



IGS NEWS

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Message from President



Dear Distinguished Members,

I hope you all are doing well with your family. It gives me immense pleasure to convey my warm greetings to all in various parts of India during this festival season. I am happy that we could complete the celebrations as part of 75 years of formation of our society. 75th year celebration was an energy booster for all chapters. I am happy to note the dynamic activities happening in various chapters across the country, and let us continue maintaining the momentum as we move forward.

Our website committee SC1 team, led by Ms. Aarti Bhargava, is maintaining the website very well, and in Phase II, the works of the website are progressing; I appreciate the committee's efforts. Our membership is consistently increasing, and the SC2 team led by Prof S.K. Prasad is now focusing on adding more institutional and associate members to our society. I had the opportunity to attend the inaugural function of the National Conference on Soils and Foundations organized by the IGS Thiruvananthapuram chapter in association with Deep Foundations Institute (India), ISSMGE TC212 and LBS Institute of Technology for women held from 15th to 17th February 2024. I applaud the efforts of the SC3 team led by Dr. Jay Kumar Shukla. The Financial Committee SC4, led by Er. Ravi Kiran Vaidya worked out a promising budget for the current financial year, and I appreciate their efforts.

I am happy to inform you that ISSMGE technical committee time capsule reports prepared by the SC5

team led by Prof. Neelima Satyam are uploaded to the ISSMGE website. The monthly lectures of ISSMGE TC 220 are well organised, with eminent speakers as curtain raisers for the 12th ISFMG 2026. The official website of the 12th ISFMG 2026 (International Symposium on Field Monitoring & GeoMechanics) was launched on February 15, 2024, by Dr. Marc Ballouz, President ISSMGE, and the unveiling of the logo was done by Dr. Keh Jian Shou, ISSMGE, Vice President Asia. The Symposium will take place from 6th to 10th August 2026. I appreciate the efforts put forward by Prof. Neelima Satyam and the team for the buildup of the prestigious International Symposium. I had the opportunity to deliver a technical talk at the two-day, 3rd International Conference on Architectural, Civil & Environmental Forensic Engineering organized by the Korean Geotechnical Society on January 23, 2024.

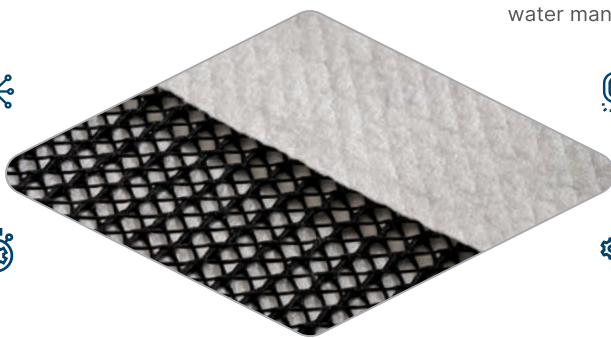
Had an online meeting for the formation of the Association of Geotechnical Societies of South Asia comprising Bangladesh, Nepal, Sri Lanka, Pakistan and India on February 17, 2024. It was decided to establish the Association with leadership positions rotating periodically. The inaugural event of the association is scheduled for GeoMandu 2024 in Kathmandu, Nepal, on November 28-29, 2024. The inaugural term will have the President of the Indian Geotechnical Society serving as the President of AGSSA and the President of the Nepal Geotechnical Society in the role of Secretary with the association secretariat based in Nepal. I got the opportunity to meet Prof. Scott J Brandenberg and Prof. Yousef Bozorgnia on 22nd February 2024 at the University of California Los Angeles and visited their facilities at UCLA. I am happy to inform you that Prof. Yousef Bozorgnia has consented to be a keynote speaker for 1st Geotech Asia 2025, held from 7th to 10th October 2025 in Goa, India. Attended GeoCongress 2024 held from 25th to 28th of February 2024 in Vancouver and participated as an invitee in the International Activity Committee meeting of GeoInstitute, USA. Had discussions with Prof. Jie Han, President GeoInstitute, Prof. Ellen, International Secretary and the board members. Thanks to GI Board member Prof. Anand J. Puppala


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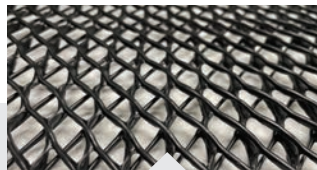
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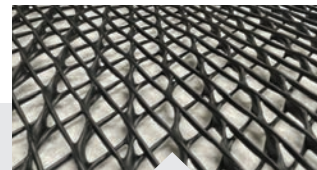
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for coordinating the meetings and taking the initiative. It was decided to organize an Indo-US workshop in connection with the Geotechnical Frontiers scheduled for March 2-5, 2025, in Louisville, Kentucky, USA. Also invited the team from GeoInstitute to attend the 1st Geotech Asia 2025. Addressed SLGS Project Day on March 27, 2024, an annual event organized by the Sri Lankan Geotechnical Society since 2000 to promote research and enhance the presentation skills of Civil Engineering students in Sri Lankan Universities. A cross-border collaborative webinar with India and Nepal on the theme 'Hydro Tunneling in Himalayas' will be held on April 6, 2024. I appreciate the initiative taken by Dr Mandip Subedi, President of Nepal Geotechnical Society and Dr A.P. Singh, Hon. Secretary, Indian Geotechnical Society. An Indo-Srilankan Webinar is under planning. The 1st India-Japan-Korea Trilateral Geotechnical Workshop on the theme "Multi-Media Advanced Geotechnical & Geo-environmental Engineering" will be held on May 11, 2024 at Kyoto University, Japan. 16 delegates from India will attend the workshop, and seven will deliver expert talks. I appreciate the efforts of the SC6 team led by Dr. A. Murali Krishna in networking with various Geotechnical Societies and coordinating the trilateral workshop in Kyoto, Japan.

The revival of local chapters by the SC7 team is advancing under the guidance of Prof. Ashish Juneja. A one-day workshop on Sustainable Geotechnics and Geophysical Investigations for Site Characterisation was organized by the IGS Calicut chapter and NIT Calicut on February 16, 2024. During the seminar, Prof. S. Chandrakaran was honoured with his superannuation. An International Symposium on Geotechnical Aspects of Heritage Structures (ISGHS 2024) as part of the celebration of the 60th anniversary of NIT Trichy and the 10th year Celebration of the IGS Trichy chapter was held from February 14-16, 2024, at NIT Trichy. Prof. T.G Sitaram, Chairman AICTE, Dr. Alessandro Flora, Dr. Guilia M B Viggiani, Prof. Efrain Ovando Shelly, Dr. Arun Menon, Dr. Pierre Smars, Prof. Guido Gottardi, Prof. Yoshinori Iwasaki and Ar. A.J Raman delivered the Keynote lectures for the symposium. I appreciate the efforts of the IGS Trichy team, led by Prof. K. Muthukumar, Chairman and Senthilkumar Secretary, in the successful conduct of the symposium. A one-day workshop organized by the IGS Pune chapter on Developments in Bridge Engineering in association with PWD Maharashtra at PWD Visweswarya Hall, Pune, on January 23, 2024.

The 53rd local chapter was inaugurated at Sasi Institute, Thadepallidugem, Andhra Pradesh, on 10th February 2024. The 55th local chapter was inaugurated at NIT Hamirpur on March 21, 2024. I wish all the best for the future endeavours of the new chapters. Planning for opening new chapters in Palakkad, Dehradun, Lucknow, Madurai, Gorakhpur, and Aligarh is underway. I appreciate the efforts of the SC8 team led by Prof. Dasaka Murthy. Few student chapters were opened, and numerous student chapter activities were organized during this period. Delivered a Guest lecture for the technical event organized by the IGS Student chapter in association with the Department of Civil Engineering at SRMIST on February 8, 2024. I appreciate the efforts of the SC9 team led by Prof. G Sridevi and the IGS Pune chapter team to form new student chapters and conduct numerous activities to promote IGS among the student community.

I thank the SC10 team, headed by Prof. Thyagaraj, for their efforts in nurturing the young geotechnical engineering community. With the guidance of Prof. B.K. Maheshwari and the SC11 team, progress is being made on the documentation and guidelines for the IGS virtual library, and data is getting uploaded to our website. I appreciate the SC12 team, led by Prof. Deepankar Choudhury and the editorial board, for their sincere efforts to improve the standards and visibility of the Indian Geotechnical Journal. I extend special thanks to Prof. Ravi Jakka and the SC13 team for their commitment to publishing the IGS newsletter on schedule, which provides good technical reports and valuable insights into the activities, achievements and growth of IGS nationwide.

I got the opportunity to deliver technical sessions on March 22, 2024, for the Two-Day Capsule Course on Code of Practices for the use of

Coir Geotextiles organized by BIS and CCRI held from 21-22 March 2024 at CCRI, Kalavoor. I want to acknowledge the efforts of the SC14 team under the leadership of Prof. H.N. Ramesh for their assistance with BIS activities and making contributions from IGS in the revision and formation of the new codes.

Had the opportunity to attend the inaugural function of "Women Indian Geotechnical Conference-Geotechnics Towards Sustainable and Resilient Infrastructure WIGC- GEOSUŚRI" held during March 8-9, 2024 at the College of Engineering Guindy Campus, Anna University, Chennai, organized by IGS Chennai Chapter, in association with College of Engineering Guindy, Anna University and Indian Institute of Technology Madras, Chennai, marking the 75th year Diamond Jubilee of the Indian Geotechnical Society. I appreciate the efforts of Chairpersons - Prof. K. Premalatha and Prof. M. Mutharam and the SC15 team guided by Prof. G. Madhavi Latha for the well-conducted event.

The SC16 team, led by Dr A.P. Singh, Hon. Secretary IGS, and Dr. Abhay Gupta, is focused on the possibility of finding suitable land in Delhi for an IGS house. The possibility of establishing efforts for the Indian Geotechnical Institute (IGI) was discussed by the SC17 team under the leadership of Prof. R. Ayothiraman. Overall, the committee felt that IGI could not align with all the activities of the Norwegian Geotechnical Institute. However, IGI may focus on consulting services through panels/committees of identified experts across the various domains of geotechnical engineering. However, considering the challenges pointed out, a vast exercise is needed on the framework, formation/ registration process, functional procedures, financial models, etc. The Skill Development Committee SC18 team, headed by Prof. K. Balan, is working out the modalities for training field and lab personnel to improve the quality of geotechnical testing. IGS is working closely with NABL to enhance the standard of laboratory testing and provide more accessors for NABL to improve the quality of testing in the country. I congratulate the SC19 team led by Dr. K. Muthukumar.

The SC20 team, led by Prof. Anitha G Pillai, is working to enhance the visibility of the Indian Geotechnical Society on all social media platforms by updating the significant events organized by IGS. Under the leadership of Prof. N. Unnikrishnan, the SC21 team plans to develop a data bank of soil profiles from reliable geotechnical engineering sources. The SC22 team, led by Prof. Ravi Shankar Jakka, provides software support to student members for their academic needs.

The 238th National Executive Committee meeting was held at IIT, Madras, on 9th March 2024. Thanks to the IGS Chennai Chapter team for hosting the National Executive Committee meeting and for the excellent hospitality. The official launching of the website of the prestigious annual conference, IGC 2024, jointly organized by the IGS Aurangabad chapter and Maharashtra Institute of Technology, Aurangabad, was done on February 15, 2024. Requesting all geotechnical members to contribute to our annual conference and make it a grand success like IGC's of previous years. The planning of the 1st Geotech Asia conference is progressing well under the leadership of Prof. Ashish Juneja, and the venue is finalised as Taj de Cidade, Goa.

We had the sad demise of Dr. N.V. Nayak, Dr. D.N. Naresh and Er. S.H. Londhe on March 27, 2024. I express my deep condolence and pray to the almighty to give strength to their families to bear the loss, and may the departed souls rest in peace.

Look forward to the upcoming activities of local chapters and the enthusiastic involvement of all members in the events arranged by the Indian Geotechnical Society. In closing, I'd like to share a quote by Robert Collier: "Success is the sum of small efforts, repeated day in and day out." With our committed team, we will succeed in expanding and disseminating our knowledge. I firmly believe that "Together We Can and We Will."

Wishing you all good health and happiness.

Dr. Anil Joseph

GeoSutra 5: Deformation Modulus IS NOT a Unique Parameter

Madhira R. Madhav^{1*} and Baadiga Ramu²

AICTE-INAE Fellow, Professor Emeritus, and Visiting Professor, IIT Hyderabad and JNTUH, India
Assistant Professor, Indian Institute of Technology Indore, India

Introduction

Mechanical properties of engineering materials are majorly characterized by the two most important properties: ultimate strength and initial stiffness. For almost all manufactured materials except soils these are unique and thus listed. For example, the elastic modulus or Young's modulus of steel is 210 GPa, no matter whether one gets the material from anywhere, e.g., SAIL, Tata Steel, etc. Similar values can be listed for the other metals. Young's modulus for concrete is also well established but with slightly more uncertainty than steel. The same uniqueness cannot be claimed for soils.

It should be noted that the title uses the term 'Deformation Modulus' and not 'Elastic Modulus' or 'Young's modulus', which is loosely used in Geotechnical Practice in spite of the very well fact that soils ARE NOT elastic materials. The strain or deformation recovered on unloading is often less than 10% and, most of the time, even less than 5% of the value during first loading.

The following note establishes the deformation modulus to be dependent or function of several considerations or applications, such as

1. Type of test: Triaxial, Direct Shear, or Oedometer;
2. Type of Triaxial Test: Drained, consolidated undrained or undrained;
3. The direction of the stress probe – increase or decrease of major or minor principal stress,
4. Stress level;
5. Strain level;
6. Anisotropy - Direction of sample extracted from the ground;
7. Non-homogeneity – Sample location: depth-wise or laterally;
8. Loading and Unloading; and
9. Type of loading – axial compression, pullout or lateral loading (this effect will be dealt in another Sutra).

Definition: The non-linear nature of the deviatoric stress–strain plot is depicted in Fig. 1. A variety of deformation moduli can be defined, e.g., tangent, secant, unload-reload, etc., as depicted in Fig. 1. Tangent modulus is defined as the slope of the stress–strain curve at any point (stress or strain). Secant modulus is the slope of the straight line from the origin to any point on the stress–strain curve and represents an average value for the

stress or strain range of interest. Unload – reload modulus as the term itself defines the average slopes of the unload – reload curves.

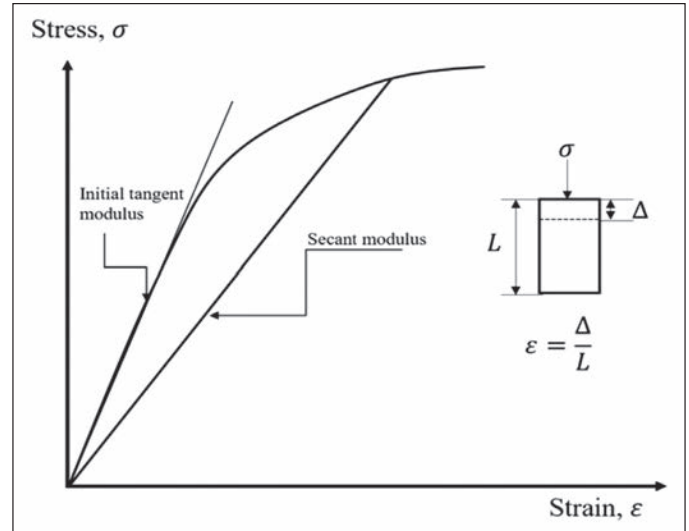


Fig. 1: Definitions of Deformation Moduli

Strain Level: The deformation modulus, either tangent or secant ones, is very sensitive to the strain level being very large at very small strains and decreasing with strains gradually at small strains and then rapidly with further increase in strain (Fig. 2). Geophysical tests (cross hole, downhole, up hole, MASW, etc.) at extremely low strain levels and provide the highest modulus value while penetration tests (SPT, CPT,

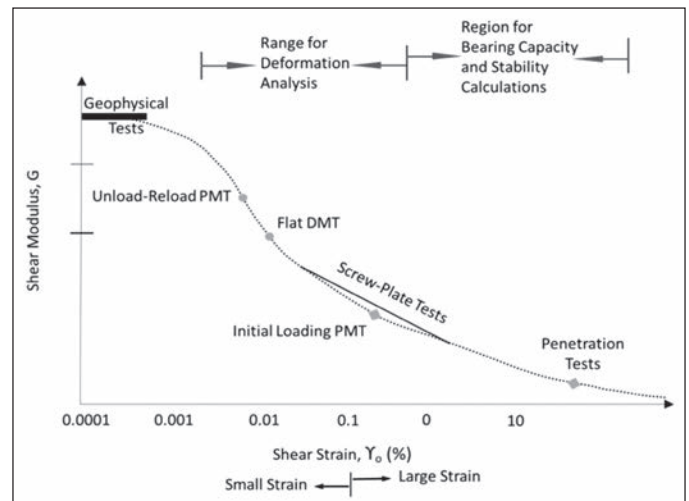


Fig. 2: Shear stiffness as a function of strain level and type of test

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and CPTu) are close to failure strains of the order of 10% or more and lead to the least value of the modulus. Modern and sophisticated in situ tests such as pressuremeter and flat plate dilatometer tests give moduli at intermediate strain levels of 0.01 to 0.1% strain, which corresponds closest to the range for deformation analysis of foundations and earth structures.

Figs. 2 and 3 depict the full range of variation of shear stiffness with strain and strain ranges for different test types. Shear modulus is highest at extremely small strains of the order of 10-4% and decreases to a value less than one-tenth of the same for strains of 5% to 10%. Small strain modulus is obtained from geophysical tests. Unload – reload response with Pressuremeter test gives modulus at strains less than 0.01%. The modulus from the dilatometer test corresponds to a strain level of about 0.02 – 0.03%, while initial loading from the pressuremeter test corresponds to a strain of about 0.2%. Penetration tests, SPT and CPT, lead to shear moduli at a high strain level of 10 to 20%. Screw plate load tests cover a large range of strains from a minimum of 0.05% to a maximum of about 1%.

Interestingly, strain levels for deformation/settlement analysis are in the range of 0.005% to 0.5%, the lower values corresponding to foundations on granular soils or deep foundations and the upper range for foundations on soft ground. The shear modulus estimated based on penetration tests is very conservative, possibly one to two orders less than the most likely value.

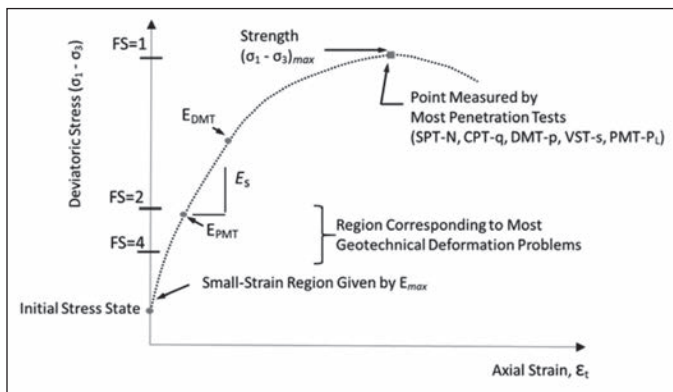
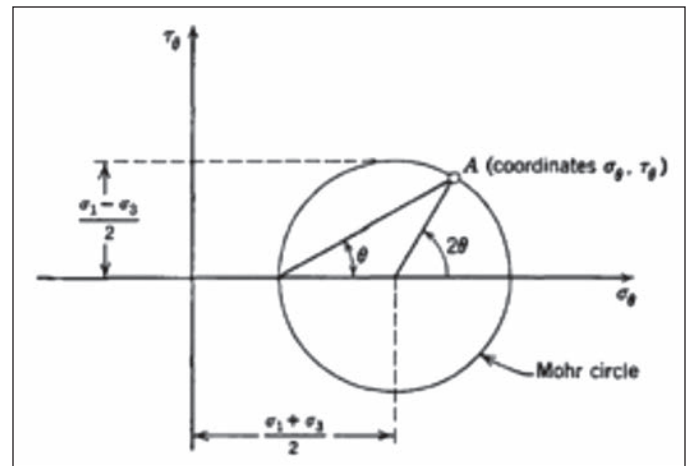


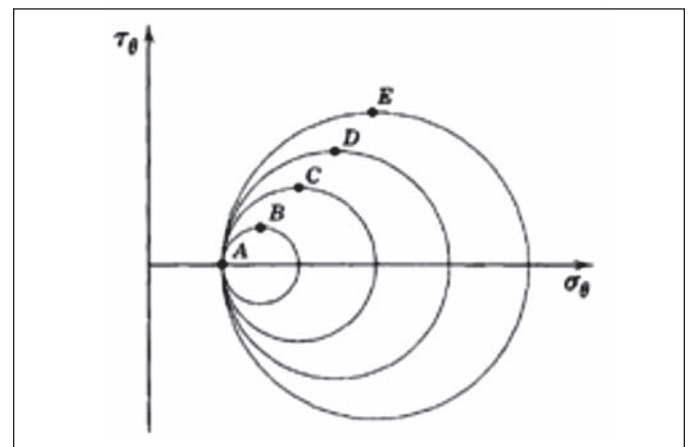
Fig. 3: Deformation moduli as a function of strain and type of in situ tests (redrawn after Sabatini et al. 2002)

While the dynamic tests with strain level of about 10-6 give larger values of deformation modulus, both pressuremeter and dilatometer tests provide smaller values than those required for design that corresponds to factor of safety in the range 2 to 4 and strain level less than 0.01%. It may be prudent to consider the secant modulus corresponding to factor of safety of 3 for estimating settlements of foundations which are often less than 25 mm.

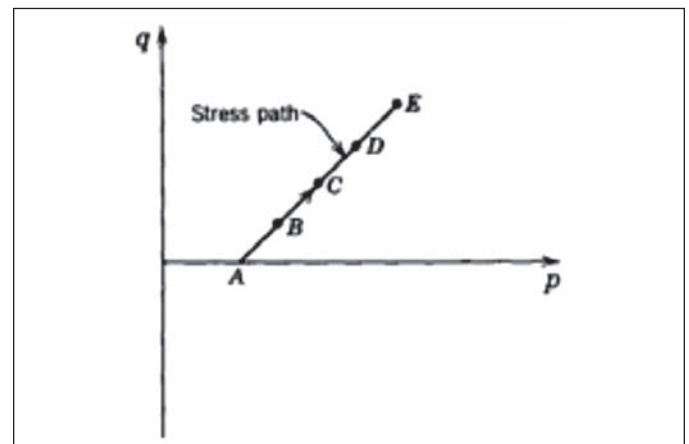
Stress Paths: One of the best and simplest ways to appreciate how different values of the deformation modulus of soils are to be considered is through the very simple and elegant concept of ‘Stress Path’ introduced by Lambe and Whitman (1969). The state of stress at any point in the plane stress field is normally expressed in terms of normal, σ_x and σ_y and shear, τ_{xy} , stresses from which the Mohr’s circle (Fig. 4a) can be drawn.



(a)



(b)



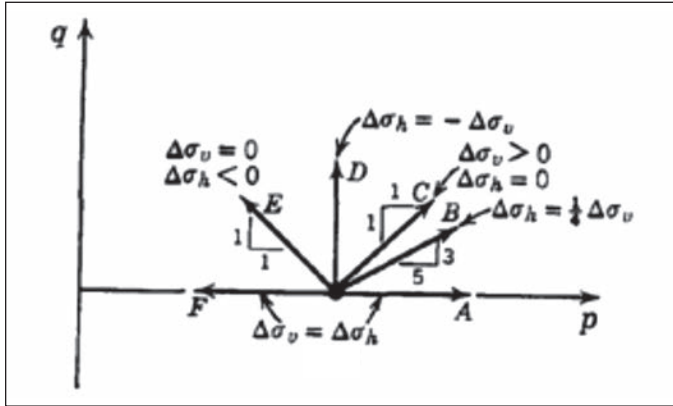
(c)

Fig. 4: Mohr’s circle: a. Mohr’s circle, b. Mohr’s circles for increasing Deviatoric Stress, and c. Stress Path (after Lambe and Whitman 1969)

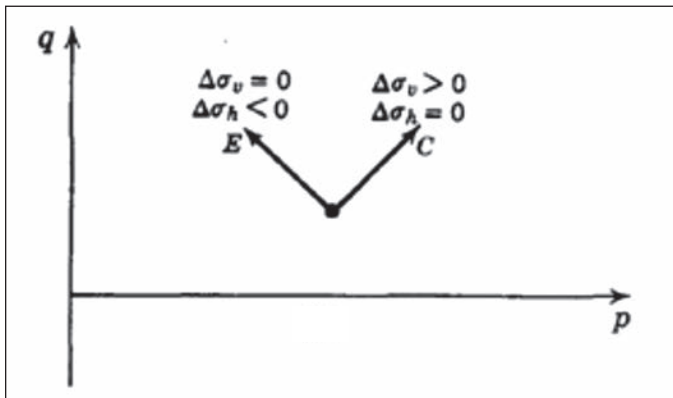
The Mohr’s circle (Fig. 4a) can be represented by the coordinate of its center defined in terms of the average of the major and minor principal stresses, σ_1 and σ_2 and half the difference of the principal stresses as the radius. Terms p and q are defined as $p = (\sigma_1 + \sigma_2)/2$ and $q = (\sigma_1 - \sigma_2)/2$

If the sample is probed with an increase in axial stress, each state is represented by a different Mohr’s circles (Fig. 4b) for each stress level. However, it is elegant to plot the stress points

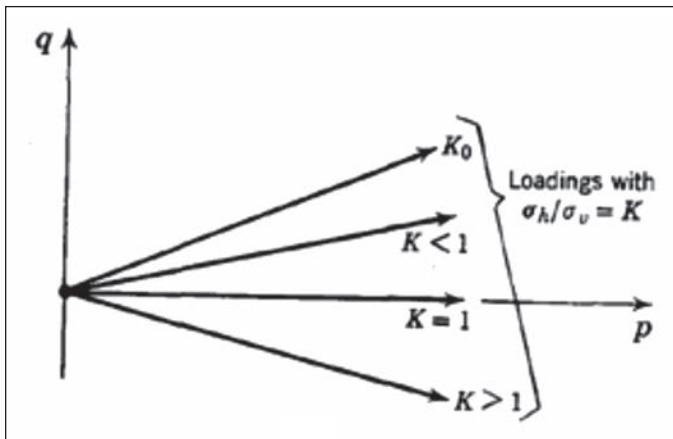
(Fig. 4c) in terms of parameters 'p' and 'q' to depict the path of increasing stress. The parameters 'p' and 'q' represent the stress point (concise form of visualizing Mohr's circle) in the σ - τ space. The path, A-B-C-D-E, taken by the stress points becomes 'stress path'. Thus stress path facilitates understanding soil behavior under different stress probes, i.e., the changes in the stress states.



(a)



(b)



(c)

Fig. 5: Examples of Stress Paths: (a) $\sigma_v = \sigma_h$ initially, (b) $\sigma_v > \sigma_h > 0$ initially and (c) $\sigma_v = \sigma_h = 0$ initially (from Lambe and Whitman 1969)

The whole gamut of loadings can be visualized from the stress paths depicted in Fig. 5. Stress paths A and F (Fig. 5a) represent hydrostatic loading and unloading respectively. Stress paths B and C correspond to the loadings in which increment in vertical

stress, $\Delta\sigma_v$, is larger than the increment in horizontal stress, $\Delta\sigma_h$. Stress path D represents situation of $\Delta\sigma_v = \Delta\sigma_h$ while stress path E corresponds to cases where lateral stress, $\Delta\sigma_h$, reduces while the vertical stress remains unaltered as in the case of soil tending to an active state limit equilibrium.

Stress paths C and E (Fig. 5b) are exactly inclined at 45° to the horizontal with one of the stresses remaining constant and the other stress increasing or decreasing (E). For vertical stress, $\Delta\sigma_v$, increasing with the ratio of $\Delta\sigma_h/\Delta\sigma_v$ remaining constant stress paths given in Fig. 5c are obtained. For stress states along depth are plotted, stress path corresponding K_0 condition is arrived at as shown in Fig. 5c.

The stress changes can be visualized alternatively as: vertical stress increment, $\Delta\sigma_v$, larger than the horizontal stress increment, $\Delta\sigma_h$, the stress path falls in the first quadrant (path C) (Fig. 5a), for decrement of horizontal stress, $\Delta\sigma_h < 0$, the stress path, (path E), is in the fourth quadrant (Fig. 5b). If both the stresses, σ_v and σ_h change in the same proportion, paths depicted in Fig. 5c are obtained. Complete understanding of the stress paths can be obtained from Lambe and Whitman (1969) and Parry (2004).

Test	Isotropic compression	Confined compression (oedometer)	Triaxial compression	Direct shear
Basic conditions				
Stress path				

Fig. 6: Stress Paths for Different Laboratory Tests; (a) Hydrostatic compression, (b) One-dimensional compression, (c) Direct Shear Test: A-B Normal Loading and B-C Shear Loading and (d) Triaxial Test: A-B Hydrostatic Compression, B-C Compression and B-D Extension (from Lambe and Whitman 1969)

The reality check of why the slopes of the stress - strain curves are different for different laboratory tests on soil samples can be clearly realized from the different stress paths followed in each of the routine laboratory tests (Fig. 6).

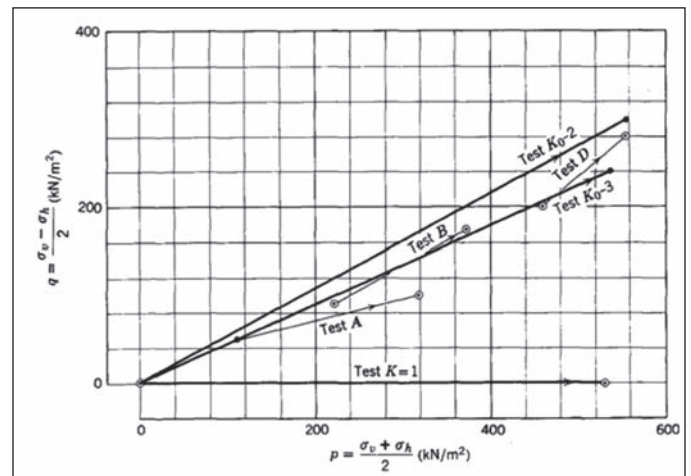


Fig. 7: Stress Paths for Tests (Lambe and Whitman 1969)

Lambe and Whitman (1969) report stress – strain curves for three stress paths, A, B and D, with increasing slope, i.e., with increasing ratio of vertical, $\Delta\sigma_v$, to lateral, $\Delta\sigma_h$, stress increments, $\Delta\sigma_v/\Delta\sigma_h$ as depicted in Fig. 7. The slope of the stress – strain curve, i.e., the deformation modulus decreases (Fig. 8) with increasing ratio of deviatoric to hydrostatic stresses, $\Delta\sigma_v/\Delta\sigma_h$, being highest for hydrostatic stress increment and minimum for pure deviatoric stress increment in which $\Delta\sigma_h$ is zero. As is to be expected the moduli is five to ten times larger on second/reloading attesting to the fact soils are in-elastic.

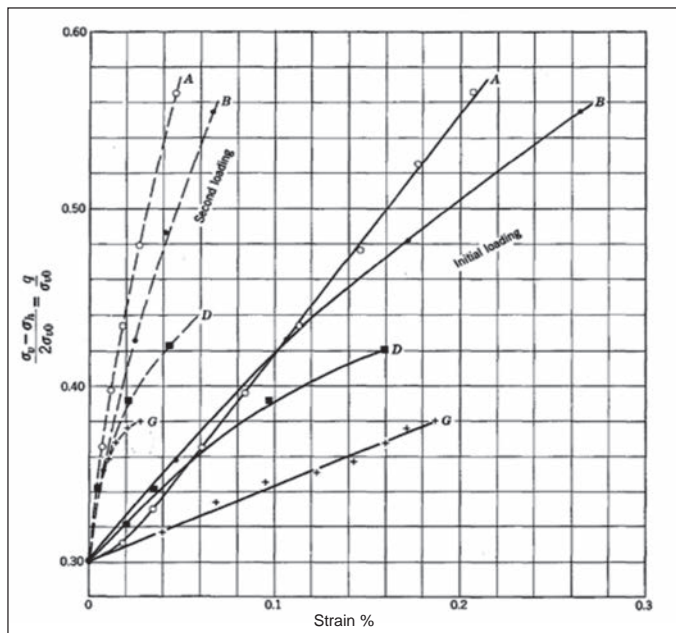


Fig. 8: Stress-Strain and Volume Change Plots for the Different Stress Paths (Lambe and Whitman, 1969)

The unload – reload response (Fig. 9) clearly demonstrates hysteresis behavior as is the case in metals. The figure also depicts unusual phenomenon of initial flat slope of stress – strain curve for jointed rock arising from closing of open joints before firm rock to rock contact across the joint surfaces is attained.

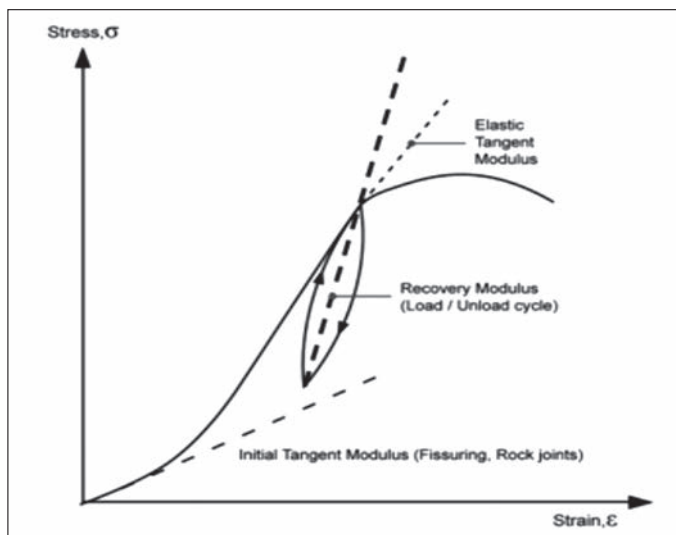
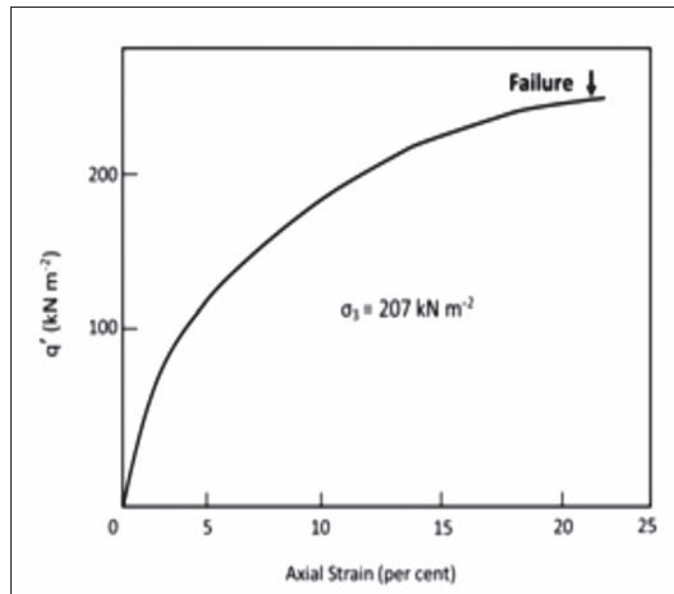
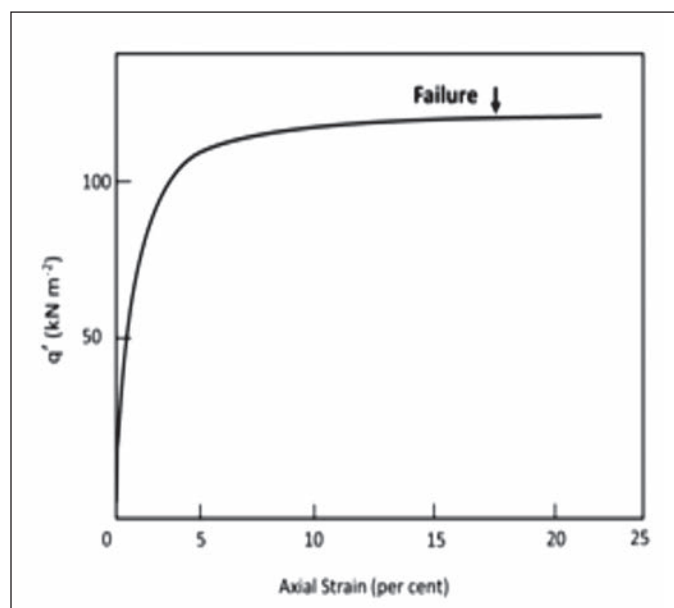


Fig. 9: Load – Unload – Reload Response (after Look 2007)

The classic results (Fig. 10) from Bishop and Henkel (1962) illustrate the large differences in the drained and undrained response of soils. The stress – strain curve is relatively gradual for drained conditions, while the stress increases steeply with strain in undrained cases. The undrained strength is less than the drained one but the modulus for drained condition is much smaller than that for the undrained state.



(a)



(b)

Fig. 10: Stress-strain curves (a) Drained and (b) Undrained Tests on NC Clay (after Bishop and Henkel, 1962)

Finally some results are given below that show the variability in estimation of deformation moduli from different tests (in situ and laboratory) and based on empirical studies. The deformation modulus (drained and undrained) based on CPT, SPT, Plasticity and overconsolidation ratio (OCR), etc. are given in Tables 1 to 5 for reference.

Table 1: Deformation Parameters from CPT (from Fugro 1996 and Meigh 1987)

Parameter	Relationship	Comments
Coefficient of volume change, m_v	$m_v = 1/(\sigma_{qc})$	For normally and lightly over consolidated soils $\sigma = 5$ for classifications CH, MH, ML $\sigma = 6$ for classifications CL, OL $\sigma = 1.5$ for classifications OH with moisture >100% for over consolidated soils $\sigma = 4$ for classifications CH, MH, CL, ML
Constrained modulus, M	$M=3q_c$	$M=l/m_v$
Elastic (Young's) modulus, E	$E=2.5q_c$	Square pad footings - axisymmetric
	$E=3.5q_c$	Strip footings - plane strain

Table 2: Drained Modulus of Sands from CPT (after Look 2007)

Relative density	Cone resistance, q_c (MPa)	Typical drained elastic modulus, E (MPa)
V. loose	<2.5	<10
Loose	1.5 - 5.0	10 - 20
Med dense	5.0 - 10.0	20 - 30
Dense	10.0 - 20.0	30 - 60
V. dense	>20.0	>60

Table 3: Drained and Undrained Moduli of Clays from SPT N (after Look 2007)

Material	E'/N (MPa)	E_u/N (MPa)
Clay	0.6 to 0.7	1.0 to 1.2
	0.9 for $q/q_{ult} = 0.4$ to 0.1	6.3 to 10.4 for small strain values ($q/q_{ult} < 0.1$)
Weak rocks	0.5 to 2.0 for N_{60}	

$E_u/N = 1$ is appropriate for footings.

For rafts, where smaller movements occur $E_u/N = 2$.

For very small strain movements for friction piles $E_u/N = 3$.

Table 4: Drained Modulus from Plasticity and undrained Strength (after Stroud and Butler, 1975)

Soil plasticity, %	E'/C_u
10-30	270
20-30	200
30-40	150
40-50	130
50-60	110

Table 5: Undrained Modulus based on PI & OCR (after Jaimolkowski et al. 1979)

Over consolidation ratio	Soil Plasticity	E_u/C_u
<2	PI <30%	600-1500
2-4		400-1400
4-6		300-1000
6-10		200-600
<2	PI = 30-50%	300-600
2-4		200-500
4-10		100-400
<2	PI >50%	100-300
2-10		50-250

Conclusion/Moral of the Story:

The two most important and very relevant mechanical parameters for Geotechnical Design, viz., the deformation modulus, E_s , and the undrained strength, c_u , are highly variable and strongly depend not in terms of formation in nature but on what stress changes that are brought about by engineering activity, i.e., gravity loading, excavation, lateral movements, etc. It should be noted that these two parameters are not what was determined in the laboratory prior to construction activity! This aspect makes practice of Geotechnical Engineering most challenging for a rational exponent!!!

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Forecasting Rainfall-induced Landslides: Lessons Learned from Local Scale and Regional Scale Studies

Minu Treesa Abraham¹ and Neelima Satyam²

Landslide Early Warning Systems

In the vast and diverse landscape of India, the significance of effective landslide forecasting cannot be overstated. With varied topographies, monsoon seasons, and seismic activities, the country faces an elevated risk of landslides, threatening both human lives and critical infrastructure. Timely and accurate forecasting is paramount to mitigate the impact of these natural disasters, allowing authorities to implement preventive measures, ensure public safety, and safeguard against the devastating consequences of landslide events. Scientific interest in forecasting landslide events has intensified, aiming to develop operational landslide early warning systems (LEWS) that provide timely information on the spatial and temporal aspects of landslides (Leonarduzzi et al., 2017). An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous event can be termed as an early warning system (UNGA, 2016), and an LEWS is one such system devoted to landslides. Such systems are crucial for mitigating the aftereffects of these hazards, offering valuable insights for concerned authorities (Leonarduzzi et al., 2017).

The development of LEWS depends on various factors, including scale, landslide typology, and end-user compatibility. This article deals with the process of developing a landslide forecasting framework for rainfall-induced landslides, which is a crucial part of an LEWS. Once rainfall is identified as the primary trigger of landslides in an area, it is critical to identify storm conditions immediately preceding the event (Caine, 1980; Guzzetti et al., 2020; Segoni et al., 2018). The first step is to have a database of historical landslides and rainfall events, assuming the other conditioning factors like topography and soil conditions remain unchanged over the time. The information should include the time and location information of both rainfall and landslide, along with the type and mechanism of landslides. This is a critical aspect in both local and regional scale studies. The local LEWS deals with a single landslide system at slope scale, while the LEWS in regional scale deals with multiple landslides over a wider area (Calvello and Piciullo, 2016; Piciullo et al., 2018).

Local and slope-scale forecasts can be implemented through process-based approaches and real-time field monitoring, while regional, national, and global-scale forecasting, often relies on empirical or statistical rainfall thresholds (Baum and

Godt, 2010). These thresholds typically leverage historical relationships between rainfall and landslides to predict future occurrences. The approaches for forecasting landslides are decided based on the type of landslide, mechanism of failure and the scale. This article showcases the results from a local scale and a regional scale study, on forecasting rainfall-induced landslides using multiple approaches. A generalised workflow is proposed for the development of LEWS, based on the observations from the case studies discussed.

A local scale case study from Kalimpong

In local scale studies, there is one or a limited number of slopes that are under consideration, and the concern is to forecast landslides in these specific slopes, based on site-specific triggering factors. A detailed case study was conducted in the town of Kalimpong in West Bengal, with field monitoring from 2017 to 2020 (Satyam and Abraham, 2021). The study addresses two essential components of LEWS for rainfall-induced landslides, focusing on threshold development and field monitoring, taking into account both theoretical frameworks and practical considerations. The detailed exploration covers various rainfall thresholds established for the region, along with an in-depth analysis of the implemented field monitoring system consisting of micro-electromechanical systems (MEMS) based tilt sensors and volumetric moisture content sensors, collecting and transferring data in every 10 minutes. This initiative marks a pioneering effort in India, where multiple thresholds are defined for a specific study area and validated using real-time field monitoring data.

The findings reveal that the algorithm-based SIGMA model demonstrates superior accuracy in predicting landslides in Kalimpong compared to other models under consideration (Abraham et al., 2020). The selection of the most suitable method among threshold models is site-specific, recognizing that a singular model may not universally excel across diverse hydro-geological and climatic conditions. The choice of the most fitting method is based on a rigorous quantitative comparison, advocating for the adoption of this approach in regions susceptible to rainfall-induced landslides. This facilitates the identification of an optimal landslide forecasting model tailored to the specific characteristics of the region.

The installation of the field monitoring system served dual purpose: firstly, to acquire real-time and reliable in-situ data, and secondly, to validate the previously derived rainfall thresholds for the region. Rigorous validation of the reliability of the collected data is conducted through meticulous field

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observations, subsequently employed in the validation process for the established rainfall thresholds. The identified best-suited model can seamlessly integrate with the field monitoring results, mitigating the risk of false alarms and contributing to the establishment of a robust local landslide forecasting framework. This is a critical step in local scale LEWS, where the threshold conditions, data-driven or process-based, need to be cross-checked with the ground conditions, like tilt and hydrological conditions, before issuing an alert. The starting algorithm used for integrating the customised SIGMA model for Kalimpong with the measured tilt rates is shown in Figure 1. The vector C represents the cumulative rainfall, and the subscripts of C represents the number of days of rainfall. The variable σ represents the standard deviation of the distribution of the considered cumulative rainfall vector, and CR is the critical tilt rate adopted for the study area, based on trial-and-error approach. This approach checks for the tilt rate before issuing a yellow alert, and considerably reduces the number of false alerts, increasing the reliability of the proposed forecasting framework. The method is simple and easily exportable, which can be customised for any study area, based on type of landslide and parameters to be monitored. Geotechnical engineers have a critical role in improving India's local scale landslide forecasting frameworks using field-based monitoring data. Field monitoring important from both disaster management and an asset management perspective. The monitoring part is as important as field investigations and laboratory experiments, and it is still not widely practiced in India. The practitioners should assure the performance of geotechnical designs and evaluate any potential hazard scenarios using real-time field monitoring.



Figure 1: Decisional algorithm used for calibrating the combined SIGMA+tilt model for Kalimpong (Abraham et al., 2021a)

Regional scale case studies from Kerala

On regional scale, it is important to forecast where and when landslides can happen. This requires thorough understanding of the hydro-meteo-geological conditions of the study area,

and detailed data collection of all the spatial conditioning factors as well as the temporal triggering factors that can lead to a landslide. The regional scale studies were conducted for Idukki and Wayanad districts of Kerala state, where devastating landslide incidents are reported during monsoon seasons. While debris flows accounts for most lives lost in these economically backward districts, the number of shallow landslides is also critical, considering the socio-economic setbacks resulting from landslides in monsoons. For temporal forecasting, the study employed various approaches to derive rainfall thresholds, primarily based on the historical relationship between rainfall and landslides. The first step involved establishing Intensity-Duration thresholds, utilizing the historical correlation between landslides and rainfall. Event-duration (ED) thresholds were defined through an algorithm-based approach, specifically the Calculation of Thresholds for Rainfall-induced Landslides Tool (CTRL-T)(Melillo et al., 2015). The study also explored probabilistic thresholds using a Bayesian approach, incorporating the posterior probability of landslide occurrence based on control parameters (Abraham et al., 2021b). Additionally, a statistical SIGMA model was employed, considering both long-term and short-term rainfall for defined subdivisions within the study area (Abraham et al., 2021c; Martelloni et al., 2012). Quantitative comparisons revealed that probabilistic thresholds, considering both rainfall severity and antecedent soil wetness, outperformed other models in both districts. This finding not only showcased the efficacy of integrating different approaches but also opened new avenues for developing operational LEWS in these regions.

The subsequent stage of the study focused on identifying critical locations susceptible to landslides through Landslide Susceptibility Maps (LSMs) (Merghadi et al., 2020). Five advanced machine learning algorithms were employed to find the best-suited one for the study areas. Among the considered algorithms, Random Forest (RF) was found to be better for both the study areas considered. Further, three spatio-temporal forecasting models were devised, one a data-driven approach combining the best performing machine learning model for spatial prediction, and the best performing rainfall threshold, and two more, using physically-based models that emphasized understanding hydrological mechanisms using factor of safety values. The data-driven model is named as RF model, after the machine learning algorithm used for developing the LSM. A matrix-based approach was adopted to combine the spatial and temporal probabilities of occurrence of landslides, as shown in Figure 2. The study employed two digital elevation models (DEMs) – one with 12.5 m resolution from AlosPalsar and another with 30.4 m resolution from the CARTOSAT.

Temporal Probability	Spatial Probability				
	Very low	Low	Medium	High	Very high
Very low	Very low	Very low	Very low	Low	Low
Low	Very low	Very low	Low	Low	High
High	Very low	Low	Low	High	High
Very high	Very low	Low	High	Very high	Very high

Figure 2. Matrix to combine spatial and temporal probabilities of occurrence of landslides, to define landslide susceptibility and different alert levels, indicated by the colours (Abraham et al., 2023).

The results indicated that the data-driven model, using the 12.5 m DEM, performed exceptionally well for both districts. The effectiveness of the RF model was notably influenced by DEM resolution, emphasizing the significance of finer resolution data. The study underscored that process-based approaches were comparable to data-driven models, especially with precise data collection and fine property zoning, making them applicable for regional-scale forecasting, whenever precise data collection is possible. The proposed framework integrated rainfall forecasts, antecedent soil moisture data, and LSMs, providing a spatiotemporal framework for landslide forecasting. The results can contribute significantly to the planning and development activities of the regions. The developed maps could be further refined using local administrative boundaries, facilitating targeted alerts by concerned authorities. While geological and hydrological spatial layers are available for India, a geotechnical database with subsurface information is still unavailable. This limits the potential use of process-based models on regional scale landslide forecasting (Abraham et al., 2023). These models have great potential as they explain the physics behind failure, unlike the black-box machine learning models, and they can be further integrated to probabilistic or process-based runout models, which can facilitate full scale digital twins for understanding the risk and adopting necessary risk reduction methods.

Recommendations for developing LEWS

The process of developing landslide forecasting framework, which is an integral component of the LEWS, both on local scale and regional scale studies required strong scientific interventions. An overview of the workflow, considering both local and regional scales are mentioned in Figure 3. The role of geotechnical engineers in addressing this issue is vital, ranging from understanding the mechanism, finding the ideal parameters to be monitored, and setting standard protocols for issuing alerts. Geotechnical subsurface data, real time field monitoring and the analysis of collected can support the decision makers to foresee a possible landslide hazard, and also help them in implementing necessary mitigation measures specific to the case

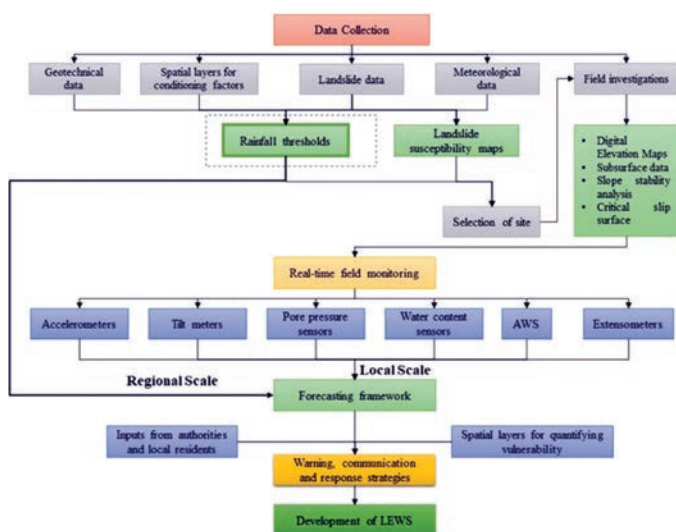


Figure 3. Workflow for developing LEWS for rainfall-induced landslides on regional and local scales

considered. The case studies underscore the critical importance of interdisciplinary collaboration in devising solutions for the complex challenges posed by landslide hazards. Through such concerted efforts, the path is paved towards fostering resilience and minimizing the impact of landslides on vulnerable regions.

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SUMMARY OF Ph.D THESES

Title of Thesis:

Root Reinforcement Potential of Vegetation for Slope Stabilization of Coal Mine Overburden Dumps



Name of the Student: Dr. Ashutosh Kumar

Supervisor: Prof. Sarat Kumar Das and Prof. Lohitkumar Nainegali

Department & Institute: Indian Institute of Technology (Indian School of Mines) Dhanbad

SUMMARY: This comprehensive study advances coal OB dump slope stabilization through root analysis, probabilistic slope stability assessment, and environmental impact evaluation. Enhancing coal mine overburden (OB) shear strength is crucial to tackle slope instability issue. Plantation efforts on OB slopes lack exploration of root architecture and strength, vital for sustainability. A probabilistic approach, accounting for OB dump variability and vegetation uncertainties, is necessary for slope safety assessment. Vegetative cover offers sustainable protection against slope failures but requires small-scale validation. Integrating organic amendments and root reinforcement enhances soil shear strength, ensuring long-term stability. Probabilistic findings have broader implications for evolving dump profiles due to erosion, contributing to sustainable slope management.

Title of Thesis:

Experimental and Numerical Evaluation of Mechanical Response of Unsaturated Soils and their Application to Embankments and Footings



Name of the Student: Dr. Rakshanda Showkat

Supervisor: Prof. G.L. Sivakumar Babu

Department & Institute: Department of Civil Engineering, Indian Institute of Science, Bengaluru

SUMMARY: This study investigated the mechanical behavior of unsaturated soils, through monotonic loading tests under suction-controlled triaxial conditions. Consolidated drained tests were conducted under various matric suction and net confining pressures, revealing an increase in shear strength with higher suction. Numerical models were employed to simulate soil behavior. The study implemented the Barcelona Basic Model (BBM) in FLAC to simulate rainfall effects on embankments, impacting slope stability. An anisotropic BBM (ABBM) was utilized to analyze wetting behavior and fabric anisotropy changes. Reliability analysis compared BBM, ABBM, and Mohr-Coulomb models. An equation based on Terzaghi theory is proposed to evaluate the variation of bearing capacity due to suction variations. Comparison of prediction models based on machine learning techniques is conducted for SWCC estimation. Sensitivity analysis highlighted SWCC parameters' significant influence on failure probability under infiltration.

Title of Thesis:

Vibration Control and Mechanics-Driven Machine Learning Techniques for High-Speed Railway Bridges



Name of Student: Dr. Susmita Panda

Supervisor: Prof. Bappaditya Manna and Prof. Arnab Banerjee

Department & Institute: Department of Civil Engineering, Indian Institute of Technology Delhi

SUMMARY: The thesis investigates the design parameters of high-speed railway bridges at critical locations like canals and road/railway crossings. Analysis under one-way and two-way loading scenarios, considering simply supported and elastically-supported conditions, is conducted using moving load models and Euler-Bernoulli beam idealization. A non-dimensional framework and surrogate models, particularly employing artificial neural networks, are developed for efficient computation. Additionally, a user-friendly interface is proposed in compliance with codal provisions to ascertain the dynamic response of the supporting system. The study also explores and optimizes vibration absorbers, including resonators, inertial amplifiers, and negative-stiffness inertial amplifiers, using genetic algorithms. Comparative studies highlight the superior efficacy of inertial amplifiers over resonators and elucidate the performance variations of negative-stiffness-based vibration absorbers. This research work also underscores the importance of considering resonance and cancellation speeds in bridge design, along with optimizing vibration absorber parameters, to mitigate vehicle-induced vibrations in high-speed railway bridges.

Title of Thesis:**Seismic Behaviour of Mechanically Stabilized Earth Walls: Experimental, Numerical and Analytical Approach****Name of Student:** Dr. Tirtha Sathi Bandyopadhyay**Supervisor:** Dr. Pradipta Chakraborty and Dr. Amarnath Hegde**Department & Institute:** Department of Civil and Environmental Engineering, Indian Institute of Technology Patna

SUMMARY: In this research, laboratory shaking table tests, 2D numerical studies and pseudo-static analytical approach were performed to understand the seismic behavior of the mechanically stabilized earth walls. The effects of different types of geosynthetics and backfill conditions were investigated. Further, the study also focuses on the applicability of waste tires in the form of crumb rubber as alternative fill material in MSE walls. The tests were carried out at three different ground motions with increasing peak ground acceleration. Considering the effects of base excitations, acceleration responses in the backfill, wall deformations, vertical settlements, wall pressure, and strain responses of the reinforcement were examined.

Title of Thesis:**Soil Pile Interaction Studies Using Image Analysis****Name of Student:** Dr. Sreelakshmi Gopalakrishnan**Supervisor:** Prof. Asha. M. Nair**Department & Institute:** Department of Civil Engineering (CMRIT), Visvesvaraya Technological University (VTU)

SUMMARY: The thesis investigated the crucial role of hollow-ended pile foundations in large-scale infrastructure projects. Through experimental studies and advanced image processing techniques like Particle Image Velocimetry (PIV), it assessed the plugging mechanism during pile installation in cohesionless soil. The study revealed correlations between field data and experiments, facilitating comprehension of plugged soil properties and accurate estimation of impact loading energy for pile foundations across varying soil conditions. This research enhanced our understanding of pile foundation dynamics, crucial for efficient and stable construction in various environments.

Title of Thesis:**Static and Seismic Stability Analysis of Various Slopes and Retained Backfills by Considering Constant/Variable Saturation State****Name of Student:** Dr. Sourav Sarkar**Supervisor:** Dr. Manash Chakraborty**Department & Institute:** Department of Civil Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi (U.P)

SUMMARY: The contributions of the work can broadly be viewed from the two perspectives, modification and application of variational method (VM) formulations by accounting the seismicity and heterogeneity of soil as well as rock slopes and incorporation of unsaturated soil mechanics for dealing with the slope stability and lateral earth pressure related problems. In the first part of the study, the stability analyses are performed by assuming the geo-materials to be either completely dry or completely saturated. However, in a practical scenario, most of the soil slopes lie in the arid and semi-arid zones. The second part of the study focuses on solving a range of stability problems considering unsaturated soils under the action of static/ seismic loadings and surcharge pressures.

Title of Thesis:**Performance Assessment of Bioreactor Landfill and Investigation of Use of Biochar-Amended Soil Cover System****Name of Student:** Dr. Pallavi Ashok Patil**Supervisor:** Prof. (Dr.) Mahesh Suresh Endait and Dr. Swati Ashok Patil**Department & Institute:** Department of Civil Engineering, School of Engineering and Technology, Sandip University, Nashik

SUMMARY: This research enlightens performance evaluation of bioreactor landfill in which leachate recirculation as leachate treatment and method of biochar-amended landfill soil cover system to capture GHGs complying CPCB norms. Laboratory setups simulating true landfill conditions were developed and monitored till MSW entered the maturation phase. Findings demonstrate 25% CH₄ recovery alongside substantial reductions of 60%-70% in BOD and COD of leachate, effectively extending landfill lifespan. Additionally, biochar amendment enhances landfill soil stability and yields significant reductions of 54% in CO₂ and 77% in CH₄ emissions, marking pivotal advancement in sustainable landfill management practices.

Title of Thesis:

Machine Learning – Enabled Liquefaction Hazard Assessment of Some Indian Sandy Soil Deposits



Name of Student: Dr. Tanmay Gupta

Supervisor: Prof. G.V. Ramana (IIT Delhi) and Prof. A.W. Elgamal (UCSD)

Department & Institute: Department of Civil Engineering, IIT Delhi

SUMMARY: A machine learning-enabled method is developed for predicting the probability of liquefaction triggering and evaluating liquefaction-induced settlement. CPT data from nine seismically vulnerable locations in India and scaled accelerograms are used to generate a big dataset. Based on the CPT, numerical soil columns are modelled in OpenSees. The big dataset generated is used to develop predictive models for the probability of liquefaction triggering (classification algorithms) and estimation of LISz (regression algorithms). It is observed that the XGBoost algorithm performs better than other considered algorithms. Simple user interfaces are developed which predict the probability of liquefaction triggering and LISz.

46th IGS ANNUAL LECTURE 2024



The prestigious

46th IGS Annual Lecture 2024

will be delivered by Prof. B.V.S. Viswanadham, Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai.

The topic of his lecture is

“Insights into Centrifuge-based Physical Modelling for Understanding the Performance of Geotechnical Structures”

ISSMGE BULLETIN

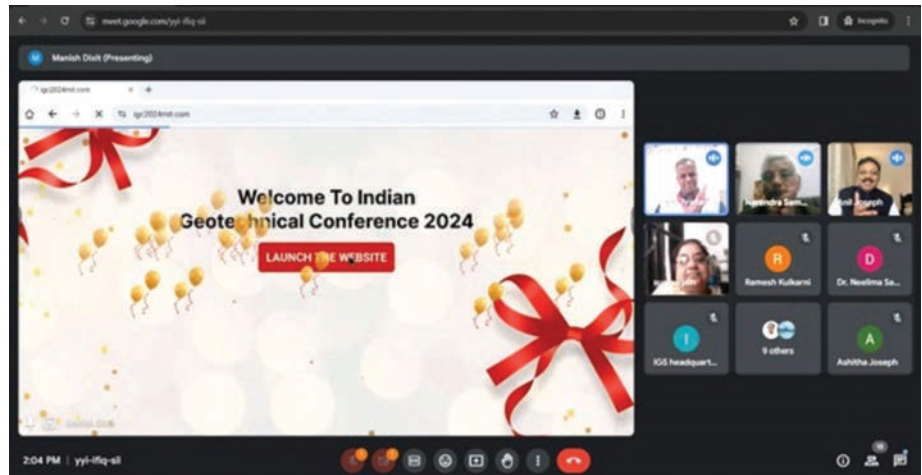
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IGS Aurangabad Chapter

The official launching of IGC 2024 website was done by Auspicious Hands of Dr. Anil Joseph (President, IGS) & Prof. Munish Sharma (Director General, MIT) on 15th February 2024 jointly organized by IGS Aurangabad chapter and MIT, Chhatrapati Sambhajnagar (Aurangabad). The Theme of the conference was “Geotechnical Engineering for a Sustainable Tomorrow (GEST 2024)” on 19, 20, 21 December 2024. Also, the 4th Indo-Japan Pre-conference workshop is arranged on 18 December 2024.



IGS Calicut Chapter

The Department of Civil Engineering (CED) at the National Institute of Technology Calicut, in association with the Indian Geotechnical Society, Calicut Chapter, organised a one-day workshop on “Sustainable Geotechnics and Geophysical Investigations for Site Characterization” on February 16, 2024. The workshop was conducted to provide a platform for participants to delve into sustainable practices and cutting-edge techniques related to geotechnics and geophysical investigations for site characterization. The program was opened by Dr. Anil Joseph, the National President of the Indian Geotechnical Society (IGS), New Delhi. Prof. Prasad Krishna, the Director of NIT Calicut, presided over the program.

The event brought together experts, researchers, and students, fostering collaboration and the exchange of ideas to address contemporary challenges in civil engineering. With a focus on sustainability, the workshop provided valuable insights into the ongoing discourse in geotechnical engineering, paving the way for environmentally conscious practices in site characterization.

Dr. S. Chandrakaran, Professor of CED, was honoured during the inaugural session of the workshop. Prof. T. M. Madhavan Pillai, the head of CED, and

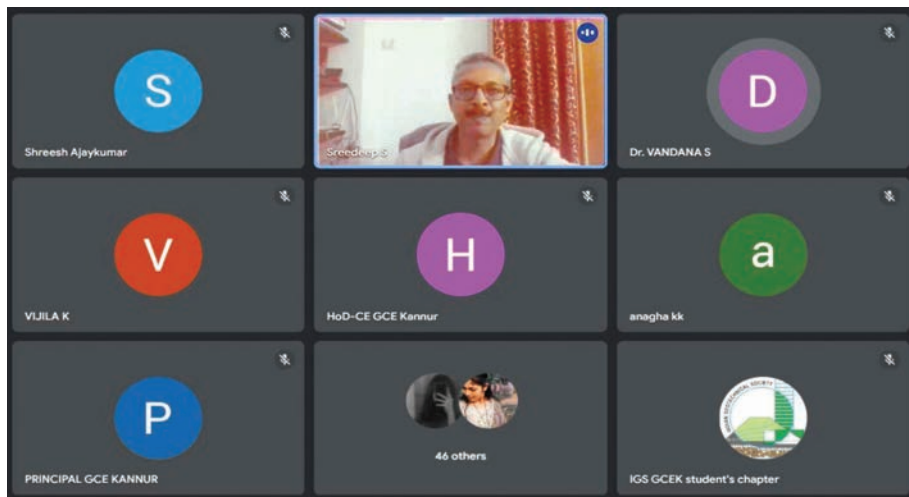
Dr. Anil Kumar, Assistant Professor at CED, also spoke at the inaugural session.

Dr. Anil Joseph delivered a keynote address on "Prefeasibility Studies, Design, and Execution of Port Structures: Case Studies." Dr. S. Chandrakaran presented a keynote session on "Studies on Lead (Pb) Contamination of Soils and Remedial Measures." Dr. Vandana Sreedharan, Associate Professor at Government Engineering College Kannur, gave a keynote session on "Engineering the Soil to Meet the Sustainability Goals." Furthermore, Dr. Kodi Rangaswamy, Associate Professor at CED, presented a session on "Site Characterization of Field Soils Using MASW, Electric Profile, and Seismic Borehole Testing Methods," which was accompanied by a field demonstration, also a highlight of the event. The program was conducted in offline mode at NIT Calicut. More than 60 delegates actively participated in the program.

The IGS GCEK students chapter conducted a 5-day online talk series Let's Talk Geotech from 23rd to 29th February. The session was organized to provide students with accessible and engaging insights into soil science and engineering to foster a deeper understanding and appreciation for the subject. The program was inaugurated by Dr. Sreedeeep Sekharan, Professor, Indian Institute of Technology Guwahati who spoke on “The Science and Engineering of Soil”. Dr. Sreevalsa Kolathayar, Associate Professor, National Institute of Technology Surathkal delivered the session, “Earthquake Hazard Assessment and Risk Mitigation”. On the third day, February 27th, the speaker Dr. Tadikonda Venkata Bharat, Professor, Indian Institute of Technology Guwahati provided a wonderful session on the topic “Rainfall Induced Landslides”. On day four, industrial expert Er. A.V.S. Chakravarti, Chief Engineering



Manager, Cochin Engineering & Consultancy Services Pvt. Ltd. gave a session on “Overview of Investigation and Pile Foundations” and for the final day, Dr. Lini Dev K, Assistant Professor, National Institute of Technology Patna handled the session “Alternative Materials for Pavement Applications, Geotechnical Characterization and Stabilization Procedures”. As a whole the online session was a success in sharing valuable information to the students and the participants and the team maintained the participation of around 70 students in all the days and the discussions were quite fruitful.



IGS Delhi Chapter

Indian Geotechnical Society, New Delhi organized first of its kind Student Conclave 2024, a technical competition focused on nurturing field problem-solving capabilities in civil engineering students. IGS Delhi Chapter Chairperson Dr. Altaf Usmani spearheaded this initiative, inviting participation from students of colleges in Delhi &

NCR Region teaching geotechnical engineering as part of their course curriculum. Student Conclave 2024 was organised in two phases; Phase I involving written submission and Phase II concerning with physical presentation by the shortlisted teams on the solution approaches for the given field problems to the jury of technical industrial experts from Delhi-NCR Region. The final round of the conclave was organised on

09 March 2024 at Jamia Millia Islamia University (JMI) Delhi. Six teams representing IIT Delhi, AMU Aligarh & JMI Delhi participated in the final round held on 09 March at JMI Delhi. Conclave was designed to encourage students to look for, out of the box solutions for different type of field problems using innovative approaches. The winner of the competition was a team of B. Tech Students from Civil Engineering Department, AMU Aligarh followed by teams from JMI and IIT Delhi. Eminent jury members; Sh. Ravi Sundaram, Director, Cengrs Geotechnica, Ms. Atasi Das, Asst. Vice President, GR Infra and Mr. Sharique Khan, Tunneling Expert, Atkins India lauded the tremendous efforts put in student teams for the event in spite of their ongoing exam timings. Student Conclave 2024 Chairman, Dr. Altaf Usmani felicitated all the teams with awards and certificates and appreciated all the student teams for their participation and spirit shown for the competition.



IGS Dhanbad Chapter

Prof. P.K. Basudhar, former Professor, IIT Kanpur (Department of Civil Engineering), delivered an expert talk on "Optimal Lower Bound Solutions to Stability Problems in Geotechnical Engineering" on March 15, 2024 (Friday) in the Conference Room of Dept. of Civil Engineering under the aegis of IGS-Dhanbad Chapter.



IGS Hamirpur Chapter

The Inaugural Ceremony of the “Indian Geotechnical Society (IGS) - Hamirpur Chapter” was organized by Department of Civil Engineering, NIT Hamirpur, on 21st March 2024. The event marked the inception of the 55th chapter of IGS, aimed at fostering knowledge exchange and promoting advancements in geotechnical/civil engineering within the region.

The event commenced with a welcome address by Dr. Kunjari Mog (Honorary Secretary of IGS Hamirpur Chapter), followed by speeches from Prof. R.K. Sharma (Chairman of IGS Hamirpur Chapter), Dr. V.K. Bansal (Head, Civil Engineering Dept.), Prof. Anoop Kumar (Dean Faculty Welfare), Dr. Archana Nanoty (Registrar), and Prof. H.M. Suryawanshi (Director NIT

Hamirpur), who expressed their support and emphasised the significance of the chapter's establishment. Dr. Anil Joseph, President of the Indian Geotechnical Society, delivered an enlightening speech on “Forensic studies of foundation failures and vibration monitoring in the construction industry”. More than 150 individuals, comprising students and

faculty members, participated in the event.

The ceremony concluded with a vote of thanks by Dr. Manendra Singh (Co-Chair of IGS Hamirpur Chapter). After the expert lecture, a short meeting was held with the office bearers of the newly formed IGS Hamirpur Chapter and Dr. Anil Joseph, President, IGS.



IGS Hyderabad Chapter

JNTUH conducted 1 Day workshop “Geotechnical Applications (GeoApps-2024)” which was aimed to provide a forum for the exchange of technical information about the design and construction of highway projects, high rise buildings, landslides mitigation, which pose challenges to geotechnical engineers in terms of complex ground conditions, difficult foundation sites, deep excavations, cost-effective solutions, etc., due to natural calamities, liquefaction of soils untreated problematic soils such as expansive soils and reclaimed soils. About 100 students (UG and PG) and research scholars attended to the workshop. Prof. M.R. Madhav, Emeritus Professor, JNTUH & Visiting Professor, IIT Hyderabad, Mr. C.R. Eswar Prasad, General Manager – Engineering Tata projects Limited, Hyderabad, Mr. C.R. Balaji, Principal Engineer, Prof. V.S. Raju, Consultants, Hyderabad, Dr. Naresh Mali, HMR, Hyderabad, Mr. S. Krishna Karthik, Technical Engineer, TenCate Geosynthetics India, A Solmax Company, Hyderabad, were among the eminent keynote speakers. Discussions and presentations on a wide range of topics like Carrying Capacity of Foundations, Bearing Capacity –

Geometric Modeling – IS Codes vs Modern Geo-Practice, Settlement – Conservatism, Geotechnical Failures – A Case Study, Liquefaction Analysis and Mitigation Measures, Advanced Geosynthetics for infrastructure etc. took place. Apart from these, research scholars delivered talks on recent developments in geotechniques and challenges.



The Department of Civil Engineering, Vidya Jyothi Institute of Technology

organized a 1-day visit to CSIR-NGRI on 1st February 2024 as a part of IGS student chapter activities. The visit covered three sessions. First part of the visit was to Seismological Observatory, Ground Water Building and Open Rock Museum. The senior scientist of Seismological Department Dr. Rajesh Rekhapalli explained briefly about the tectonic movements, vibrations of earth, and types of rocks which adhere to the atmospheric zone. They also showed the Sensor room's depth of 9 meters from the ground, which was safeguarded by two parallel walls to ensure precise data measurement in the seismographs. Groundwater Building was visited next, wherein, Senior Research Fellows of CSIR-NGRI explained about the ground water co-relation with subsurface rocks and their movement through pervious line of the earth with demo. The next



visit was to Open Rock Museum. The senior scientist of CSIR-NGRI, explained the types of rocks their usage and economical aspects and its application in the constructions. Around 130 students of Civil Engineering, VJIT took benefitted from the visit.

Prof. Bhaskar Chittoori, Boise State University, USA gave an overwhelming talk on the “Application of Bio-stimulated Calcite Precipitation to Stabilize Expansive Soils and the Development and Application of the Convected Particle Domain Interpolation” on 8th January, 2024. Dr. Shreyas Giridharan delivered talk on “Method for Offshore Monopile Installation Simulations”, respectively.



Mr Sorabh Gupta, Director at Cengrs Geotechnica Pvt. Ltd., delivered an insightful online talk on 24th January, 2024 titled, “Applications of Electric Cone Penetration Testing with Pore Pressure Measurements (CPTu) in Geotechnics” followed by an engaging discussion on geotechnical advancements.

Prof. M.R. Madhav, former professor at IIT Kanpur, delivered an insightful and

valuable talk on “Deformation Modulus of Soils and its Effects on Settlements” on 21st February, 2024. His engaging lecture enriched our understanding and inspired us to delve deeper into the subject. Prof. Umashankar Balunaini and Prof. M. Basha, Head of Civil Engg., IIT Hyderabad organized the talk.

The student chapter of Department of Civil Engineering, Mahindra University organized a webinar on “Biomimicry of snakeskin: Tailoring shear resistance in Geotechnical interfaces” by Dr. Prashanth Vangla, Associate Professor, IIT Delhi on 13th March 2024. The speaker explained the developed direct shear setup and challenges and innovative approaches in the project execution stage. The talk concluded with technical discussion and interaction with faculty members and students in the presence of Dr. Deepti Avirneni, Mahindra University.

On March 25, 2024, a riveting workshop

unfolded under the auspices of Prof. Toshiro Hata, an esteemed professor at Hiroshima University, Japan, shedding light on Microbiologically Induced Calcium Carbonate Precipitation (MICP). With meticulous expertise, Prof. Hata explained the complex mechanisms and transformative applications of MICP across various domains. Joined by Odate Yuya, a Master's student from the same institution, the workshop gathered insights into cutting-edge research and practical implications of ground improvement using steel slag treatment. This event was organized by Prof. Anasua Guharay and Prof. Raghuram Ammavajjala and served as a dynamic platform for scholars at BITS Pilani Hyderabad campus, fostering interdisciplinary research and collaboration. Through vibrant discussions and knowledge exchange, attendees were empowered to explore novel avenues and propel innovation in their respective fields.



IGS Jabalpur Chapter

IGS Students' Chapter of Takshshila Institute of Engineering and Technology



Jabalpur organized a sapling planting program on 25 January 2024. Dr. Sanjay Verma, Honorary Secretary, explained the interaction of soil and water with

plants. Er. Sanjiv Verma Salil, Chairman explained importance of plants in the nature. Faculty members of the Civil Engineering Department, Prof. Rajkumar Vishwakarma, Prof. Akash Jain, Prof. Deepesh Lodhi, Prof. Shivam Tiwari, Prof. Satyam Tiwari, Prof. Abhishek Pastel, Mr. Dharmendra, Mr. Murlidhar Kori and about 30 students participated in the planting program and planted 30 different plants in the college campus.

A one-day training program for the TIET students' chapter was conducted by Geological Survey of India (GSI) on 6th February 2024. The event featured a

lecture by Mr. Suhail Ahmed, Director on the topic “Role of Geological Survey of India in the field of Engineering Geology and contribution to Nation Building”. In this lecture he shared information about work and achievement made by GSI in areas such as Dams, Tunnels, Landslides, Seismic Studies, Geotechnical and Engineering Geology. He also spoke on the contribution made by GSI in nation building. In the next stage of the training program, the students’ visited the geological museum of GSI Jabalpur where Ms. Sufia M.V., Director highlighted the geological details of minerals, rocks and fossils specimens showcased in the museum. Mr. C.R. Burman, Director, Mr. Benudhar Behera, Director from GSI, and Dr. Sanjay Verma, Professor and Vice Principal, and faculty members, Prof. R.K. Vishwakarma, Prof. Aakash Jain, Prof. Dipesh Lodhi Mr. Dharmendra Ahirwar and Mr. Muralidhar Kori were present from Takshila Institute of Engineering and Technology Jabalpur.

The training program was conducted by Mr. Abhijeet Bhattacharya and Mr. Keshav Khandelwal, Senior Geologist from GSI. About 50 Civil Engineering students attended the training program.



Dr. Awadhesh Pratap Singh, National Secretary of Indian Geotechnical Society, was welcomed on March 27, 2024 by the office bearers of Jabalpur Chapter and detailed to him about the activities conducted in the last three months. It is noteworthy that it has been decided to jointly organize the tenth Indian Young Geotechnical Engineering Conference (10th IYGEC) at IIT Indore in March

2025 by four local chapters of Madhya Pradesh, viz., IGS Indore, Bhopal, Jabalpur and Ujjain. Dr. Singh discussed with Jabalpur executives regarding preparations for this event. Along with this, preparations for the Indian Geotechnical Conference, IGC 2024, which is going to be held in Sambhaji Nagar Aurangabad in December 2024, was also discussed. In this meeting, Jabalpur Chapter’s Chairman, Er. Sanjiv Verma Salil, Vice Chairman, Dr. Rajeev Chandak, Honorary Secretary, Dr. Sanjay Verma and Treasurer Prof. Vedant Srivastava were present.



IGS Kochi Chapter

The Rendezvous 2.0 Webinar series being conducted in commemoration of the 75 years Celebrations of IGS is continued even after the concluding function held during IGC 2023 for the benefit of the members of the chapter.

The next in the series, 24th Webinar talk was delivered by Er. Annapoorni Iyer, Founder of Engosym Consultants,

Pune on 8th January 2024 on the topic Landslides Mitigation – Guidelines, Perspective and Few case studies. The session was well attended by the members from Kochi and other chapters too.

The 25th Rendezvous webinar was delivered on 5th February 2024 by Dr. Jaykumar Shukla, Sr. Geotechnical Consultant, Vadodara on the topic “Soil structure interactions and building

response to foundation settlement”. The session was attended by a record strength of 105 members.

The 26th webinar in the series was delivered by Dr. Chandresh Solanki, Professor, Dept. of Civil Engg., SVNIT, Surat on 4th March 2024 on the topic, Soil Investigations for Foundations of Structures. The session was very interesting and attendees benefitted from the talk.

INDIAN GEOTECHNICAL SOCIETY
KOCHI CHAPTER

RENDEZVOUS
TECHNICAL WEBINAR - 24

ON
LANDSLIDE MITIGATION - GUIDELINES
PERSPECTIVE AND FEW CASE STUDIES

BY

Er. ANNAPOORNI IYER
FOUNDER AND OWNER,
ENGOSYM CONSULTANTS, PUNE

08TH JANUARY 2024, 07:00 PM

DR. BENNY MATHEWS ABRAHAM
CHAIRMAN

DR. BANU T. JOSE
PRESIDENT

ER. A.V.S. CHAKRAVARTI
HON. SECRETARY

INDIAN GEOTECHNICAL SOCIETY
KOCHI CHAPTER

RENDEZVOUS
TECHNICAL WEBINAR - 25

ON
"SOIL STRUCTURE INTERACTIONS AND
BUILDING RESPONSE TO FOUNDATION SETTLEMENTS"

BY

Dr. JAYKUMAR SHUKLA
SENIOR GEOTECHNICAL CONSULTANT

05TH FEBRUARY 2024, 07:00 PM

DR. BENNY MATHEWS ABRAHAM
CHAIRMAN

DR. BANU T. JOSE
PRESIDENT

ER. A.V.S. CHAKRAVARTI
HON. SECRETARY

INDIAN GEOTECHNICAL SOCIETY
KOCHI CHAPTER

RENDEZVOUS
TECHNICAL WEBINAR - 26

ON
"SOIL INVESTIGATIONS FOR
FOUNDATIONS OF STRUCTURES"

BY

Dr. CHANDRESH H SOLANKI
Professor, Dept. of Civil Engineering,
SVNIT, Surat

04TH MARCH 2024, 07:00 PM

DR. BENNY MATHEWS ABRAHAM
CHAIRMAN

DR. BANU T. JOSE
PRESIDENT

ER. A.V.S. CHAKRAVARTI
HON. SECRETARY

IGS Kolkata Chapter

The chapter organised three technical talks on 3rd February 2024 at the Civil Engineering Department, Jadavpur University, Kolkata. The talks were titled as “An Analytical Solution to Seismic Response of a Cantilever Retaining Wall with Generalized Backfilled Soil” by Dr. Indrajit Chowdhury, “Design of High-Capacity Piles in Soft Soil Area, Particularly Kolkata like Stratum” by Er. Shyamal Kumar Mitra, and “Haldia Port Facility with All Weather Sea Connectivity” by Er. P.S. Sengupta.

On 9th February, 2024, a technical talk was organized in association with Meghnad Saha Institute of Technology, Kolkata on “Fundamentals of Design and Construction of Tunnels and Underground Structures” by Er. Chiranjib Sarkar, Principal Engineer, GEOCONSULT India, Vice Chairperson, TAIym at the Civil Engineering Department, Meghnad Saha Institute of Technology, Nazirabad, Kolkata.

Two-day workshop on "Geotechnical Exploration - Theory & Practice", organized on 15th and 16th March 2024 by Meghnad Saha Institute of Technology, Civil Engineering Department in association with Kolkata Chapter of IGS, was a grand success.

The talks covered a range of topics, starting with discussions on planning, methods of geotechnical investigation, and sampling procedures. Following



that, they delved into investigations concerning shallow and deep foundations. The interpretation of pile load test data was a focal point, accompanied by numerous case studies that provided practical insights. Additionally, the talks touched on geotechnical investigations tailored for transportation projects, highlighting the specialized considerations and challenges faced in this domain.

The speakers were Prof. Jagat Jyoti Mandal, Er. Sudip Nath and Er. Chiranjib Sarkar. More than 70 participants from different Polytechnic and Engineering colleges from different parts of West Bengal, NITTR Kolkata and NIT Durgapur made the sessions interactive and useful.

On 30th March, 2024, an online workshop on “Continuous Flight Auger (CFA) Piles - Theory, Prospects & Applications in India” was organized by DFI of India in collaboration with the

chapter. This webinar was perceived to be an important event since, the West Bengal along with several states of Eastern India hold lot of promise for CFA piles.

Following the initial introduction of this chapter and the DFI of India, the subsequent five lectures were delivered. These included Er. Shyamal Kumar Mitra's presentation on "Pile Foundation Design and Construction Practices with Typical Reference to Piling in West Bengal & Eastern States of India", Dr. Martin Larisch's insights into "CFA Piles: Construction technique, Global Practices", Mr. Ian White and Mr. Pramathesh Wani's discussion on "Ground Improvement Technique by Controlled Modulus Columns", Mr. Anirudhan IV's exploration of "Design Approaches of CFA Piles", and Dr. Sunil S. Basarkar's lecture on "CFA Piles: Methodology, DFII Trials, Suitability, and Applications in India Conditions".

IGS Mysuru Chapter

The one-week program on “Sustainable Week” organised by Department of Civil Engineering and IQAC Vidyavardhaka College of Engineering (VVCE), Mysuru in association with IGS Mysuru Chapter, Indian Green Building Council, ISHRAE, Indian Society for Technical Education, M/s. Cycle Pure Agarbatti and M/s. D.S. Trust during 23-27 January 2024 was extremely successful. The program created awareness on sustainability among students, faculty members and general public in Mysuru. The program “Sustainable Week” had 5 different events namely Green Talk, Sustainable Art, Sustainable sketch, Photography on sustainable living and

Plant a Sapling. The time management, technical aspects and judging sessions were nearly perfect to enhance the quality of the program. In total of 120 feedback were received from the student participants. Student participants belonging to Civil Engineering, Mechanical Engineering, Electronics and Communication Engineering and AI & ML domains had registered for various events of “Sustainable Week”.

This one-week program on “Sustainable Week” was an attempt to inculcate the responsibility towards Environment and Sustainability. India, United Nations and other global bodies and many research organizations have the focus on 2030, to be improved with sustainable solutions



Flagging off of Green A Thon



At the valedictory function and plant a sapling program

for 17 different SDG's. This one-week program on "Sustainable Week" intended to provide stimulus in this aspect.

The Department of Civil Engineering at Vidyavardhaka College of Engineering, Mysuru in association with Indian Geotechnical Society Mysuru Chapter and Association of Consulting Civil Engineers (India) Mysore Center organized a one-day workshop on 'Earthquake Geotechnical Engineering' on Friday, the 1st March 2024. The inaugural function was followed by three sessions of lectures. Prof. Ikuo Towhata, Professor Emeritus at University of Tokyo in Japan was the Chief Guest. Mrs Towhata, members of management of Vidyavardhaka Sangha, Principal, Deans and Heads of various departments, faculty and staff members of Civil Engineering, members from IGS Mysuru Chapter, ACCE(I) Mysore Center and students from various engineering colleges numbering more than 160 participated in the workshop.

The speakers included Prof. Ikuo Towhata, Professor Emeritus, University of Tokyo, Japan and Dr. S.K. Prasad, Professor & Head, Department of Civil Engineering, Vidyavardhaka College of Engineering, Mysuru. The first lecture on 'Introduction to Earthquake Geotechnical Engineering' was handled by Dr. S.K. Prasad and the second lecture on 'Geotechnical aspects of 2023 Turkish earthquake and 2024 Noto Peninsula earthquake' was handled by Prof. Ikuo Towhata. Post noon, the final lecture on 'Liquefaction and site effects' was covered by Dr. S.K. Prasad, followed by Valedictory function.

The workshop provided a platform for meaningful discussions, networking opportunities, and learning experiences

for all attendees. Overall, the One Day Workshop on Earthquake Geotechnical Engineering proved to be a valuable and enriching event, facilitating the exchange of ideas and fostering collaboration among professionals and researchers in the field. The feedback summary showed that many rated the workshop as excellent and expressed that knowledge on earthquake engineering is important.

RAGI 2024, a national workshop on 'Recent Advances in Geotechnics for Infrastructure' was organized at Maharaja Institute of Technology Mysore, on Tuesday, the 5th March 2024. The workshop was jointly organized by IGS Mysuru Chapter, IGS Bengaluru Chapter, Association of Consulting Civil Engineers (ACCE (I) Mysore Centre, Sri Jayachamarajendra College of Engineering (SJCE) – JSS Science and Technology University (JSS STU), The National Institute of Engineering (NIE), Vidyavardhaka College of Engineering (VVCE), Maharaja Institute of Technology Mysore (MITM) and ATME College of Engineering (ATMECE). This is the eighth RAGI workshop organized so far since 2014 to connect industry with academia and bring the best of Geotechnical Engineering to the Civil Engineers of Mysuru. It has become a biennial event since 2018. The workshop had several objectives: It

brought together experts in geotechnical engineering as resource personnel. This strengthened the collaboration between five prominent academic institutions and three professional bodies, focusing on a topic crucial to the construction industry. The training targeted around 200 working engineers from the Mysuru region, representing both government and private organizations, as well as academia. This aimed to enhance their skills and knowledge in relevant areas.

Four renowned speakers Dr. Neelima Satyam, Professor of Civil Engineering, Indian Institute of Technology Indore, Dr. S. K. Prasad, Professor & Head of Civil Engineering, Vidyavardhaka College of Engineering, Mysuru, Dr. P. S. R. Narasimha Raju, Senior Director, Geotechnical Services, Stedrant Technoclinic Pvt. Ltd., Bengaluru and Er. Annapoorni Iyer, Founder & Proprietor, Engosym Consultants, Pune delivered presentations on Landslides in Western Ghats, Foundation treatment on Black Cotton Soil and Assessment of strength and foundations on dense soil.

RAGI 2024 was inaugurated in Placement Auditorium, Maharaja Institute of Technology Mysore, at 10 am. About 200 participants comprising of working professionals, builders, consultants, academicians and students participated in RAGI 2024.



IGS Pune Chapter

Department of Civil Engineering of Zeal College of Engineering and Research, Narhe, Pune in association with Indian Geotechnical Society, Pune organized a webinar series on topic "Geotechnical Engineering Familiarity for Civil Engineering students". The webinar series continued for 3 days and sessions were delivered by experts

Dr. Sariput Nawaghare, Dr. Hemant B Dhonde, Founder and Director at C-Probe Technologies Pvt. Ltd., also founder and expert counsellor.edu, Expert Counselling for Higher Studies Abroad, Pune, and Dr. Asita Dalvi, MD PreFEx Engineering and Research Pvt. Ltd. All the sessions were interactive and students gained good knowledge from the field experts and academicians.

The event 11th task force meeting National Database (CIDC Construction Industry) was held on 19th January, 2024 at Hotel Hilton Garden inn, Hinjewadi, Pune. It was a well organized program with informative lectures, great speakers and encouraging audience. The theme of this event was “Emerging technologies in construction and sustainable material/practices”. IGS Pune Chapter EC Team attended the event and had a great time being a part of the nicely organized event.



IGS Pune chapter in association with PWD Maharashtra organized an event on the topic “Developments in Bridge Engineering” on 23rd January, 2024 at PWD’s Vishveshvaraya Hall, Camp, Pune. The Chief guest of this event was Er. Vikas Ramgude, CE PWD Maharashtra. He delivered the session on topic “Bridge foundation case studies”. The guest of honour was Dr. Anil Joseph, President IGS, Pune. The topic of his talk was “Resilient geotechniques and case studies of bridge abutment failure”. Two more speakers Dr. V.K. Raina, Technical Adviser of Govt. of India and Er. Sidharth Kulkarni, Executive Director, Soiltech India Pvt. Ltd also delivered the talk on topics “Developments of bridge form



globally during past 3500 years” and “Developments in geotechnical testing” respectively. The event was attended by many civil engineers, professionals and teaching faculty.

IGS Pune chapter inaugurated it’s 30th student chapter at Amrut Vahini College of Engineering, Sangamner on 30th January, 2024. It was a proud moment for the team on achieving this milestone. The chief guest of this event was Dr. Sariput Nawaghare, Asst. Professor COEP, Pune. He addressed the audience and gave guidance to the civil engineering students. The guest of honour was Dr. Satish Barmade, Geotechnical Consultant from Nashik. The event was attended by EC members of IGS Pune chapter, various faculty members of AVCOE and more than 100 civil engineers.



On February 1st 2024, IGS Pune chapter came together and had a wonderful evening with the faculty co-ordinators of 30 student chapters including 6 outside of Pune. The Felicitation, Acclamation and cheering up event 2024 was organized at IEI Building, Shivajinagar, Pune. Felicitation of the student chapter co-ordinators were done by members of IGS Pune. It was a very interactive and cheerful time as all the members came together for this meet inspite of being a busy working day.



IGS Pune Chapter in association with D. Y. Patil Institute of Technology, Pimpri, Pune organized first lecture of Karl von Terzhagi technical session series on 2nd February 2024 delivered by Dr. T. Venkat Bharath from Indian Institute of Technology, Guwahati. The topic of his session was “Lessons learnt from rainfall

induced landslides of northeast India”. It was an informative session attended by more than 195 students. The event was attended by IGS President Dr Anil Joseph and Hon Secretary IGS, Dr. A.P. Singh. The EC members of IGS Pune also attended the session.

75 DPU
DR. D. Y. PATIL UNITECH SOCIETY
DR. D. Y. PATIL INSTITUTE OF TECHNOLOGY,
SRINIVAS NAGAR, PIMPRI, PUNE,
INDIA

Indian Geotechnical Society, Pune Chapter
in association with
Department of Civil Engineering,
Dr. D. Y. Patil Institute of Technology, Pimpri, Pune
India

Karl Von Terzhagi Technical Session Series

2nd February 2024 | 10:30 am

LESSONS LEARNT FROM RAINFALL-INDUCED LANDSLIDES OF NORTHEAST INDIA

Keynote Speaker



Dr. T Venkata Bharat,
Professor, IIT Guwahati.

Registration Details

- No Registration Fee
- E-Participation Certificate will be issued for all the participants
- Session will be conducted through online mode

Registration Link

<https://forms.gle/cBwZMkqMaSLNhh7>

Speakers

Er. Annapoorni Iyer M.S. (Open Chapter) Dr. Shobha Rani Arangi M.S. (Open Chapter)	Er. Suman Jain M.S. (Open Chapter) Dr. Deepa A. Joshi M.S. (Open Chapter)	Er. Vikas S. Patil M.S. (Open Chapter) Dr. Lalithkumar Wadhwa M.S. (Open Chapter)
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IGS Pune chapter Inaugurated it’s 31st student chapter at Sinhgad College of Engineering, Pandharpur on 7th February, 2024. The chief guest of the event was Dr. Sachin Jain who delivered the talk on the topic “AI: Future of construction”. The event was attended by IGS Pune members, faculty members of civil engineering department and students. Dr. Sachin’s talk was very helpful for new civil engineers and many students expressed their desire to know more about the future scope of construction industry.

IGS Pune chapter team participated in CEMCON 2024 on 8th and 9th February organized by Indian Concrete Institute (Pune centre) as virtual partner at Creativity, Pune. It was a two days program with eminent personalities, interaction sessions and interesting talks on diverse topics. IGS Pune Chapter office bearers, Prof. Suman Jain and Er. Ramesh Kulkarni were felicitated for their contributions to the Industry.



Pune student chapter in association with IGS Pune chapter women's cell organized a guest lecture on the topic "Career opportunities in the field of Geotechnical Engineering" on 16th February, 2024 at Anantrao Pawar College of Engineering and Research's Seminar Hall, Parvati, Pune. The Speaker of this event was Mrs. Deepali Kulkarni. She delivered the talk with great enthusiasm also students were very curious to know more about the topic. She explained the career opportunities in easy way to understand it clearly by the young civil engineers. The event was attended by IGS members, civil engineers and teaching faculty of APCOER as well.



The Karl Von Terzhagi Series for the Month of March 2024, Organised by D Y Patil Institute of Technology, Pune was delivered Dr Sachin Jain on the topic 'AI: Future of Construction' on 7th March 2024. The lecture being on interesting topic received very good response from the student community.

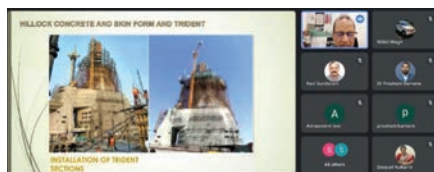


Women's Day Celebrations: Being a Civil Engineer itself is special and more so when you find a women Civil Engineer practicing with passion, totally in love with the field she has chosen. She brings compassion, determination, grit and a pinch of love along with her to the field. Her contribution is sustainable through inclusive working, through the support that she gets all along from her colleagues, family, friends and fellow professionals. The faculty co-ordinators and EC members of IGS Pune Chapter

came together for the Recognize and Rejuvenate event on 9th March 2024.



Samarth Education Trust's, Arvind Gavali College of Engineering Satara Organized an Industry interaction webinar on the topic "Making of a monument: 351 feet high lord shiva statue at Nathdwara, India". The webinar was held on 12 March 2024. The mesmerizing talk was delivered by Er. Ravi Sundaram, Cengrs Geotechnica Pvt. Ltd. and Dr. Abhay Gupta, Skeleton Consultants. The webinar was jointly organized by IGS Student Chapter and ACCE Pune Chapter.



IGS Pune Chapter inaugurated their 32nd IGS Student Chapter at Yashoda Technical Campus Satara on 15th March 2024. Vice President Mr. Ajinkya Sagare YTC, Director Principal and HoD were present for the inauguration. The expert lecture was delivered by Dr. Sachin Jain on the topic "Application of AI in Geotechnical Engineering". IGS Pune Chapter acknowledged and appreciated the initiatives of EC member, Er. Deepali Kulkarni and Chairperson Er. Suman Jain and the entire management of Yashoda Technical Campus



IGS Pune Chapter in association with SPPU Student Chapter organized a One Day Workshop on "Role of Engineering Geology in Geotechnical Investigations" on 16th March 2024. Expert talks were delivered by the founder member and

Past Chairman, Er. Ramesh Kulkarni and Vice Chairman Dr. Krishnaiah.



World Water Day was celebrated on 22nd March and IGS Pune Chapter's Student Chapter from Yashoda Technical Campus, Satara organized a webinar on Role of Technology in Water Sustainability. This event was organized in association with CESA Club. IGS Pune chapter expresses gratitude to Dr. Vidula Swami, Ex-Professor, KIT CoE for delivering the wonderful talk on the apt occasion.



IGS Student Chapter of MIT AOE, Alandi, Pune organized a unique 40 hours, 5-day value-added course on 'Smart Cities-A Sustainable Development'. More than 70 students participated in this course which had various session with assignments. Certificates were distributed to the participants as appreciation for their involvement in the course.



IGS Roorkee Chapter

Indian Geotechnical Society Roorkee Chapter organized Prof. Bhawani Singh Memorial Lecture on Thursday, March 21, 2024 at IIT Roorkee. Dr. Manoj Verman, a renowned Tunnelling and Rock Engineering expert and proud student of Prof. Bhawani Singh delivered memorial lecture on “Transforming Tunnel Construction in India-Advances, obstacles and Future Directions”, Dr. Verman termed it as a Tribute to a Legacy: Reflecting on an Emotional Evening. Prof. Samadhiya's compilation of Prof. Singh's unforgettable moments were a touching tribute that brought the audience closer to the essence of his remarkable life and contributions. One of the most heartfelt moments of the evening was when Mrs. Verman took the stage. Her words painted a vivid picture of Prof. Singh's influence not just on Dr. Verman's professional journey, but also on the lives of those around him.

The gathering, which was there not only to listen to the lecture but also to



remember and honour Prof. Singh, culminated in a dinner, symbolising the unity and warmth of our IGS community. The lecture was attended by the students, faculty members and scientists of CSIR-CBRI Roorkee in large numbers.

The driving force behind the lecture was Prof. Mahendra Singh, Chairman IGS Local Chapter Roorkee whose dedication and vision brought life to this event. The event was ably supported by Dr. Anindya Pain, Secretary IGS Roorkee chapter

and everyone from the IGS Roorkee Chapter and the Department of Civil Engineering, IIT Roorkee, to organize the event successfully. Together, we remembered, we celebrated, and we pledged to continue the legacy of a truly remarkable human being.

The event was presided over by Dr. A P Singh, Honorary Secretary IGS and another disciple of Prof. Bhawani Singh. He took pains in coming from Noida just to grace the occasion.

IGS Shimla Chapter

The General elections were held on 26th Feb 2024 in an online meeting for IGS Shimla Chapter members with a view to elect the office bearers and to discuss the future prospective of the chapter.

Prof. Ashok Kumar Gupta (Dean, Research and Academics & Prof, Civil

Engg, JUIT Wagnaghat) was re-elected as the chairman of the chapter whereas Dr. Niraj Singh Parihar (Asst. Professor, Civil Engg, JUIT Wagnaghat) was elected as the secretary of the chapter replacing Dr. Saurabh Rawat (Associate Professor, Civil Engg, JUIT Wagnaghat).

The IGS chapter members unanimously

agreed to organize a one-week technical webinar series in the next quarter (April-May 2024).

An international conference is also planned in collaboration with Civil Engineering Department, JUIT Wagnaghat, to be held in the last quarter of 2024.

IGS Tadepalligudem Chapter

Inauguration of IGS Tadepalligudem Chapter and one-day workshop on “Sustainable Practices in Civil Engineering (SPCE-2024)” on 10th February 2024. Dr. Anil Joseph, President, IGS inaugurated IGS Tadepalligudem Chapter. Dr. M. Rama Rao, Convener of the workshop addressed the gathering and explained the importance of the workshop and its relevance in expanding sustainable practices in civil engineering, Dr. Mohammed Ismail, Principal and G. John Moshe addressed the participant's importance of academic interaction with industry. Dr. Anil Joseph, President, IGS delivered lecture

on “Engineering Resilience: Building a Sustainable Future” in the face of increasing global challenges and its importance for establishing a sustainable environment. Dr. Jaya Prakash Vemuri Associate Professor, Mahindra University, Hyderabad delivered a lecture on “Earthquake Behavior of Reinforced Concrete Structures”.



On March 6, 2024, 40 students from the Sasi Institute of Technology & Engineering, Tadepalligudem IGS Student Chapter visited the Naidadavolu bridge construction site in West Godavari District, Andhra Pradesh, with the help of Dr. M. Rama Rao, Professor & Head, and Mr. M. Ramakrishna, Associate Professor, Department of Civil Engineering. They visited batching plants of Ready-Mix Concrete (RMC), Auger boring, concreting of drilled concrete piles, material testing laboratories, bridge models, etc. and engaged in discussions with engineers.

On World Water Day 2024, the IGS Student Chapter of Sasi Institute of Technology & Engineering, Tadepalligudem organized a poster presentation on March 22, 2024.

Dr. M. Rama Rao, Head of the Department of Civil Engineering, Dr. C.H. Tirupathi, Associate Professor; and Dr. K.N. Murali Krishna, Associate Professor, were involved.

Addressing the assembly, Dr. M. Rama Rao, Professor & HoD, SITE, discussed the value of water and its applicability in today's world.

There were eight faculty members from the Department of Civil Engineering and 92 students that took part in the event. A poster

presentation competition with the theme "Water for Peace" was held on the eve of

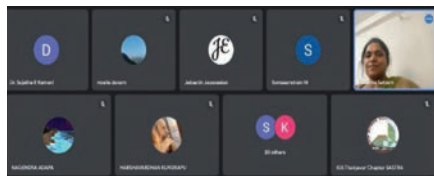
World Water Day. Eight teams, took part in the competition.



IGS Thanjavur Chapter

School of Civil Engineering, SASTRA Deemed University and IGS Thanjavur Chapter organized the online one-day workshop on "Disaster Management in Geotechnics and Surveillance using Drones" coordinated by Dr. Sujatha E. Ramani, Dr. R. Selvakumar and Shri M. Vishweshwaran on 2nd March 2024. The workshop aimed to present transformative applications of drones in the construction industry in achieving higher levels of efficiency, safety, and sustainability. Mr. T.A. Gangadharan, Chief Drone Instructor - Asia Soft Labs delivered the inaugural lecture on the introduction to drone technology, highlighting the various types of drones and sensors in addition to outlining the legality of the drone applications. The application of drones in surveying, monitoring critical zones and disaster management along with diverse case studies was illustrated by Mr. Rajesh Thangaraj, Senior Consultant, Land Coordinates Technology. Dr. Neelima Satyam, Professor, IIT Indore delivered the lecture on drone applications in landslide investigation & monitoring, highlighting the challenges and merits of drone supervision of slopes. Mr. M

Vishweshwaran, Assistant Professor, SASTRA Deemed University presented the latest applications of drones in pavement management, sub-surface investigation, and erosion control with case studies. Dr. A. Muthukrishnan, Assistant Professor, Tamil Nadu Open University illustrated the drone applications in flood risk mitigation and management. 29 participants attended



Lectures delivered by the speakers

the workshop including students, academicians, research scholars and engineers.

In an earnest effort to commemorate the scintillating womanhood and their unparalleled accomplishments, the School of Civil Engineering, SASTRA Deemed University in association with the IGS Thanjavur chapter, celebrated International Women's Day on the theme "Sisters of Sustainability", with online and spot competitions. The event on 14th March, 2024 was presided over by Dr Sudha Seshayyan – Director & Indo-Japan G20 Chair Professor, SASTRA Deemed University, Chennai campus.



IGS Thiruvananthapuram Chapter

IGS Thiruvananthapuram Chapter organized 7th TS Ramanatha Iyer Memorial Lecture at Main Seminar Hall, LBITW on 15th February 2024. Dr. N. Unnikrishnan, Chairman IGS Thiruvananthapuram Chapter gave an introduction about T.S. Ramanatha



Iyer. The Lecture was delivered by Dr. B.K. Maheshwari, Professor in Soil Dynamics, Department of Earthquake Engineering, IIT Roorkee on the topic "Seismic Soil Structure Interaction - CPRF for Design on NPPs".

National Conference on Soils and Foundations SAF 2024 was organized from 15.02.2024 to 17.02.2024 at LBS Institute of Technology for Women,

Poojappura, Thiruvananthapuram with the technical support of Deep Foundations Institute (DFI) and the Technical Committee TC 212 of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). Dr. Anil Joseph, President, IGS inaugurated the event. The main speakers were Dr. A.P. Singh, Secretary, IGS; Er. Mohan Ramanathan, Chairman, Deep Foundations Institute; Dr. N. Unnikrishnan, Chairman, IGS Thiruvananthapuram Chapter; Er. Annapoomi Iyyer, Secretary, IGS Pune Chapter; Er. Ravikiran Vaidya, Member, TC 212; Dr. K. Balan, NEC member,

IGS; Dr. V. Jaya, Vice Chairperson, IGS Thiruvananthapuram Chapter; Dr. Jayamohan J., Secretary, IGS,

Thiruvananthapuram Chapter; Dr. Amal Azad, Professor, TKM College of Engineering.



IGS Trichy Chapter

As a part of celebration of 60th year anniversary of the National Institute of Technology Tiruchirappalli and 10th year anniversary of IGS Trichy Chapter, the International Symposium on Geotechnical Aspects of Heritage Structures (ISGHS 2024) was organized in NIT Trichy from 14th to 16th February 2024 by IGS Trichy Chapter in association with NIT Trichy, NIT Puducherry and International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) – TC301.

The symposium began on February 14th, 2024, with an opening ceremony attended by esteemed dignitaries. Dr. K. Muthukumaran, Professor and Head of the Department of Civil Engineering, gave the welcome address, followed by a Presidential address by Dr. N. Kumaresan, Director (i/c). The event also included a guest of honor address by Dr. Alessandro Flora from UNINA Italy and Chairman of TC 301 ISSMGE, along with Dr. Anil Joseph, President of IGS, New Delhi. Dr. T. G. Sitharam, Chairman of AICTE, New Delhi, delivered the Chief Guest address, stressing the importance of heritage preservation in today's engineering practices. The session wrapped up with a vote of thanks by Dr. A. P. Singh, Honorary Secretary of IGS, New Delhi.

Dr. T. G. Sitharam presented a keynote lecture on "Foundation Alternatives for Ram Janmabhoomi Sri Ram Lalla Temple at Ayodhya, UP," highlighting the geotechnical challenges in building historical monuments. This was



Dr. Anil Joseph, President of IGS, New Delhi being honored by Dr. N. Kumaresan, Director (i/c), NIT Trichy

followed by an invited lecture by Prof. P. Manickavachagam from NIT Trichy, focusing on "The Excellence of Chola Period Murals in Brihadeeshwara Temple, Thanjavur." The afternoon session included another keynote lecture by Dr. Alessandro Flora on "Geotechnics and Heritage," and a subsequent keynote by Dr. Arun Menon from IIT Madras on "Structural Impact Assessment of Infrastructure Redevelopment Projects on Historical Monuments and Precincts." On February 15th, 2024, the symposium continued with keynote lectures by Dr. Giulia M.B. Viggiani from Cambridge University, England, on "Urban Tunnelling: The Challenges of Creating Underground Space in Historical Cities," and Dr. Pierre Smars from National Yunlin University of Science and Technology, Taiwan, on "Some Technical and Cultural Observations

about Compatibility and Heritage." Prof. Guido Gottardi from the University of Bologna, Italy, shared his expertise on the "Investigation and Preservation of Historic Tower Foundations," shedding light on the intricate processes involved. Following this, Prof. Yoshinori Iwasaki, Special Advisor at the Geo Research Institute, Osaka, Japan, talked about "The Authenticity of Soils and Foundations of Cultural Heritage," providing valuable insights into preservation techniques. Ar. J. Ramanan, a Consulting Architect from Trichy, discussed on "A Template for Conservation of Heritage Towns: A Case Study of Srirangam," highlighting effective conservation strategies. Er. S. Rajendran, Civil Engineering Consultant, emphasized the importance of traditional construction techniques in today's practices. The session continued with a lecture by Mr. Karthikeyan, Founder of Karthikeyan Associates, Chennai, on "Rehabilitation of Heritage Buildings using Micropiles," offering innovative preservation methods.

On February 16th, 2024, ISGHS 2024 wrapped up with a heritage tour, allowing participants to visit iconic sites like the Srirangam Temple, Kallanai Dam, and Thanjavur Brihadeeshwarar Temple.



Organizing team group photo with international speakers

IGS Vellore Chapter

Industry Expert Lecture on “Building Resilience: Innovations in Construction Technology, Retrofitting Techniques, and Sustainable Solutions” by Mr. Ravi Shhankkar Subramaniam, Chief Executive - Technical & Operations, First Quadrant StructFit and Padmavathy Buildmat, Chennai was held on 27th March 2024 at VIT Vellore.

IGS Vishakhapatnam Chapter

One day national Seminar on “Materials and Technologies for Infrastructure Projects” was organized on 1st March 2024 by Indian Geotechnical Society, Vishakhapatnam Chapter in association with the Department of Civil Engineering, A.U. College of Engineering, Vishakhapatnam and Indian Concrete Institute, Vizag Chapter. Prof. C.N.V. Satyanarayana Reddy, HoD, Department of Civil Engineering, A.U. College of Engineering & Chairman, IGS Vishakhapatnam and ICI Vizag Chapter and Prof. K. Srinivasa Rao, A.U. College of Engineering & Secretary, ICI Vizag Chapter convened the seminar. The seminar was intended to disseminate the information on geosynthetics and prestressed concrete in the construction of flyovers, bridges, high-rise buildings and other infrastructure projects.

During the seminar, Prof. Rajagopal, Former Professor and Head, Department of Civil Engineering, IIT Madras and Adjunct Professor, AUCE delivered a lecture on “Use of Geosynthetics for Sustainable Construction of Civil Engineering Infrastructure Facilities”. He has highlighted the applications of geosynthetics in Civil Engineering infrastructure projects such as highway and railway embankments, pavement construction over soft clays and construction of earth retaining walls with case studies.

Er. B.V. Nagarajkumar, CEO & Technical Director, Stresza Global Tech Pvt. Ltd., Vishakhapatnam, gave a talk on “Prestressing Basics, Applications and On-site Calculations”. In his presentation, he stressed the importance

The lecture discussed innovative technologies for retrofitting distressed structures, focusing on factors affecting concrete integrity such as exposure to chemicals, moisture near sea shores, and sulphate attacks, weak foundation problems or cases where building extension is planned on the pre-existing buildings.

Non-destructive techniques like ultrasound pulse velocity and ground

of prestressing applications in long span bridges and high-rise commercial structures. Sri K. Venkataraman, AGM (Technical Services), UltraTech Cement Limited, Vijayawada gave a presentation on “Concrete Construction for Coastal Conditions”. He discussed the importance of durable concrete to minimize the repair and maintenance issues for the concrete structures and increase the service life of structures in coastal environment.

More than 120 participants consisting of faculty members from Engineering colleges, practicing engineers from DGNP, MES, GVMC, CPWD, Research scholars and students from different colleges attended the seminar.



IGS Vishakhapatnam chapter organized a special lecture on “Geosynthetics in Construction of Highway Infrastructure” by Sri M. Sudhakar, Head, Rock fall & Mining, M/s TechFab India Industries Limited on March 21, 2024 at Sir M. Visvesvaraya Conference Hall, Department of Civil Engineering, Andhra University College of Engineering, Vishakhapatnam. Sri Sudhakar explained the applications of Geotextiles, Geogrids and Geocells in pavement design and construction over weak subgrades and in construction of highway and railway embankments. The aspects of strengthening of soft

penetration radars were showcased, along with retrofitting strategies like epoxy grouting, CFRP laminate wrapping, and steel jacketing. Case studies illustrated strategies like zinc coating for column corrosion prevention, strengthening raft foundation, and basement wall retrofitting for seepage prevention. The lecture also covered BOQ essentials for retrofitted buildings and real-world sustainable retrofitting practices.

clay with PVDs system for supporting highway embankments were explained with case studies. Reinforced earth walls used in formation of bridge/flyover approaches were presented highlighting their specific advantages. In the concluding remarks, Prof. C.N.V. Satyanarayana Reddy, HoD, Department of Civil Engineering, Andhra University College of Engineering & Chairman, IGS Vishakhapatnam chapter informed the participants about soft clay ground improvement with PVD system and preload in runway expansion works of Vishakhapatnam airport where very soft clay was present and the use of Geocells with soil replacement for laying parallel taxi tracks in certain reaches where the clay subgrade was of soft to moderate consistency. Prof. K. Rajagopal, Adjunct Professor, Department of Civil Engineering, Andhra University College of Engineering and former Prof. & Head, Department of Civil Engineering, IIT Madras appraised the advantages of using Geocell reinforced subgrades and sub bases in pavement constructions. More than 100 students, research scholars, faculty members and practicing engineers attended the lecture.



IGS Chennai Chapter

The IGS Chennai chapter organised an in-person talk on 12th February 2024, on the topic “Artificial Ground Freezing in Underground Construction” by Giulia M.B. Viggiani, Professor of Infrastructure Geotechnics, National Research Facility for Infrastructure Sensing, Department of Engineering, Cambridge, UK. The lecture discussed in details the extensive and successful application of artificial ground freezing (AGF) during excavation of some of the stations of Line 1 of Napoli Underground metro, through loose granular soils and fractured soft rocks. Talk was attended



by a large number of participants and attracted an excellent discussion with an extended question-answer session.

IGS Chennai Chapter, successfully organised (8-9th March) the First Women Indian Geotechnical Conference 2024 (WIGC-2024) under the aegis of Indian Geotechnical Society (IGS) in association with the College of Engineering Guindy (CEG), Anna University and the Indian Institute of Technology (IIT) Madras. A brief report on the conference is given separately by the conference chair Prof. K. Premalatha. The chapter also successfully hosted the 238th national IGS EC meeting in the Department of Civil Engineering, IIT Madras on 9th March.



A Brief Report on WOMEN INDIAN GEOTECHNICAL CONFERENCE 2024 (WIGC-2024)

The First Women Indian Geotechnical Conference 2024 (WIGC-2024) was organised by Indian Geotechnical Society Chennai Chapter under the aegis of Indian Geotechnical Society (IGS) in association with the College of Engineering Guindy (CEG), Anna University and the Indian Institute of Technology (IIT) Madras. The contribution of women engineers towards sustainable geotechnics is overwhelming. To provide a platform for showcasing the contributions and achievements of Women Geotechnical Engineers of our country, the First Women Indian Geotechnical Conference (WIGC) 2024 themed “Geotechnics Towards Sustainable and Resilient Infrastructures (GEOSUŚRĪ)” was conceived, planned and organised on the 8-9th of March 2024 on the International Women’s Day. The conference aligns with the Global Sustainability Development Goal “Gender Equality and Empower all Women and Girls (SDG 5)” and symbolizes a roadmap for progress that is sustainable and leaves no one behind. This conference brought in passionate women geotechnical engineers from various colleges, industries, institutes and universities in the country

to engage themselves in the discussion on different fronts of Geotechnical engineering and share their experiences.

The two-day conference provided a platform for aspiring minds and exposure to the global trends in research and insight into various upcoming fields of geotechnical engineering. Sustainable approach, global standards, technology transfer and field upscaling of innovative ideas are the key takeaways of this conference. The conference was flagged off with the welcome address by Prof. K. Premalatha, Chairperson, WIGC-2024, who sowed the seed for this conference. The role of the Indian Geotechnical Society, Chennai chapter was highlighted by Prof. R.G. Robinson, Chairman, Indian Geotechnical Society, Chennai Chapter. The presidential address was delivered by Dr. Anil Joseph, President, the Indian Geotechnical Society, who emphasized the importance of the necessity of the core field of engineering. Mrs. R. Suolchana (Retd.) Chief Engineer from TNEB, who was also the alumnus, and first women engineer of CEG, was the guest of honour for the inaugural

function. She graced the occasion with her valuable experience and the necessity of meticulous planning for the way ahead for the youngsters. The inaugural address was delivered by the honourable Vice-Chancellor Prof. R. Velraj, Anna University, Chennai. His speech addressed the future of the multi-disciplinary research approach and the importance of artificial intelligence and machine learning in every domain of engineering. The inauguration was also included with the felicitation of chapter veteran Prof. S.V. Ramasamy, former Professor of CEG, who is a stalwart in the geotechnical field and has contributed immensely to the society. Felicitation was led by Prof. Ramasamy's students Professor G.L. Sivakumar Babu and Professor K. Illamparuthi. The vote of thanks was given by Prof. M. Muttharam (Chairman, WIGC 2024) highlighting the role and gender equality of women in academics in the CEG Campus.

The main theme of WIGC-2024 was "Geotechnics for Sustainable and Resilient Infrastructure (GEOSUSRI)" with a total of 14 sub-themes covering various areas of geotechnical engineering. More than 120 submissions were received from all over the country from academia and industry. Two plenary sessions with a total of 6 keynote and 6 theme presentations were made. There were papers with authors from a few foreign universities as well like the University of Northern British Columbia, Canada and the University of Surrey, UK. The conference is grouped into 8 thematic sessions in which more than 80 peer-reviewed papers were presented in two parallel sessions in the two days of the conference. The presenters were from across the nation with the maximum number of papers from Kerala, followed by Karnataka and Tamil Nadu. The conference was sponsored by more than 25 industry partners

in various categories of Platinum, Diamond, Gold, Silver and Bronze which includes Keller Ground Engineering, Dow Chemicals International, Macafferri, Deep Foundations Institute, Geodynamics, Terre Armee to name a few. A few of the IGS local chapters also generously supported the conference like IGS Bangalore, Kochi and Roorkee chapter and many others. The two days of deliberations were found to be extremely fruitful for the attendees with excellent papers and wonderful discussions.

The two-day conference concluded with the valedictory function. The welcome address was given by Dr. V.B. Maji, Secretary, IGS Chennai Chapter. The presidential address was delivered by Prof. K.P. Jaya, Head of the Department, Civil Engineering, followed by the valedictory address by Prof. L. Suganthi, Dean, the CEG campus. This was followed by the feedback report and thank you note by the Conference Secretary Dr. B. Soundara. The organizers hope that the conference will act as a reference to many future editions in the years to come.

Professor K Premalatha
WIGC-2024, Chairperson



A glimpse of the WIGC-2024 with photographs taken during the conference

CALL FOR ENTRIES

IGS-PROF. G.A. LEONARDS' BEST PH.D THESIS PRIZE

IGS-Prof. G.A. Leonards' prize for the best Ph.D Thesis in Geotechnical Engineering is open to all Indian Universities/ Institutions. Nominations for the prize to be awarded during IGC-2024 at Aurangabad are invited. Ph.D. thesis awarded by the Universities/ Institutions during the year 2023 alongwith a certificate from the University/Institution regarding the award may be sent to the IGS Secretariat latest by July 31, 2024.

IGS-BEST DOCTORAL THESIS AWARD FROM NON-PREMIER INSTITUTIONS SPONSORED BY PROF. M.R. MADHAV

IGS-Best Doctoral Thesis Award from Non-Premier Institutions sponsored by Prof. M.R. Madhav for the best thesis in Geotechnical Engineering is open to all Indian Universities/ Institutions (non-premier). Nominations for the prize to be awarded during IGC-2024 at Aurangabad are invited. Ph.D. thesis awarded by the Universities/Institutions (non-premier) during the year 2023 alongwith a certificate from the University/Institution (non-premier) regarding the award may be sent to the IGS Secretariat latest by July 31, 2024.

CALL FOR NOMINATION

Best Teacher of Geotechnical Engineering Award 2024

Best Teacher of Geotechnical Engineering Award sponsored by Prof. Dr. B.J. Kasmalkar is presented annually. The award carries a cash prize of Rs. 25,000, a plaque and certificate. The award will be presented at the IGS Annual General Session at Aurangabad in December 2024. Nominations for the Award are invited from an IGS Member of Indian Nationality who have made outstanding contribution in Geotechnical Engineering. Nominations for the Award should be on the prescribed form available on IGS Portal. The following are the eligibility criteria for the Award:

- The candidate should have minimum 15 years teaching experience in India at B.Tech/M.Tech level (or equivalent) in IIT's, IISc, NIT, recognized universities, deemed universities, government and private engineering colleges affiliated to universities and AICTE approved or accredited.
- Those teaching at Diploma level shall not be eligible.
- The candidate should not be more than 60 years of age on 31st December during the year of application.
- The candidate should have an M.Tech or Ph.D degree in Civil Engineering (or equivalent).
- The candidate should be an Indian national.
- Candidate should be a member of IGS (national body) for a minimum period of ten years.

The completed Nomination Form should reach at IGS Secretariat on or before July 31, 2024.

IGS-FERROCO TERZAGHI ORATION 2024



Prof. Giulia MB Viggiani

The prestigious IGS Ferroco Terzaghi Oration (IFTO) the ninth in the series is scheduled on 5th October 2024 at IIT-Hyderabad to be organized by IGS-Hyderabad Chapter.

The ninth Oration shall be delivered by the eminent Prof. Giulia MB Viggiani, U.K.

This earlier eight IGS-Ferroco Terzaghi Orations were delivered by Prof. Harry G. Poulos (2008), Prof. M.R. Madhav (2010), Prof. Kerry Rowe (2012), Prof. A. Sridharan (2004), Prof. William Van Impe (2016), Prof. T. Ramamurthy (2018), Prof. Jean Louis Briaud (2020) and Prof. K.S. Rao (2022) alternatively by an eminent foreign and an eminent Indian Geotechnical Engineer.

Young Geotechnical Engineer (YGE) Best Paper Awards-2024

INVITATION FOR SUBMISSION OF PAPERS

To motivate and encourage Young Geotechnical Engineers to get involved and participate in Geotechnical research and field work, biennial Best Paper Awards especially for YGE have been instituted for best papers in various areas of Geotechnical Engineering. All interested YGE are requested to participate and submit their papers **on or before 31st July, 2024**. The following eight (8) even-year Awards will be given during IGC-2024 at Aurangabad.

1. IGS-Kochi Chapter YGE Award for Best Paper on Deep Foundations.
2. IGS-FERROCO YGE Award for Best Paper on Dam Engineering and Allied Areas.
3. IGS-Ahmedabad Chapter YGE Award for Best Paper published during immediate past Indian YGE Conference.
4. IGS-Baroda Chapter YGE Award for Best Paper on Ground Improvement.
5. IGS-Delhi Chapter YGE Award for Best Paper on Computational Geomechanics.
6. IGS-Dr. M.D. Desai Memorial YGE Award for Best Paper on Geosynthetics and Natural Fibres.
7. IGS-Guwahati Chapter YGE Award for Best Paper on Soil Dynamics and Earthquake Engineering.
8. IGS-HEICO YGE Award for Best Paper on Slope Stability and Landslides.

RULES AND SUBMISSION PROCEDURE

1. The Awards will be awarded to YGEs during IGS Annual General Session conducted at the time of Indian Geotechnical Conference-2024 (IGC-2024).
2. The Award carries a Memento and Certificate. In case of more than one YGE author, the Award shall be given to YGE listed first on the paper.
3. For the purpose of the Awards, YGE is defined as an Engineer of Indian origin who is of the age of thirty-five (35) years or less as on 1st January, 2023.
4. The paper may have more than one author and author/s above the age as defined for YGE, however, at least one of the authors

shall be YGE.

5. Papers published in following Proceedings/Journals shall be eligible for the Awards.
 - (i) Proceedings of immediate past IGS IYGE Conference (YGE-2023 at Aurangabad)
 - (ii) Indian Geotechnical Journal (IGJ) of the last two years (2022 & 2023).
 - (iii) Proceedings of the last two IGCs (IGC 2022 & 2023).
 - (iv) Proceedings of ISSMGE sponsored Conferences such as ICSMGE, ARCs, iYGE and Seminar/Workshop/Symposium organized by ISSMGE-TCs during last four years (2020, 2021, 2022 & 2023).
 - (v) Proceedings of National Conference/Seminar/Workshop conducted in India by any institute/organizations in last two years (2022 & 2023)
 - (vi) Any paper identified by IGS Secretariat by suitable means published in last two years (2022& 2023).
6. Nominations (submission of papers on behalf of author/s) from the following are also invited.
 - (i) IGS Executive Committee members
 - (ii) Chairmen/Secretaries of IGS Local Chapters.
 - (iii) Heads of Civil Engineering Departments of IITs, IISc and any technical institute in India.
7. While submitting the papers, the **Date of Birth** and proof thereof of YGE author/s of the paper must be provided. The author/s shall provide all related information including the source and date of publication. **It shall also mention the name of the Award for which the paper is submitted.** The contact details such as full address, mobile number, email ID etc. shall also be provided.
8. The author can submit more than one paper for an Award. Also the same paper can be submitted for more than one Award if content of the paper is related to the areas of more than one Award. However, only one Award shall be given to the same paper and/or the same author for the given year.
9. **Last date for submission/ nomination of papers is 31st July, 2024.**

Format for Submission of Paper for YGE Best Paper Award

Name of YGE author :

Date of Birth (dd/mm/yyyy) : Age as on 01-01-2023

Proof of age (copy of Driving license/ School leaving cert./ Adhaar card/ PAN card etc.):

Mobile No. : E-mail:

Postal Address:

Name of Award for which paper is submitted:

Title of Paper:

Source and Date of publication:

.....
Date and Signature of author/person submitting the paper

IGS ELECTION-2024 SCHEDULE

Sr. No.	Item	Date, Time
1	Notification of Election, Call for Nominations and Nomination form: on IGS Website	Friday, 02 August, 2024
2	Last date for Receipt of Nomination Papers along with candidate's Bio-data at e-mail: admin@igs.org.in through candidate's e-mail ID. (Candidates must provide E-mail ID and Mobile number in Nomination Form)	Friday, 30 August, 2024 4.00 pm
3	Scrutiny of Nominations	Monday, 02 September, 2024
4	Intimation to the Candidates of accepted nominations by e-mail	Tuesday, 03 September, 2024
5	Withdrawal of Candidature: by e-mail at admin@igs.org.in (IGS Secretariat will verify by phone call to the candidate the authenticity of the withdrawal)	Tuesday, 10 September, 2024 4.00 pm
6	Uploading Bio-data of Contesting Candidates on IGS Website	Monday, 16 September, 2024
7	Uploading Ballot Papers on IGS Website	Monday, 16 September, 2024
8	Electronic voting starts	Thursday, 19 September, 2024 11.00 am
9	Electronic voting ends	Friday, 18 October, 2024 4.00 pm
10	Counting of votes	Monday, 21 October, 2024 12.30 pm
11	Announcement of Results	21 October, 2024 on IGS Website 22 October 2024 by e-mail Oct-Dec 2024 issue of IGS News

CALL FOR NOMINATION

IGS KUECKELMANN BIENNIAL AWARD 2022-2023

IGS Kueckelmann Award is presented once in two years to honour an eminent geotechnical engineer for the outstanding cumulative contribution made to geotechnical engineering in India. All IGS Members with Indian Nationality are eligible for this award. The award comprises of a cash prize of Rs.30,000/-, Rs.5000/- to cover travel expenses and a plaque. The award for the period 2022-2023 will be presented at the IGS Annual General Session at Aurangabad in December 2024. Nominations for the award are invited on the prescribed form available on IGS Portal. The completed nomination form in quadruplicate should reach IGS Secretariat not later than 31st July, 2024.

IGS-PROF. DINESH MOHAN AWARD 2022-2023

The award is presented once in two years to an eminent geotechnical engineer for best Innovative Geotechnical Practice in India. All IGS Members with Indian Nationality are eligible for the award. The award carries a cash prize of Rs.5000/- and a plaque. Nominations for the award for above years are invited. Nominations for the award should be on the prescribed form available on IGS Portal. The completed nomination form in quadruplicate should reach IGS Secretariat not later than 31st July, 2024.

BEST WOMAN RESEARCHER AWARD 2024

Best Woman Researcher Award in Geotechnical Engineering sponsored by Prof. R.N. Shahi in the memory of his late wife, Smt. Prabhawati Shahi. The award carries a cash prize of Rs.30,000/-, a plaque and certificate. The award will be presented at the IGS Annual General Session at Aurangabad in December 2024. IGS calls for the Nomination of this Award from a lady IGS Members of Indian Nationality who have made outstanding contribution to Geotechnical Engineering. All interested eligible IGS members of Indian Nationality are requested to submit their nomination outlining their research contribution to Geotechnical Engineering on or before July 31, 2024 at the IGS Secretariat.

MEMBERS' NEWS



**Dr. Pallavi Badry
(LM-4712)**

Dr. Pallavi Badry was felicitated and awarded as the “Dynamic Women Engineer” award by ICI (Hyderabad Centre) and Sree TMT on the occasion of Women’s day celebration at Hyderabad.



**Ms. Chanchal Sara Jose
(LM-5243)**

**Ms. Ashitha C.
(LM-5234)**

Engineers of Sarathy Geotech and Engineering Services Pvt Ltd, Ms.Chanchal Sara Jose, Ms. Ashitha C. Certified as "ADVANCED" and Ms. Karishma Sharma ranked "INTERMEDIATE" in the recent Dynamic Measurement and Analysis Proficiency Test by PDA and PDCA. This accomplishment marks them as the pioneering women in the country to attain such recognition.



OBITUARY



With a heavy heart, I extend my deepest condolences on Dr. N.V. Nayak's passing. His demise is a significant loss to the geotechnical fraternity as we bid farewell to a doyen in the field.

Dr. Nayak's contributions to geotechnical engineering spanned over five decades, leaving an indelible mark through his teaching, consultancy, design, and field experiences. As the principal advisor of Gammon India Ltd and Chairman of Geocon International Pvt. Ltd., his expertise and leadership were instrumental in shaping the industry. His book "Foundation Design Manual" is a ready reckoner for practising geotechnical engineers and consultants. I fondly

recall our first interaction during the 2nd Praphullakumar Memorial lecture in 2013, where I witnessed his profound knowledge first-hand. Subsequent interactions deepened my admiration for his dedication and excellence in the field.

I, along with the colleagues from IGS Bombay, had the opportunity to visit him at his residence in April 2023 to honour him as an Indian GeolegendS. Due to his health condition, he could not attend IGC 2022. It was an honour to contribute a chapter on Demolition Technologies in his last book on Construction Technology, published in October 2023. Working closely for the making of the book along with Dr. Nayak, I witnessed his meticulous planning and unwavering zeal, reaffirming his status as a visionary in the field. Despite his failing vision and ailing health, his resilience and passion for engineering exemplified his steadfast commitment to his craft; Dr. Nayak remained a beacon of inspiration.

As we mourn his loss, let us remember Dr. Nayak's remarkable legacy and profound impact on geotechnical engineering. May his soul rest in peace, and his contributions inspire future generations in our field.

**Dr. Anil Joseph
President, IGS**



Dr. Narayan Venkatesh Nayak

(21 December 1936 - 27 March 2024)



Dr Narayan Venkatesh Nayak was a towering figure in the field of Civil Engineering. He passed away on Wednesday the 27 March 2024, leaving behind a big void, countless happy memories, an inspirational example of unwavering dedication to the call of duty and legacy of innovation and excellence.

Born on December 21, 1936, Dr. Nayak journeyed from a humble beginning to the heights of an outstanding professional to become a trailblazer in his field, with an impressive academic track record. He graduated in Civil Engineering from the University of Mumbai in 1959, obtained his M. Tech in Soil Engineering from the prestigious Indian Institute of Technology in Mumbai in 1962, and Ph.D. from the University of Wisconsin.

Dr. Nayak's contributions to the field of Geotechnical Engineering in general and Foundation Engineering in particular, were nothing short of impressive. As a Contracts' Manager at AFCONS in Bombay, he made ceaseless effort in advancing the technology of stone columns which captured very wide imagination. While Dr Nayak led the Geotechnical Group at Afcons Infrastructures, his colleague at IIT Mumbai, Murli Iyengar, who was then Executive Director of Engineers India Limited, recalls his path breaking work on Rammed Stone Columns at Vizag Refinery Project on Oil Storage Tanks on soft deposits. His paper on Stone Columns and Monitoring Instruments presented at the Asian Institute of Technology, Bangkok in 1982; Structures on ground improved with stone columns presented at Indian Institute of Technology, Roorkee in 1983 and on Recent advances in design and execution of stone column foundations, presented at the 12th International

Conference of the International Society of Soil Mechanics and Geotechnical Engineering held in Rio de Janeiro in August 1989 established him as a thought leader.

His work on high-speed jet grouting and Engineering Innovation in Concrete and Pile Foundation, presented at the Ambuja Knowledge Centre in September 2013 attracted me so much that, years later, I touched base with him and enquired about his exploits, The following is what he wrote to me in reply by email on 12 August 2019:

“On prestigious Konkan Railway Projects, all bridges, 200 odd numbers, were founded on open foundations or pile foundations except for few piers on Zuari and Mandovi rivers in Goa which were executed by AFCONS. These piers were provided with caissons / well foundations as they are navigational spans and are likely to have ship impact forces which pile foundations cannot resist. These well foundations were pneumatic foundations. But one of the well foundations, because of geotechnical data had to be rested 30 m below mean water level. This needed 3 bars (3 kg/cm²) compressed air pressure. With such air pressure, all the time is utilized in compression and decompression chamber and no time was available for the workers to work in. As a result, new concept was developed and with the consent of CMD of Konkan railways. Well, was made to rest on pile foundations, done for the first time in the world. These piles have cut-off 20m below the mean water level. Piles were installed by winch and tripod method. Still, they could be done to the required precision”.

“On Godavari River at Rajahmundry, two bridges- each of 2.6 km long- were required to be built by Gammon under EPC

contract. At the tender stage, they were foreseen to be built on well foundations. Finally, they were built on pile foundations. The depth of water in the river varied from 1m to 14 meters. Gammon wanted piling to be done by gantry piling but on my strong advice, they were converted into land piling. Approach bunds were made by filling dredge sand from the river and longitudinal water drainage was made by providing Hume pipe in bund. This method helped in very substantial reducing the cost and execution time”.

“During manual execution of Tunnel at Halligumma in Andhra Pradesh, there was a big cavity formation (20 m wide) at the surface due to the collapse of the overburden. Rectification job was awarded to AFCONS for which recourse was taken to the jet grouting technique, with the consent of all the players, including the client. One of the experts wanted jet grouting to be done vertically down to form a strong arch but that was not feasible because of the large size of the cavity at the surface. After considerable thought, AFCONS developed a technique of inclined grouting to form arch and completed the arch to proceed with the tunnelling”.

Dr N V Nayak joined Gammon India Limited in January 1996, and rose to the position of its Executive Director, the post he held from November 1998 to October 2001. He had also served as Managing Director and Chairman Geocon International Private Limited, Gammon Realty Limited, Mumbai. At every station of service and work, his leadership and expertise made a transformational difference on the ground. His dedication to excellence and innovation earned him widespread acclaim, accolades, and awards, including the esteemed Lifetime Contribution Award from the Deep Foundation Institute (DFI), India; Lifetime Achievement Award from the ACI India Chapter; Gopal Rajan Award of the Indian Institute of Technology, Roorkee in 2018, and the Kanara Ratna Award. He was an Honorary Fellow of Indian Geotechnical Society who had the honour of delivering IGS Annual Lecture in 1994. The same year, he was awarded IGS-Kuecklemann award.

Dr. Nayak was a prolific author and educator. He authored several highly rated books, including the most acclaimed "Foundation Design Manual" (7th Edition) and "Handbook on Advanced Concrete Technology". Authored jointly with Manish Mokal, a yet another Handbook on Quality and Productivity improvement of Concrete and Concrete Sustainability, was recognized by ACCE(I) as the best book publication in Civil Engineering and received Nagadi Award -2019. He is no more today, but his books will continue to guide engineers worldwide.

Dr Nayak, and I had the good fortune of pursuing studies for the degree of M. Tech at the Indian Institute of Technology, Bombay, under the guidance of legendary Professor R K Katti. He was my senior at IIT Bombay. Since then, we had been fellow travellers in the professional journey of our lives. Change of the annual calendars and the geographic distances that separated us could not weaken our ionic bond of friendship. Whenever our paths crossed, we often fondly reminisced about, Late Professor Katti who always believed that travel on difficult roads often lead to beautiful destinations. Not very long ago, thanks to the family of Professor Katti that both of us were fortunate to be part of the first Professor R.K. Katti Memorial lecture held in Mumbai on 25 March 2023. Little did I realise at that time that it would be final meeting with Dr Nayak.

A thousands of candles can be lighted from a single candle, and yet the life of the candle will not be shortened, said Lord Buddha. Dr Nayak repeated more or less the same words while paying respectful tribute to his teacher, Late Professor R.K. Katti, on his 95th Birthday. Now when Dr Nayak himself has left for heavenly abode, I have no doubt that his students will love to pay tribute to him with the very same words.

Interestingly, in his tribute to Professor Katti, Dr Nayak said that once Professor Katti asked him to play the role of a teacher by self-learning the phenomena of Consolidation of Soils and thereafter teach the same to his fellow colleagues. The entire batch of students were then put to test. After going through the question paper, Dr Nayak spotted out a bug in one of the questions and pointed it out. This brought an instant applause from Professor Katti, when he disclosed that the bug was deliberately planted to test our basic understanding of the subject. Dr Nayak got 110 marks out of 100”. The history may repeat when Dr Nayak’s students do what Professor Katti did to him 62 years ago!

Dr. Nayak's demise is being deeply mourned by his colleagues, peers, and the engineering community at large. His memory will forever remain etched in our minds as long as his enduring legacy of innovation, excellence, integrity, and courage will continue to make enduring impact on the field of civil engineering.

May his soul rest in peace

Rajendra Kumar Bhandari

A close friend and life-long colleague

Email: rajmee@yahoo.com

04 April 2024

IMPORTANT NEWS



- ✓ **Indian Geotechnical Journal is being published in 6 issues from 2019. February-April-June-August-October-December.**
- ✓ **Cover page of the Indian Geotechnical Journal has changed.**

AWARDS FOR PROFESSIONAL PRACTICE

CALL FOR NOMINATIONS

Indian Geotechnical Society calls for nomination of below mentioned new Professional Practice Awards to an IGS Members with Indian Nationality for outstanding contribution to Geotechnical Engineering in India.

The IGS has recently instituted the following four awards:

- IGS-Award for Outstanding contribution to Geotechnical Engineering Practice (Biennial)
- IGS-Leadership Award for contribution in Geotechnical Engineering Practice (Biennial)
- IGS-Gold Medal for the Best Geotechnical Engineering Practices on a project (Biennial)
- IGS-Young Professional Award for Geotechnical Engineering Practice (Biennial)

1. IGS-Award for Outstanding contribution to Geotechnical Engineering Practice sponsored by M/s Geo Dynamics, Vadodara

Screening Criteria

- The nominee shall be an IGS member for a minimum period of 10 Years before nomination.
- The minimum age shall be 55 years as of 31 August and not more 75 years as on 31 August of the calendar year
- Nominated by EC members or Local Chapters (Nomination Performa to be prepared) – or Self Nomination (with a recommendation from two IGS Fellows).
- The selection committee shall be 5 people, President, two Academicians (one EC member and one non-EC member) and two industry personnel (one EC member and one Non-EC member)
- The previous awardee is not eligible to apply again.

Selection Criteria

- Should have carried out exemplary work, advanced the profession, exhibited technical competence, introduced and adopted newer technologies and contributed significantly to geotechnical engineering industry in India.
- The nominee shall attach details of at least five projects on which he/she has contributed to the advancement of the state of geotechnical practice.
- At least 25 years of experience in the industry and should have at least ten years of experience in India.
- The nominee shall attach at least three testimonials from outside their organisation.
- Previous awards/honours shall be an added value.
- Published articles, contribution to a book, seminars, webinars will be added value.

Award

- The award will carry a cash amount of Rs. 35,000/-, a certificate, a citation (format to be prepared) and memento.
- The awardee shall be invited to deliver a special lecture during IGC.
- The awardee's work will be published in the IGS Newsletter
- If suitable nominations are not received, the award shall be deferred for that year

2. IGS-Leadership Award for contribution in Geotechnical Engineering Practice sponsored by IGS Surat Chapter in memory of Dr. M.D. Desai

Screening Criteria

- The nominee shall be an IGS member for a minimum period of 5 Years before nomination
- The minimum age shall be 35 years and not more than 55 years as of 31 August of the calendar year
- The nominee should have carried out exemplary work and contributed significantly to geotechnical engineering industry in India.
- Nominated by EC members or Local Chapters or Self Nomination (with a recommendation from two IGS Fellows)
- The previous awardee is not eligible to apply again.

Selection Criteria

- Should have demonstrated technical competence, introduced and adopted newer technologies and leadership qualities, implement good practices/innovation. The nominee shall have contributed significantly to the geotechnical engineering industry in India.
- Service as a role model or mentor that shows dedication to the advancement of the geotechnical field.
- The nominee shall attach details of at least three projects on which he/she has contributed to the advancement of the state of geotechnical practice.
- Should have at least ten years of experience in the industry, of which at least 07 years should be in India.
- The nominee shall attach at least two testimonials from outside their organisation.
- Previous awards/honors shall be an added value.
- Published articles, contribution to a book, seminars, webinars will be an added value

Award

- The award will carry a cash amount of Rs. 25,000/-, a certificate and memento.
- The awardee shall be invited to deliver a special lecture during IGC.
- The awardee's work will be published in the IGS Newsletter
- If suitable nominations are not received, the award shall be deferred for that year

3. IGS-Gold Medal for the best geotechnical engineering practices on a project sponsored by IGS Surat Chapter in memory of Dr. M.D. Desai

Screening Criteria

- The award is for professional companies / organizations working in India. Individuals shall not be considered.
- The nominee (Company/organisation) shall be an IGS associate member for a minimum period of 3 Years before nomination.
- Nominated by EC members or Local Chapters –or Self Nomination (with a recommendation from two IGS Fellows)
- Academic institutions, universities / colleges, research organizations are not eligible for the award

Selection Criteria

- The nominee (Company/Organisation) should have carried out exemplary work and contributed significantly to the geotechnical engineering industry in India.
- Noteworthy, proven technical achievement on one geotechnical project or program that represents a breakthrough or milestone or innovation in the geotechnical field.
- Demonstrate creativity, solving a complex problem, sustainability consideration and project planning and implementation
- The achievements or contribution should have been made during the 24 months preceding the nomination period.
- The nominee shall attach details of the projects on which the organisation has contributed to geotechnical solutions.

- The nominee shall be at least five years in the Indian industry.
- The nominee shall attach at least two testimonials from outside their organisation about the project.
- The previous awardee is not eligible to apply again with the same project

Award

- The award will carry a Medal, a certificate and memento.
- The awarded project will be published in the IGS Newsletter
- If suitable nominations are not received, the award shall be deferred for that year

4. IGS-Young Professional award for Geotechnical engineering practice sponsored by M/s Cengrs Geotechnica Pvt. Ltd., Noida

Screening criteria

- Should be a member of IGS at least for two years.
- Professionals below the age of 35 years as on 31 August of the calendar year, who have done work in the field and demonstrated potential to solve field engineering problems shall apply.
- Nominated by EC members or Local Chapters (Nomination Performa to be prepared) –or Self Nomination (with a recommendation from two IGS-Fellows)

Selection Criteria

- The person must have done exemplary work.
- The nominee should have professional experience of at least five years (with a minimum of two years in India).
- Noteworthy, proven, a technical achievement on at least one geotechnical project or program in the geotechnical field. A note on the project summary shall be attached along with the nomination.
- The nominee shall attach at least one testimonial from an expert within his/her organization or outside

Award

- The award will carry a cash amount of Rs 15,000/-, a certificate, and a memento.
- The awardee's work will be published in the IGS Newsletter
- If suitable nominations are not received, the award shall be deferred for that year.

Nominations for the IGS Professional Practice Awards are invited on the prescribed form available on the IGS portal. The completed nomination form should reach IGS Secretariat not later than 31st July, 2024.

IGC - 2025

IGC-2025 would be hosted by
IGS-Jalandhar Chapter

The Venue, Theme, scheduled dates etc. are being worked out and shall be announced soon.

Remembering PROF. M. N. VILADKAR



Prof. M. N. Viladkar, an exemplary human being, excellent researcher, and an academic stalwart in Indian engineering education, has left all of us for his eternal abode in the late evening of 1st February 2024, at the age of 74 years leaving his family, friends, and admirers in deep shock. I first came to know Prof. M.N. Viladkar as my colleague at University of Roorkee when I Joined as Lecturer in 1990. He was my immediate senior in Geotechnical Engineering group. He then became my teacher (Supervisor) for my PhD. Late Prof. Bhawani Singh was another supervisor. But our relationship was more like a friend which grew from strength to strength till the day he left for his heavenly abode. Prof. Viladkar was born on 9th of December 1949 in the state of Maharashtra. He graduated in Civil Engineering in 1972, master's degree in Geotechnical Engineering in 1974 from IIT Bombay and PhD in Civil Engineering in 1984 from University of Roorkee. He joined University of Roorkee as faculty in Civil Engineering in 1978, and remained Professor till 2015.

Prof. Viladkar carved out his own research career in newer areas of Rock Engineering which were developing in University of Roorkee under the mentorship of Prof. Bhawani Singh. He had a great love for the department, and he was always thinking of ways and means for its advancement. He was a very dedicated and innovative researcher. His contributions as researcher in the areas of - Static & Dynamic Structure–Foundation Interaction, Rock Mechanics & Rock Engineering, Numerical Methods in Geo-mechanics and Computational Nonlinear Mechanics are immense. During his service career, he has worked as a UNESCO Fellow at the International Centre for Mechanical Sciences, Italy and as a Visiting Professor at University of Wales, Swansea in UK

during 1987-88 for collaborative research in Computer Aided Analysis & Design in Civil Engineering. In 1989, he was also a Visiting Professor at Technical University, Budapest & Technical University for Heavy Industry at Miskolc in Hungary. During 1997-99, he also worked as a Visiting Scholar in the Department of Mechanical Engineering in the Hongkong University of Science & Technology, Hongkong.

Prof. Viladkar was the living embodiment of an ideal teacher. He was a friend, philosopher and a motivator to his students like me. His style of teaching always fascinated his students. What a grasp on the subject and what acumen he had to perceive the knowledge level of each of his students. He was a hard task master and used to tell his students 'You shall have to earn your degree. It is not going to be gifted'. He believed in making each of his students a "complete person". There was something special about his personality as a teacher. Each of his students felt that they were getting the same (if not better) attention and affection from him. That is why his students all over India and abroad have the same sense of gratitude towards him whether they are in administration, research, teaching, or business. His personality as a teacher can only be compared with an "aura" of sweet fragrance, which is equally shared by all around him. He was a pillar of strength to all his students and colleagues, in their moments of desperation. His blessings and guidance acted as a shade where one could rest in moments of despair. For us at IIT Roorkee, he was a perfect gentleman, a loyal friend, and a tower of strength in a time of need. His brilliance was spontaneous as revealed in all walks of his life, understanding the problems, and providing their solutions. He commanded tremendous respect from students and associates. Of the various PhD theses he supervised in Rock Mechanics, two PhD theses (Dr. Manoj Verma and Dr. N. K. Samadhiya) were awarded with Prof. Leonard's Prize of Indian Geotechnical Society. Of the Bureau of Indian Standards (BIS), New Delhi, he has been the Chairman of CED56 Committee on Hill Area Development Engineering and CED48 Committee on Rock Mechanics. In recognition to his overall contributions in Geotechnical Engineering, Indian Geotechnical Society (IGS) invited him to deliver the 39th IGS Annual Lecture for the year 2017, conferred upon him the coveted Kueckelmann Prize (Lifetime Achievement Award) in the year 2018 and conferred upon the Honorary Fellowship of IGS in 2019. Indian Society of Rock Mechanics & Tunnelling Technology (ISRMTT), New Delhi also honored him with Outstanding Contribution to Rock Mechanics Award in the year 2013.

I pay my humble homage and respect to him. May his soul rest in peace!

N.K. Samadhiya

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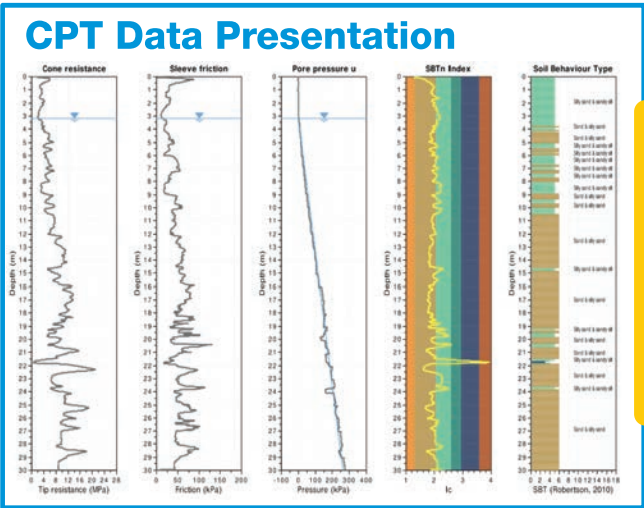
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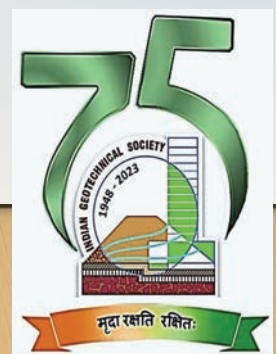
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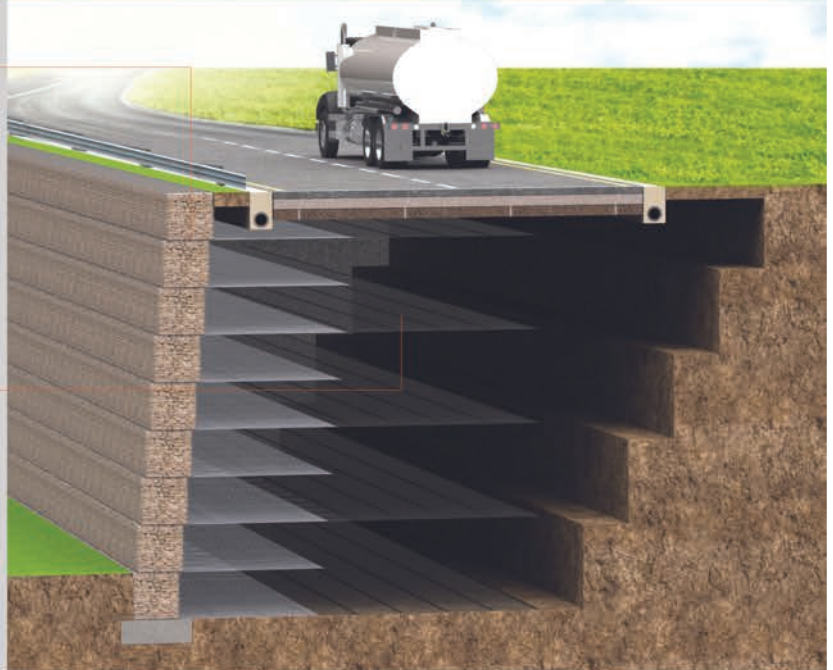
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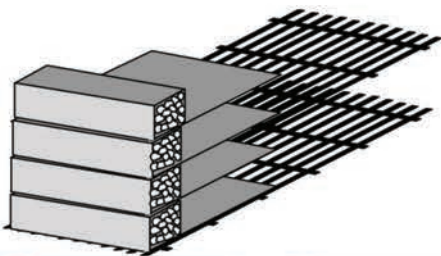
BIS certified environmentally friendly modular system used to form rock or vegetated (green) faced soil with either a vertical facing or an angled front face.

Paraproduct soil reinforcement geogrids

BIS & BBA certified strip bonded geogrids with high tenacity polyester core encased in a polyethylene sheath.



TerraMesh® System

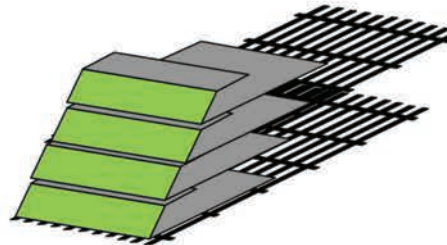


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50m² INSTALLED IN A SHIFT

GREAT PERFORMANCE UNDER HIGH LOADS

TerraMesh® Green



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TerraMesh® Success Stories

APPLICATIONS

 Retaining Walls & Soil Reinforcement

 Rockfall Protection & Snow Barriers

 Hydraulic Works

 Landscape & Architecture



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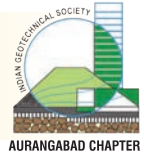
IGC - 2024

INDIAN GEOTECHNICAL CONFERENCE



Gramaudyogik Shikshan Mandal's
MIT
A Group of Academic & Research Institutions
AURANGABAD

'GEOTECHNICAL ENGINEERING FOR A SUSTAINABLE TOMORROW' (GEST 2024)



19th - 21st December, 2024 | Website: www.igc2024mit.com

Venue:

MIT Campus, Chhatrapati Sambhajnagar (Aurangabad), Maharashtra, India

Jointly Organized by :

Indian Geotechnical Society, Aurangabad Chapter

Civil Engineering Department, MIT, Chhatrapati Sambhajnagar, Aurangabad, Maharashtra

Invitation

Indian Geotechnical Society, Aurangabad Chapter and Civil Engineering Department, MIT, Chhatrapati Sambhajnagar, Aurangabad extends you a warm invitation to the IGC-2024 to be held at MIT Aurangabad.

Conference Themes

The main theme of the conference is 'Geotechnical Engineering for a Sustainable Tomorrow' (GEST 2024).

Conference Sub-Themes

- Geotechnical and Geophysical Investigation
- Foundations — Shallow & Deep
- Earth Retaining Structures
- Geosynthetics and Reinforced Soil Structures
- Forensic Geotechnical Engineering
- Soil Dynamics and Geotechnical Earthquake Engineering
- Ground Improvement Techniques
- Physical and Numerical Modelling
- Rock Mechanics, Tunnelling and Underground Structures
- Geo-Environmental Engineering
- Slope Stability and Landslides
- Transportation Geotechnics
- Uncertainties, Risk and Reliability in Geotechnical Engineering
- Soil Structure Interaction
- AI/ML Application in Geotechnical Engineering
- Geomaterial Characterization, Site Investigation and Exploration.

Key Dates

Date of Abstract Submission	30.04.2024
Intimation of Abstract Acceptance	15.06.2024
Last date for Full Paper Submission	20.08.2024
Intimation of Paper Acceptance	20.09.2024
Submission of Camera Ready Paper	05.10.2024
Last date for Registration of Accepted Papers	05.10.2024

Sponsorship Details

Category	Sponsorship Amount	Free Delegates	Stall Size	Presentation
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Diamond	Rs. 7,00,000/-	05	3x3m	7 min
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PG Students/ Research Scholars		INR 3000	INR 3500

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VISION

To attain excellence and be a leader in the field of Civil engineering and deliver of high-quality value-added services in Geotechnical/ Tunnel engineering to meet the societal needs

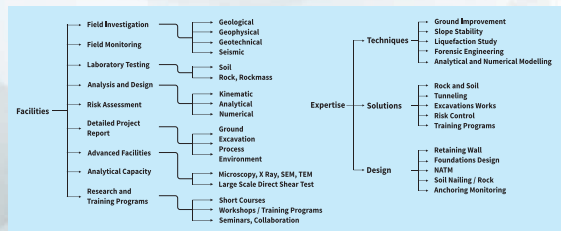
MISSION

To provide reliable and value-driven geotechnical, geophysical, and seismological services to clients through affordable analytical testing

OUR POLICY

GTRS is committed to maintain impartiality and confidentiality and perform tests with accuracy and deliver test results

GTRS also offers short courses and training programs in the relevant area of specialization



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GEOTECHNICAL EVENTS CALENDAR

ABROAD

2024

May 6-7

Jeddah, Saudi Arabia

International Geotechnical Innovation Conference collocated with International Port & Marine Development Conference on Advancements in Developing Smart and Sustainable Port Infrastructure for Strengthening Global Maritime Portfolio.

For Details:

E-mail: partnerships@gmevents.ae

May 7-10

Osaka, Japan

8th International Conference on Earthquake Geotechnical Engineering (8ICEGE).

For Details:

Website: <https://confit.atlas.jp/icege8?lang=en>

August 26-30

Lisbon (Portugal)

XVIII European Conference on Soil Mechanics and Geotechnical Engineering (ECSMGE 2024).

For Details:

Email: spg@lnec.pt

October 6-9

Algiers

18th African Regional Conference on Soil Mechanics and Geotechnical Engineering

in Algiers. The theme of the Conference is Geotechnical Engineering for Africa's Sustainable Development.

For Details:

Website: <https://18arc.algeos-dz.com/>

Email: info18arc@algeos-dz.com &

info18arc@gmail.com

November 18-20

Sydney, Australia

5th International Conference on Transportation Geotechnics, Ground Improvement and Evolving Technologies for Sustainable Transport Infrastructure.

For Details:

Website: <https://ictg2024-c10000.eorganiser.com.au/>

2026

September

Athens, Greece

4th International Symposium on Geotechnical Engineering for the Preservation of Monuments and Historic Sites organized by the Technical Committee 301 of the ISSMGE.

For Details:

Email: secretary@tc301-athens.com

INDIA

2024

September 22-27

New Delhi

International Society for Rock Mechanics and Rock Engineering (India) is hosting the prestigious ISRM International Symposium and the 13th Asian Rock Mechanics Symposium.

For Details:

Website: arms2024.org

Email: contact@isrmindia.org

December 19-21

MIT, Aurangabad

Indian Geotechnical Conference (IGC-2024) on 'Geotechnical Engineering for a Sustainable Tomorrow (GEST 2024)' organized by Indian Geotechnical Society, Aurangabad Chapter & Civil Engineering Department, MIT, Aurangabad.

For More Details Visit:

Website: www.igc2024mit.com

Address for Correspondence:

Organizing Secretary,

Indian Geotechnical Conference, IGC-2024

Department of Civil Engineering, MIT

Chh. Sambhajinagar (Aurangabad) - 431010

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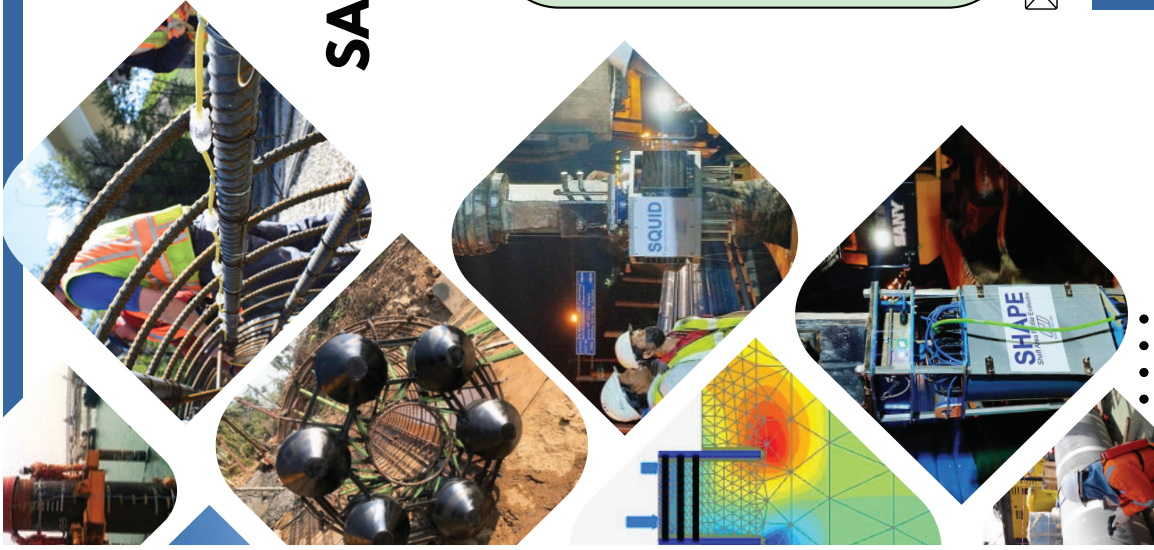
JOB OPENINGS

IGS head office is looking for a Technical cum Management officer to manage technical affairs of the society, correspond with national and international experts etc. The person will be expected to correspond with experts (should have good communication skills, command over English), have basic understanding of geotechnical terminology and should be able to conduct and manage geotechnical events, the society's publications, website etc.

Broadly, the expectations from the candidate shall be as follows:

1. Working in coordination with the Executive Secretary at the IGS office at Nehru Place, New Delhi for routine activities such as newsletter, journal, webinars and conferences, Executive Committee Meetings, email correspondences, etc.
2. Periodic handling of web requirements assessment and updating; follow with the website operator and handling technical material in homepage.
3. Coordinating with the 55 Local Chapters of the society in different cities of the country.
4. Streamlining student chapter activities
5. Assistance to ISSMGE University Committee.
6. Assistance to set up IGS Foundation.
7. Working in close coordination with the President and Honorary Secretary of the society or person nominated by them for various activities of the society.

Interested person, (preferably Delhi NCR based, but not essential) may please apply at admin@igs.org.in.



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Welcome to New Members

The Executive Committee of IGS extends hearty welcome to the following members who have been admitted to the Society recently/ elevated to Fellowship.

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