



## International Society for Soil Mechanics and Geotechnical Engineering

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## MESSAGE FROM TC302

## FORENSIC GEOTECHNICAL ENGINEERING.

*Chair; Dr. V.V.S. RAO*

Forensic analysis in geotechnical engineering involves scientific and legalistic investigations and deductions to detect the causes as well as the process of distress in a structure, which are attributed to geotechnical origin. Such a critical analysis will provide answers to "what went wrong, when, where, why, how, and by whom". It also gives strong inputs to improve future designs and also assists in identifying the qualifications and expertise required for the staff. As forensic analysis is basically a back analysis based on failure observations, the normally adopted standard procedures of testing, analysis, design and construction are not adequate for the forensic analysis in majority of cases. The forensic geotechnical engineer (who is different than the expert witness) should be able to justify his conclusions in a court of law. Hence he has to be not only fully knowledgeable in his field of specialization including his communication skills, but should also be familiar with legal procedures.



Dr. V.V.S.Rao, Chair of TC302

## ISSMGE launches new website &amp; GeoWorld, a network platform for geoprofessionals

The International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) and its President Professor Jean-Louis Briaud are pleased to announce the launch of the new ISSMGE website ([www.issmge.org](http://www.issmge.org)), developed by Geoengineer.org ([www.geoengineer.org](http://www.geoengineer.org)), the International Information Center for Geoprofessionals under the auspices of the Board-level ISSMGE Innovation and Development Committee (IDC) chaired by Professor Dimitrios Zekkos. The new web site has an improved structure and layout and has also improved capabilities to host technical content. In addition, it already makes available at no cost over 8 webinars by leaders of the profession worldwide. ISSMGE, in co-operation with Geoengineer.org, also launched last year GeoWorld ([www.mygeoworld.info](http://www.mygeoworld.info)). GeoWorld is a free online platform that supports professional networking among geoprofessionals. All geoprofessionals can join the more than 2,200 members of GeoWorld at no cost, and with minimum time and effort create a profile and expand their network! For more details, refer to more details in page 10 of this Bulletin.

## MESSAGE FROM TC302 (continued)

### Dr. V.V.S.RAO, Chair of TC302

With the above points in view, ISSMGE, under the presidentship of Prof. Pedro Pinto during his term 2005 - 2009 constituted a technical committee styled as TC 40 under the Chairmanship of Dr. V.V.S.Rao, India. This TC was extended as TC 302: FGE for one more term 2009-2013 by the present president, Prof. J. Briaud. Accordingly, the terms of reference comprised of:-

Prepare a book either as a manual or as an introductory guide on the forensic procedures to be followed in failure investigations pertaining to geotechnical engineering. The book shall contain procedures for systematic scrutiny of every stage of planning, investigations (both field and laboratory), evaluation and selection of design parameters, analysis and design, construction techniques adopted, detailed documentation regarding quality control, problems encountered including meteorological conditions, etc.

To achieve the above objective, the following task forces with their respective Leaders are constituted.

- TF 1: Collection of data - P.W. Day
- TF 2: Characterization of distress. - David Starr
- TF 3: Development of failure hypothesis. - J. Mecsi
- TF 4: Diagnostic tests. - W.F. Lee
- TF 5: Back analysis - Popescu
- TF 6: Observation method of performance evaluation - Y. Iwasaki
- TF 7: Reliability aspects. - GLS Babu
- TF 8: Legal Issues - D.S. Saxena
- TF 9: Case Histories. - Hwang.
- TF 10: Technical Susceptibilities - Rob Jessep

During the past four years, the committee has organized three international seminars: September 24-25, 2010 in Budapest (organized by Prof. Mecsi), December 14-15, 2010 in Mumbai (organized by Prof. Babu) and, July 14-15, 2011 in Osaka (organized by Prof. Iwasaki). Apart from these seminars, separate sessions on FGE were also conducted during ARCs in Hong Kong and I Kolkatta.



TC 302 executives with Prof. Askar, Dr. Suzanne Lacasse and Prof. Bolton during the Bengaluru seminar

## MESSAGE FROM TC302 (continued)

### Dr. V.V.S.RAO, Chair of TC302

A fourth international seminar was organized in Bengaluru, India, during 10 - 12 January, 2013. Experts from fifteen countries presented special lectures. Prof. Askar Zhussupbekov, Vice President, Asian region of ISSMGE inaugurated the seminar and Dr. Suzanne Lacasse gave the main key note lecture. In all forty one papers were presented in twelve sessions. Over 140 delegates attended the seminar and made it a grand success.

The following is the list of theme lectures, invited lectures and contributed papers presented during the conference.

#### INAUGURAL LECTURE

- 1) Forensic Geotechnical Engineering - Theory and Practice by Dr. Suzanne Lacasse-Høeg.

#### THEME LECTURES

- 1) Performance-based design in geotechnical engineering by Prof. Malcom Bolton.
- 2) Learning from the past: The ancient Egyptians and geotechnical engineering by Dr. Sheriff Wissa.
- 3) Forensic Geotechnics - some case studies from Singapore by Prof. C. F. Leung.
- 4) Legal aspects regarding management of soil risk by Prof. Katzenbach.
- 5) Caisson failure induced by wave action by Prof. Eduardo Alonso.
- 6) Forensics of pile foundations subjected to earthquake induced by Prof. M. Gopal.
- 7) Stability of landfill capping systems on steep slopes - lessons learned from practice by Prof. Georg Heerten.
- 8) Forensic geotechnics of failing petroleum tanks by Prof. William Van Impe.
- 9) The role of uncertainty in forensic geotechnical engineering by Prof. Robert Gilbert.
- 10) Attempts to protect personal houses from seismic liquefaction by Prof. Ikuo Towhata.
- 11) Analysing Ground - Beyond a Mechanistic Approach by Prof. M. R. Madhav.

#### INVITED LECTURES

- 1) The Reasons of Extremely Unusual Occurrence of Full Destroying of a House in the Residential District Besoba in Soil Ground Conditions of Karaganda City by Dr. A. Zhussupbekov.
- 2) Distress in Reinforced soil walls- An appraisal by Prof. G. V. Rao.

#### TASK FORCES

- 1) Role of collection of data in Forensic analysis by Dr. P. W. Day.
- 2) Characterisation of failure at a large landslide in SE Queensland by geological mapping, laboratory testing, instrumentation and monitoring by Mr. David Starr.
- 3) Special material properties and circumstances on the serious Geotechnical Disasters by Prof. .J Mecsi.
- 4) Failure Analysis of A Highway Dip Slope Slide by Prof. Wei F. Lee.
- 5) Effects of Vibration by Demolition to nearby Machine Shop Floor - Wave Measurement for Dynamic Property of Ground by Prof. Yoshi Iwasaki.
- 6) Reliability analysis in Forensic Geotechnical Engineering by Prof. G L Sivakumar Babu.
- 7) Forensic Engineering, Legal Considerations, and Property Damage Assessment from Construction Vibrations by Dr. Dharendra S. Saxena.
- 8) Technical shortcomings causing geotechnical failures by Mr. Rob Jessep.
- 9) Guidelines for Forensic Geotechnical Engineering by Dr. V. V. S. Rao.

#### CONTRIBUTED PAPERS

- 1) Analyses of Unexpected Settlements of Large Oil Tanks in the Rotterdam Port by J. L. Bijnagte, and H. J. Luger.

## MESSAGE FROM TC302 (continued)

### Dr. V.V.S.RAO, Chair of TC302

- 2) Investigation of Soil Saturation and Compaction Homogeneity in the failed soil nailed wall and fill using Ground Penetrating Radar by P. Anbazhagan, P. S. Naresh Dixit, Deepu Chandran and A. Murali Krishna
- 3) Forensic Geotechnical Investigations for Floor Failure of an Industrial Building near Bhopal, India - A Case Study by S.B. Suri, Nakul Dev, Thomas Joseph & Jancy Mathew.
- 4) Deep Excavations and Managing the Risk of Damages in the Proximate Vicinity by R. Katzenbach, C. Bergmann, F. Clauss and M. Seip.
- 5) Recent Approaches of Back Analysis for Addressing Geotechnical Issues by Dauji Saha, Ranjan Kumar, Kapilesh Bhargava and Sekhar Basu.
- 6) Post-liquefaction data collection and analyses for earthquakes in New Zealand by Md. Mizanur Rahman and T. G. Sitharam.
- 7) Penetration of Mudmats for Fixed Offshore Platforms - Case Studies by Rupam Mahanta and R. K. Ghanekar.
- 8) Need for Forensic Engineering in Earthquake Geotechnics - Case Studies from 2001 Gujarat Earthquake by S. K. Prasad, I. Towhata, G. P. Chandradhara, K. V. Vijayendra, and T. Honda
- 9) Forensic Analysis of Failure of Retaining Wall by G. L. Sivakumar Babu, Raja J, B. M. Basha and Amit Srivastava.
- 10) Performance a Full Raft Foundation Constructed on Soft Clay by I.V. Anirudhan and S.V. Ramaswamy.
- 11) Design and Construction of Diaphragm Walls Embedded in Rock for a Metro project by N. Kumar Pitchumani, Makarand G. Khare, and K. V. Sridhanya

There was a very good interaction between the speakers and delegates throughout the three days of the seminar. A lively banquet along with a grand folk dance program added glamour to the seminar.



Prof. Askar inaugurating the seminar by ringing a bell.  
From the left, Prof. GLS Babu(Secretary,TC302) Prof. G.N.Gandhi.(President, IGS),  
Prof. Askar (Vice President, ISSMGE), and Dr. V.V.S.Rao (Chair, TC302)

## MESSAGE FROM TC302 (continued)

*Dr. V.V.S.RAO, Chair of TC302*

### KEY SPEAKERS:



Dr. SUZANNE LACASSE



Prof. MALCOM BOLTON



Dr. SHERIFF WISSA

## ISSMGE President 1185 Days Report Professor J-L. Briaud

### Distinguished Colleagues, Dear Friends,

This is my thirty ninth progress report after 1185 days as your President. Note that previous reports are on the ISSMGE web site (<http://www.issmge.org/>) under “The Society” then under “The President” if you need them. In this report, I will talk to you about our upcoming webinar, the unveiling of our new web site, and an update on your present.

**Webinar.** The topic of the next webinar is “**An Overview of Geosynthetics and Their Major Applications**”. It will be presented by Robert Koerner (USA). **Professor Koerner** is a word expert on this topic and has written a well known book entitled “Designing with Geosynthetics”. The date and time are **22 January 2013 at 3:00 pm, GMT Time (London, GMT)**. The session number is 952 224 700, no password necessary. To register, go to

<https://issmge.webex.com/issmge/k2/j.php?ED=20116827&UID=112331847&HMAC=44ffeee0697fbd15a76a43d455496a9cbe5f1557&RT=MiMyMQ%3D%3D&FM=1>

If you have problems, please contact my assistant Theresa Taeger at [ttaeger@civilmail.tamu.edu](mailto:ttaeger@civilmail.tamu.edu). Remember not to use your phone but rather your computer by voice over IP when listening to the webinar as explained in my 1155 days progress report.

**New ISSMGE Web Site.** I am very pleased to announce the successful launch of your new ISSMGE website <http://www.issmge.org>. The new website represents a huge amount of work by many people over the last two years. It germinated in our think tank: The Innovation and Development Committee lead by Dimitris Zekkos. The ebullient **Professor Zekkos** and his committee did it again and we now have a modern web site with great potential. It was paid for by your dues and developed by Geoengineer.org (<http://www.geoengineer.org>), based on ISSMGE and Geoengineer.org long term partnership agreement. Geoengineer.org will also be responsible for its maintenance and continued improvement in the future. Here are some key features of the new website:

1. New improved responsive layout and design; the new design and colors resemble the previous website so as to provide some continuity, but its layout is automatically adjusted to different screens and computers. The website also has an improved structure and navigation system.
2. The website now makes available ALL previous ISSMGE webinars as recordings of the slides and presentations by the speakers that you can listen to at your leisure. This is an outstanding collection of lectures that are available to all of you at no cost and we must thank all the outstanding speakers for their generosity. Just visit the website under “resources” and access the webinars.
3. A slider and a block of announcements have been added on the home page to better promote and highlight key announcements of ISSMGE. Please check the website regularly to view updates of the slider and new announcements.
4. An improved database of upcoming geotechnical conferences has been organized.
5. The new website also includes a list of Member Societies and addresses
6. The website better integrates our professional networking platform (GeoWorld) as well as the International Journal of Geoengineering Case Histories with ISSMGE.
7. The website includes a dynamic search button (top right). This button will search only the ISSMGE website and facilitates your search for relevant ISSMGE information.

I am very excited about this new development. Please give us your feedback including things that need to be fixed. Additional improvements and features/content are planned for the website in the near future and I will be announcing these to you in future progress reports.

**Your present.** I have received many requests for the tie or scarf. I am sending them to you at the address you gave me but it will take a bit of time before you receive it as I process all the requests. So please be a bit patient but if you do not receive it by mid February 2013, do let me know.

## ISSMGE President 1215 Days Report

### Distinguished Colleagues, Dear Friends,

This is my fortieth progress report after 1215 days as your President. Note that previous reports are on the ISSMGE web site at

<http://www.issmge.org/en/the-society/the-president/progress-reports>

if you need them. In this report, I will talk to you about our upcoming **webinar**, our **last two awards**, the **elections for Vice President and President**, and the **McClelland Honor Lecture videotape**.

Let me start by thanking you for all the good wishes that I received for the new year in the form of cards and emails. There were so many of them that I could not respond individually but I can assure you that each time they were very much appreciated and convinced me that we truly have a strong professional family. Helping each other is really the essence of life. By the way I hope that most of you who asked for one have now received your tie or scarf present. If not let me know.

**Free Webinar.** Our next free webinar will be on the topic of **Ground Improvement** and will be a joint presentation by **Serge Varaksin** (France) and **Noel Huybrechts** (Belgium). Serge and Noel are leaders of the TC on Ground Improvement. They have contributed to many publications on the topic including the State of the Art presentation in Alexandria at the 2009 ICSMGE. The webinar will be on **7March2013 at 3pm UTC**. Don't miss this webinar related to a topic with growing importance for our future. For further information check our web site <http://www.issmge.org/en/conferences-and-events/upcoming-webinars> or contact my assistant, Theresa Taeger, at [ttaeger@civilmail.tamu.edu](mailto:ttaeger@civilmail.tamu.edu). Remember that all previous free webinars have been recorded and are available to you at

<http://www.issmge.org/en/resources/recorded-webinars>

**Awards:** There are two awards left for which you need to send your nominations: they are the **Outstanding Public Relations Award** and the **Outstanding Young Geotechnical Engineer Award** (different from the ISSMGE Young Members Awards). Please go to this site to find more details: <http://www.issmge.org/en/awards/outstanding-achievement-awards>. In essence, the public relations award is to recognize someone or an organization which has done excellent work in promoting our profession. Ideally this award should go to someone outside our profession possibly to a news media person. The young geotechnical engineer award goes to one individual or to a team of young individuals who have made outstanding contributions to practice or research in geotechnical engineering. The **deadline for nominations is 28Feb2013**. All nominations must come through a member society.

**Next President, next Vice Presidents:** The nomination and election process for the next leaders of ISSMGE is alive and well. We now know that there are 3 official nominees for President. In alphabetical order they are **Gabriel Auvinet** (Mexico), **Roger Frank** (France), and **Askar Zhussupbekov** (Kazakhstan). You still have time to declare your candidacy as President if you wish as the closing date is 15Mar2013. On the Vice President side, the deadline for nominations is passed and some are running unopposed. This is the case of Europe (**Antonio Gens** - Spain), North America (**Paul Mayne** - USA), South America (**Jarbas Milititsky** - Brazil), Australasia (**Mark Jaksa** - Australia). However there will be elections for Africa where **Fatma Baligh** (Egypt) and **Carlos Quadros** (Mozambique) are candidates and for Asia where **Charles Ng** (Hong Kong), **Eun Chul Shin** (Korea), and **Ikuo Towhata** (Japan) are candidates. The member societies in Asia and Africa have received a letter from the Secretary General requiring that they **cast their vote before 28Feb2013**. I feel comfortable that the next group of leaders of our society will be stellar.

**McClelland Honor Lecture:** Please note that the First ISSMGE McClelland Lecture given by **Don Murff** in London on 12Sept2012 was videotaped and you can watch the videotape at <http://www.issmge.org/en/resources/videotaped-honor-lectures>. You can also find the power point slides at <http://www.issmge.org/en/technical-committees/applications/154-offshore-geotechnics>.

We owe this to the work of the offshore geotechnics committee and its chair **Philippe Jeanjean** who raised the funds to make this happen. I would like to encourage all TCs that have honor lectures to videotape the lectures and share it with us to upload on the web site. This is now possible thanks to our new web site architecture and the work of **Dimitris Zekkos** of IDC. Unfortunately ISSMGE cannot pay for the videotaping.