome, in particular in the categories of "Case History" and "Views of Young Geotechnical Engineers". Any comments to improve the Bulletin are also welcome. Please contact a member of the editorial board or Vice-Presidents for the region, or directly e-mail to Osamu Kusakabe (kusakabe@cv.titech.ac.jp).

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