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IGS News

A Bulletin of Indian Geotechnical Society, Chennai Chapter

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Editors : Prof. S.V. RAMASWAMY & Er. I.V. ANIRUDHAN

Geotechnical Calendar

National

- Indian Geotechnical Conference – 2005, Indian Geotechnical Society, Ahmedabad Chapter, at Nirma Institute of Technology, Ahmedabad **17-19 December 2005**. E-mail: sandiptrivedi@hotmail.com, www.nit.edu
- Indian Geotechnical Conference - 2006, Indian Geotechnical Society, Chennai Chapter, at IIT Chennai **14-18 December 2006**. E-mail: igschennai@igschennai.org

International

- 50 years of Pressuremeter Instrumentation Symposium, Paris, France, **22-24 Aug. 2005**, E-mail: bourganion@mail.enpe.fr
- International Seminar on 'Design Construction and Operation on Long Tunnel', Taipei, Taiwan, **7-10 Sept. 2005**, Mr. Lin Bin Chiou, longtunnel2005@mg.taneeb.gov.tw, www.longtunnel2005.taneeb.gov.tw
- XVI International Conference on Soil Mechanics and Geotechnical Engineering, ISSMGE and Japan Geotechnical Society, Osaka, Japan, **12-16 Sep 2005**, E-mail: secretary@icmge2005.org, URL: <http://www.icmge2005.org>
- 30th Annual Conference on Deep Foundations, The Fairmont Chicago, Chicago, IL, **22-24, Sept 2005**. Email: chicago@fairmont.com Web: <http://www.fairmont.com/chicago>
- Tsunami Reconstruction with Geosynthetics - Protection, Mitigation and Rehabilitation of Coastal and Waterway Erosion Control Bangkok, Thailand **8-9 Dec 2005**, Prof. Dennes T Bergado, ACSIG, Email: bergado@ait.ac.th
- XIII Danube –European Conference on Geotechnical Engineering, Ljubljana, Slovenia, **29-31 May 2006**, E-mail: danube.2006@fgg.uni.lj.si,
- 10th International Conference on Piling and Deep Foundations, Amsterdam, Netherlands, **31 May-2 June, 2006**, constructconferences@emap.com, URL www.pilinganddeepfoundations.com
- 13th Asian Regional Conference, Kolkata, India **10-14 Dec 2007**, Prof. N. Som, E-mail nitin_som@vsnl.com

From the Editor's Desk ... Infrastructure Security and Geotechnical Engineering

The recent terrorist attacks using sophisticated bombs in different parts of the world – Ayodhya in India, London in United Kingdom and Sharm-El-Shaik in Egypt – and the consequent loss of life and damages have once again focused the attention on the urgent need to develop response methods to minimize loss of life and material damages in such attacks and address the economic consequence of such attacks. Earth structures and substructures such as embankments and slopes, shallow and deep foundations for buildings, dynamically loaded foundations, bridge abutments and pier foundations, tunnels and portals, navigation channels and erosion protection works, river locks and port facilities are potential targets for terrorists. It is the responsibility of geotechnical engineers to analyse the risk and to evolve necessary steps to protect such structures or system of structures by,

- examining the pertinent earth and earth supported components of the facility
- estimating the susceptibility to attack, and the level of attack required to cause serious damage
- assessing the consequence of attack including temporary loss of function and costs of repairing
- determining the appropriate measures that could improve its resistance to attack, make the facility a less attractive target and/or reduce the severity of consequences if attacked.

Terrorist attacks are similar to natural hazards. Both of them occur without warning, cause enormous loss of life and property, affect local, regional and national economies and sometimes destabilize governments. We are in the process of developing detailed data banks on natural hazards and terrorist attacks and to a certain extent we can predict their effects and impacts. However it is not possible to exactly pinpoint when and where the event will strike. Hence for a successful mitigation operation, we should be able to identify the most vulnerable utility and transportation system elements and take the necessary actions to reduce the vulnerability and to provide the emergency relief.

Technologies that are used to protect military installations from vehicles and blasts can be effectively adopted for civil installations. Provision of boundary and vehicle barriers that ensure safe standoff distance for truck bombs, design of approach roads that limit the speed and angle of approach and use of landscaping and building layouts that obstructs the line of sight will be more effective than a chain link fence topped with barbed wire which can delay the intruders for only a few seconds. Having a boundary with low strength

characteristics can also prevent unwanted vehicle access. Geotechnical engineers have to develop economical methods of construction for boundary protection of civil installations, which require little or no maintenance. The protection works can be aesthetically pleasing or totally concealed.

In addition to boundaries and denying access to vehicles, bomb resistant construction can be used for buildings and utilities. More resilient buildings and facilities can be designed and built by using the available technologies for quantifying cratering geometry, penetration mechanics, air blast, ground shock, and soil structure interaction. The existing buildings can be modified to be more blast resistant by using these technologies.

The energy absorbing qualities of sand, gravel and rockfill when subjected to severe earthquake shaking is well understood. These materials can undergo a large amount of energy absorbing deformation and still maintain their structural integrity. Development of energy absorbing materials is essential in fighting blast and penetration effects. Sometimes strengthening a structure may lead to higher forces and brittle behaviour or to harmful reflection of the compressive loads from blasts and projectiles. There is a wide scope for research so that the apparent contradictions in blast resistance behaviour and energy absorption qualities of particulate earth materials can be fully understood.

Underground structures are effective against bomb attacks and more attention should be paid in designing attractive and comfortable underground shelters. Recent events have underlined the need for better fire control and protective building materials. Evaluation of the vulnerability of highways, earth slopes and tunnels to blast forces can be done by applying the recent developments in cratering technology. Research is needed to determine whether stabilization and surfacing techniques can be used to reduce the damages to earth and earth-supported structures to blast effects. The energy absorbing and compression wave reflection properties of the surface layer or a system of layers need to be understood.

There is need to develop building and site protection codes to ensure minimum level of safety for all civil construction against determined terrorist activities, so that protective design progressively becomes the general accepted practice. Geotechnical professionals have to concentrate on incorporating such protective measures in building codes and site development requirements. If security aspects are incorporated at the planning and design stage itself, significant protection can be achieved with economical choices.

(abridged and modified from, "Hynes, P.E., Geotechnical Aspects of Homeland Defence, Geo-Strata, Geo-Institute, ASCE, Winter 2004)

Annual General Body Meeting of IGS Chennai Chapter AGM 2005

Annual General Body meeting of IGC Chennai Chapter is scheduled for **August 24, 2005**.

All members of the chapter are requested to attend the AGM to be held at Division of Soil Mechanics and Foundation Engineering, Anna University, Guindy, Chennai. Time of the AGM will be 4:45PM.

This notification is to be considered as individual invitations to the AGM. Separate invitation is not being sent so that a huge postal expenditure is avoided.

GEOPRACTICE 2005 - Bangalore

Department of Civil Engineering, Indian Institute of Science, Bangalore and Karnataka Geotechnical Centre (KGC) of Indian Geotechnical Society (IGS) jointly organises a two day national seminar GEOPRACTICE 2005, on Case Studies in Geotechnical Engineering on July 25-26, 2005. More than 100 delegates actively participated in the technical sessions. Prof. G.L. Sivakumar Babu, Department of Civil Engineering, was the organising Secretary.

Delegates from Chennai included Prof. S.V. Ramaswamy, Prof. S. Narasimha Rao, Prof. S.R. Gandhi, Prof. A. Boominathan, Dr. K. Premalatha, Er. I.V. Anirudhan, Dr. Darga Kumar and ER N Venmal Devi. All of them had contributed papers in the seminar.

Prof. S. Narasimha Rao delivered a Key Note Lecture on Tsunami related damages in costal India. **O**



Prof. T.G. Sitharam, Prof. G.L. Sivakumar Babu, Prof. Dr-Ing. Erwin Gartung Landesgewerbeanstalt, Bayern (LGA), Germany, Prof. B.R. Srinivasa Murthy - GEOPRACTICE 2005

Personal Column

- 1 Prof. K. Rjagopal**, (LM-160), Geotechnical Engineering Dvn, IIT Madras, Chennai, was visiting professor at University of New South Wales, at Australia for a period of 6 months (July-December 2004) on sabbatical leave from IIT
- 2 Mr. K. Bhaskaran**, (LM-59), Executive Committee Member of IGS Chennai Chapter and Life Member of Indian Geotechnical Society New Delhi has taken up the assignment of Technical Officer in Jerusalem College of Engineering, Narayanapuram, Chennai, on 3rd Jan. 2005 after his tenure from IITDelhi and IIT Madras
- 3 Prof. N.R. Krishnaswamy**, (LM-18), Geotechnical Division, IIT Madras, Chennai, retired from IIT Madras after a long tenure as Professor in Geotechnical Engineering
- 4 Dr. Ayothiraman R.**, (LM- 569), after obtaining his doctorate from IIT Madras, joined as Asst. Professor at IIT Gouwhati. Phone 91 361 2582420, Email raman@iitg.ernet.in
- 5 Dr. Darga Kumar N.**, (LM-815), received his doctoral degree from IIT Madras in August 2005

Members are requested to write to the society about their activities and other personal achievements. Members may please send their email ID to vidya_ani@vsnl.net for better communication.



Er. M.S.Sudersan, Prof. S. Narasimha Rao, Prof. C.S. Chandrasekharan, Prof. B.R.Srinivasa Murthy and Er. Anirudhan, I.V. - Concluding session - GEOPRACTICE 2005

Welcome New Life Members

835	Ms. Sajna Sayed
836	Mr. M. Gunasekaran
837	Mr. R. Praveen Kumar
838	Mr. U Sreedhar
839	Mr. K. Srihari
840	Mr. G. Padmanabhan
841	Dr. R.G.. Robinson

Achievement

Arvind Verma, Managing Director of AIMIL Ltd, is a life member of Indian Geotechnical Society and has been associated with this body in various capacities for the last 20 years. He has been one of the organizing secretaries of ICSMFE which was held in 1994. Mr. Arvind recently was awarded " Bharat Shiromani Award 2004" for his outstanding contribution in the field of Corporate and Financial Management and commitment to National Progress and Human Welfare. He was given this award by Hon'ble, Former Prime Minister I K Gujral on 27th April 2005. He is amongst the very few to receive this prestigious award.

Mr. Arvind Verma, who became paraplegic after an accident when he was 14, worked hard to achieve his high education and now to achieve this prestigious award. AIMIL Ltd. is a pioneer Instrumentation Company in the field of Geotechnical Engineering. AIMIL has been an Institutional member of IGS since its inception. Our members have been actively been participating in IGS for the last 20 years. Former Chairman of AIMIL Mr. H.C. Verma has been IGS President for IGS for consecutive three years.



TERZAGHI DAY 2005 AND One Day Workshop on ROLE OF GEOTEXTILE IN RESIDUAL SOILS

DATE **OCTOBER 1, 2005**
VENUE: **SEMINAR HALL 3, IC&SR**
 IIT MADRAS, CHENNAI

Karl Terzaghi (1883 – 1963) is the founder and guiding spirit of soil mechanics, outstanding geologist and prominent foundation engineer. He was the first to make comprehensive investigation of the engineering properties of soils. He was author of many classical theories in soil mechanics of which his consolidation theory is well recognized.

As a mark of appreciation of his achievements and contributions, the Chennai Chapter of Indian Geotechnical Society is regularly organising **TERZAGHI LECTURE** on his birthday (2nd October) since 2002.

Prof. T.S. Ramanatha Ayyar, an eminent geotechnical scholar has been invited to deliver Terzaghi-2005 lecture.

As a part of Terzaghi Day-2005 celebration, Indian Geotechnical Society Chennai Chapter is organizing a one-day workshop on Role of Geotextiles in Residual Deposits. The event will start with Terzaghi lecture 2005 to be delivered by Prof. T.S. Ramanatha Ayyar. Experts from IITs, NITs and recognized universities have been invited to give talks on this subject. Large number of practising Engineers, Academicians and Manufacturers of Geotextile product will be participating in the workshop.

Following Themes will be covered in the workshop:

- * Role of Geotextiles in residual deposits
- * Reinforced earth embankment
- * Reinforced earth retaining wall
- * Slope erosion control with geotextile
- * Environmental applications of geotextile and geomembrane

The eminent speakers on the occasion include,

Prof. K.S. Rao, Honorary Secretary, IGS, New Delhi
Prof. B.R. Srinivasa Murthy, IISc Bangalore
Prof. S.V. Ramaswamy, Chennai
Prof. H.N. Ramesh, Mysore;
Prof A.V. Shroff, Baroda
Prof. K. Rajagopal, IIT, Madras and
Prof. K. Ilamparithi, Anna University, Chennai.

SPONSORSHIP

The workshop attracts a large number of delegates who will have the benefit of the latest developments in this field. Industries associated with the themes of the workshop can sponsor the event in one of the following ways:

Main Sponsor (2 free delegates) - Rs.5,000/-
Co-Sponsor (1 free delegate) - Rs.3,000/-

REGISTRATION FEES

The Registration fee for the workshop is Rs.300/- per delegate. This covers the cost of all conference material, lunch and refreshment during the workshop. The Registration fee shall be sent to the Organizing Secretary along with the Registration form by a local cheque or demand draft drawn in favour of Indian Geotechnical Society (Chennai Chapter) payable at Chennai.

The delegate fee for students will be Rs.200/

Activities -January - August 2005

TECHNICAL LECTURES

Dr. K. Rajagopal, Professor of Geotechnical Engineering, Civil Engineering Division, IIT Madras, delivered lecture, "**APPLICATION OF FLAC FOR RESEARCH IN GEOTECHNICAL ENGINEERING**" on August 9, 2005 at IIT Madras.

Dr. Sarvesh Chandra, Professor of Geotechnical Engineering, Civil Engineering Division, IIT Kanpur, will deliver a lecture during last week of August 2005

Response from readers / memebrrs

Dear Prof. S.V.Ramaswamy

It was a pleasure to hear that yourself and Prof. Gandhi got elected to the Executive Committee of IGS for the ensuing term. When I received your letter last, I had no doubt about your election. Kindly convey my congratulations to Prof. Gandhi as well. Incidentally, I wanted to talk to you and I would like your telephone number (residence). I don't have any computer as I don't want to be bogged with a mechanical routine at this stage and e-mail communication is not available.

I am writing this letter to congratulate you for your observations published in IGS News. I entirely agree with you on the point that Geotechnical engineering is not soil investigation and reports. Also I feel that there is an increasing trend to do research work on idealization and computer modeling using packages. This is far from the concept of soil mechanics as envisaged by Terzaghi and one must live with the soil. Your point on the need for work on residual soils is also timely. In fact I have come across laterites, which vary both horizontally and vertically. Also there are different layers of laterite and one is liable to mistake a higher layer as the beginning of weathered rock. Also even in clays, knowledge on tropical clays is very little. This is because work in western world is mostly based on temperate zones.

I would like to touch on one more point i.e., the need for greater interdisciplinary work and reliable instrumentation particularly in field observations. It is only through such collective work that a break through can be achieved. An example of this is the need for very close liaison between Geotechnical scientists and engineering geologists. Without such collaborations it is not possible to tackle the problems of unpredictable natural hazards. Unfortunately it looks as if people are in tight compartments.

Your Terzaghi lecture is very timely. As one who was associated with the bored under-reamed pile test at Thiruvanniyur in 1992, your efforts in pursuing the findings to the logical conclusions are commendable. I say this because, some times people decide the length of the pile based on the load to be carried from Table 1., irrespective of what strata the pile passes through. I would greatly appreciate if you can send me the relevant portions of the revised code so that I can widely circulate the same.

I am happy that IGS 2006 is at Chennai. Though I am not traveling much, I hope I will be able to attend the session. I look forward to further contacts with you professionally.

Kindly convey my best wishes to all our colleagues at Chennai Chapter. Hope that this meets you and your family in good cheer.

Yours Sincerely

T.S. Ramanatha Iyer
January 24, 2005, Trivandrum

(Prof. T.S. Ramanatha Ayyar will deliver the TERZAGHI LECTURE this year at Chennai. He will speak about his experiences on Residual Deposits)



IGS News

April - June 2004

BOOK POST

Please see the REGISTRATION FORM for Oneday Workshop on 'ROLE OF GEOTEXTILE IN RESIDUAL SOILS - OCTOBER 1, 2005

A Bulletin of Indian Geotechnical Society, Chennai Chapter

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Phone: 91-044-52021624 (Secretary)
Email: igschennai@igschennai.org



We are on the web - www.igschennai.org

TERZAGHI DAY 2005 AND IGC 2006 IN CHENNAI

Growth of Geotechnical Wisdom

ONE DAY WORKSHOP ON ROLE OF GEOTEXTILE IN RESIDUAL SOILS PROGRAMME

09:00 am Delegate Registration
09:30 am Inauguration
10:00 am Terzaghi Lecture
11:00 am Tea Break
11:15 am Technical Session 1
01:00 pm Lunch
02:00 pm Technical Session 2
04:00 pm Concluding Session

ADDRESS FOR COMMUNICATION

Shri. I.V. Anirudhan
Organising Secretary, Terzaghi Day-2005
Geotechnical Solutions
44/17 'BHASKARA'
19 Usha Street
Dr. Seethapathy Nagar, Velachery
Chennai - 600 042
Phone: 91-44-22433679, 52021624
Email: vidya_ani@vsnl.net

AGM - 2005

AUGUST 24, 2005
AT 4:45 PM

Annual Generalbody meeting of IGS Chennai Chapter will be held on August 24, 2005 at 4:45PM in Division of Soil Mechanics and Foundation Engineering, Anna University, Chennai.

All memebers are requested to attend

INDIAN GEOTECHNICAL CONFERENCE IGC 2006 DECEMBER 14-17, 2006

INDIAN GEOTECHNICAL CONFERENCE IGC 2006 will be held in Chennai on 14-16 December, 2006. Prof. K. Ilamparuthi, Anna University, Chennai, Prof. S.R. Gandhi, IIT Madras; and Er. I.V. Anirudhan will be the organising secretaries.

The event will be held in IIT Madras and The Director, IIT Madras will be the Patron of the event. Main Theme of the conference is **GEOTECHNICAL ENGINEERING - INDIAN EXPERIENCE**

The first detailed bulletin with registration and sponsorship details will be published before October 2005

ONE DAY WORKSHOP ON
ROLE OF GEOTEXTILE IN RESIDUAL SOILS
INDIAN GEOTECHNICAL SOCIETY, CHENNAI CHAPTER
OCTOBER 1, 2005 AT IIT MADRAS, CHENNAI
(Detailed programme inside)

REGISTRATION FORM

Name :
Designation :
Organization :
Address :

Phone :
Email :
Fax :
Do you sponsor Yes/No Yes/No

I am enclosing a cross demand draft / cheque in favour of Indian Geotechnical Society, Chennai Chapter, with following details

Demand Draft / Cheque No..... Dated for Rs.....Towards the registration / sponsor fee.

Date: Signature