

IGS NEWS

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EDITOR



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Message from the President



Dear Distinguished Members,

Warm greetings to all members of the Indian Geotechnical Society. As we complete another eventful quarter, I am delighted to reflect on a period that has reinforced the growing stature of our Society, both nationally and internationally. The months from April to June 2026 have witnessed remarkable achievements, meaningful collaborations, and important institutional milestones that reaffirm our commitment to advancing geotechnical engineering through technical excellence, professional service, and global engagement. A defining moment during this quarter was my formal induction as Vice President (Asia) of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) during the Council Meeting held in Vienna on 14th June 2026. I accept this responsibility with gratitude and humility, considering it as a recognition of the collective efforts of the entire IGS fraternity. This achievement reflects the confidence reposed in the Indian geotechnical community and strengthens our responsibility to contribute actively towards the growth of geotechnical engineering across Asia and beyond.

The accomplishments of this team reflect the steadfast commitment of our sub-committee members, who, despite their demanding schedules, have devoted valuable time towards advancing the mission and growth of IGS. I extend my sincere appreciation to the SC1 Committee, under the leadership of Prof. Murali Krishna, for its dedicated efforts in strengthening the Society's digital initiatives. The committee has continued to enhance the IGS Virtual Library, regularly update the IGS website, and ensure that our members have access to a robust and efficient digital platform. The committee has also worked diligently to maintain and further refine the online Election Management Portal, building upon the successful

digital election process adopted in the previous election. Their efforts have ensured that the platform remains secure, transparent, reliable, and user-friendly for the forthcoming IGS Elections 2026. As per the approved election schedule, the nomination process will commence on 10 August 2026, followed by e-voting from 28 September 2026. The election schedule has already been published in the January–March 2026 issue of IGS News and is available on the IGS website. Members are encouraged to regularly visit the IGS portal for further updates and detailed information regarding the nomination and e-voting process.

At the same time, The SC2 team under the guidance of Prof. T. Thyagaraj and the SC3 under the leadership of Prof. Chandresh Solanki have worked relentlessly to strengthen our community. Their initiatives have focused on ISSMGE membership renewals and facilitating the transition of Local Chapter members to national membership. It is targeted to have a membership of 7000 by the year end. In addition, efforts are being intensified to increase ISSMGE membership to 400, thereby enabling greater representation and ensuring that nominees from IGS play a more significant role in the technical committee activities of ISSMGE.

I also wish to acknowledge the valuable contributions of Dr. C.R. Parthasarathy and the SC4 Committee for their sustained efforts in advancing the IGS Foundation and the Professional Forum. Their initiatives are laying the groundwork for several impactful programmes that will further strengthen member engagement, professional networking, and the long-term growth of the Society. My sincere appreciation also goes to Er. Ravikiran Vaidya and the SC5 Committee for their exemplary financial stewardship. Through prudent planning, disciplined fiscal management, and strategic investment decisions during the financial year 2025–26, the committee has maintained financial stability while substantially enhancing the Society's fixed deposit portfolio and investment returns.

Had opportunity to attend the 21st International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE 2026) held at Austria Centre, Vienna from 14th to 19th June 2026, which provided an excellent platform to strengthen international partnerships and exchange ideas with leading researchers, practitioners and policymakers. The conference witnessed the participation of about 35 delegates from the Indian Geotechnical Society, demonstrating India's strong presence at the event. The conference marked the beginning of a new chapter under the leadership of Prof. Lyesse Laloui as President of ISSMGE. IGS looks forward to working

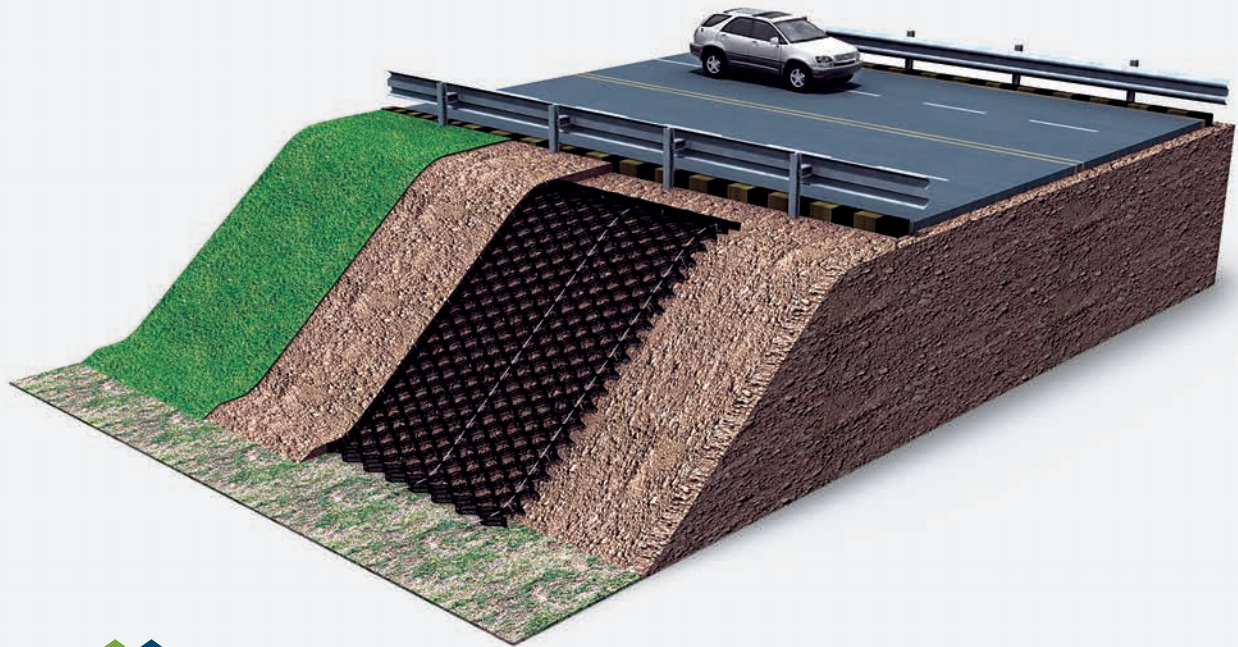
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WHEN IT POURS. STRATA REIGNS.

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closely with the new Board in promoting technical cooperation, capacity building and knowledge exchange among member societies. The vision of stronger regional cooperation also continued to gain momentum through the activities of the Association of Geotechnical Societies of South Asia (AGSSA). Our discussions with the incoming ISSMGE President reaffirmed the importance of collaborative initiatives among South Asian nations. I am encouraged by the enthusiastic participation of our neighbouring societies and confident that AGSSA will continue to evolve as a vibrant platform for regional technical collaboration and professional friendship. Immediately after assuming my responsibilities within ISSMGE, I had the privilege of representing ISSMGE as Vice President Asia and also as IGS President at the 3rd Deep Foundations and Underground Infrastructure (DFUI 2026) Conference in Dubai. The 2nd India–Japan–Korea Trilateral Workshop is scheduled to be held on 28 August 2026 in Seoul, Republic of Korea. India will be represented by a team of 7 delegates. I am confident that it will further strengthen technical collaboration and knowledge exchange among the geotechnical societies of India, Japan, and Korea. I take this opportunity to sincerely appreciate the dedicated efforts of our International Cooperation Committees—SC6 (Technical Committee Activities) under the leadership of Dr. S.K. Prasad and SC7 (Networking) led by Prof. D. Neelima Satyam.

Under the dynamic leadership of Prof. Dasaka S. Murty, the SC8 Committee continues to strengthen the national presence of IGS by actively striving for the establishment of new Local Chapters at Rewa, Anantapur, Dehradun, Kannur, and Rourkela. The inauguration of the 57th Local Chapter of IGS at Rourkela marks another important milestone in expanding our national footprint and bringing more professionals and students into the IGS family.

The vibrant activities of our Local Chapters continue to be the cornerstone of IGS, providing valuable platforms for technical exchange, professional networking, and capacity building across the country. During this quarter, several chapters organized outstanding programmes that reflected the diversity and strength of our geotechnical community. The IGS Kochi Chapter celebrated its 18th Charter Day on 24 April 2026, bringing together members and distinguished guests to commemorate its journey and achievements. The IGS Goa Chapter, in association with the Brazilian Geotechnical Society, successfully organized the 8th Dr. Victor de Mello Goa Lecture and Dr. Victor de Mello Centenary Symposium, where Prof. T.G. Sitharam delivered the prestigious Centenary Lecture on "Chenab Bridge – The Arch of Ambience: Advanced Geotechnical Strategies and Sustainable Foundation Design." This was followed by the ISSMGE Technical Committee 107 Symposium on Landslides in Tropical Soils, which featured insightful deliberations on landslide hazards, slope stability, lateritic soils, early warning systems, and numerical modelling relevant to tropical environments. The IGS Palakkad Chapter, jointly with the Indian Roads and Street Management (IRSM), IEI Palakkad Chapter, and IIT Palakkad, organized SATVA 2026 – Symposium on Advanced Technologies and Visionary Approaches for Sustainability, highlighting innovative approaches towards sustainable transportation infrastructure. I also had the privilege of serving as the Guest of Honour at the online lecture organized by ISSMGE Technical Committee 301 – Historic Sites, where Prof. Claudio Margottini, UNESCO Chair at the University of Florence and President of IAEG Italy, delivered an enlightening lecture on "Engineering Geology at the Frontline of World Heritage Protection." These programmes exemplify the high technical standards and professional commitment demonstrated by our Local Chapters, and I extend my heartfelt congratulations to all the organizers and volunteers for their dedicated efforts. Strengthening and revitalizing our chapter network continues to receive focused attention. As part of this initiative, I had the opportunity to interact with Dr. Rakesh Kumar and Er. Pitambar Datt of the IGS Bhopal Chapter to deliberate on strategies for revitalizing chapter activities and enhancing student engagement through the establishment of a new Student Chapter. In parallel, the SC9 Committee, under the leadership of Ms. Aarti Bhargava, has been working diligently to rejuvenate Local Chapters across the country by closely engaging with dormant chapters, fostering greater coordination, and introducing new initiatives to encourage active participation and sustained growth.

The future of any professional society rests in its ability to nurture young talent, encourage innovation, and recognize excellence. In this regard, the SC10 Committee, under the stewardship of Prof. N. Unnikrishnan, has been instrumental in expanding the Society's student outreach through the establishment of new Student Chapters and the successful organization of a variety of youth-centric programmes across the country. Complementing these efforts, the SC11 Committee, led by Prof. G. Madhavi Latha, continues

to develop meaningful initiatives that foster the technical growth, leadership skills, and professional advancement of young geotechnical engineers. At the same time, the SC12 Committee, under the guidance of Prof. R. Ayothiraman, is undertaking a comprehensive review of the IGS Awards Guidelines, ensuring that the Society's recognition framework remains contemporary, transparent, and aligned with evolving professional standards. I sincerely commend these committees for their vision, dedication, and invaluable contributions towards shaping the next generation of geotechnical professionals.

The consistent dissemination of knowledge and promotion of professional excellence remain central to the mission of IGS. Under the editorial leadership of Prof. Anitha G. Pillai, the SC13 Committee has continued to publish the IGS Newsletter with exceptional quality, ensuring that members remain informed about the Society's achievements, technical developments, and international engagements. I also express my sincere appreciation to Dr. Jaykumar Shukla and the SC14 Committee for their proactive involvement in Bureau of Indian Standards (BIS) activities and their continued efforts in strengthening national geotechnical standards. It is heartening to see many IGS members actively contributing to various BIS committees, thereby influencing the development of engineering standards at the national level. Equally noteworthy are the initiatives of the SC15 Committee, under the leadership of Dr. G. Sridevi, whose efforts through the Women's Forum are fostering greater inclusivity, professional networking, and leadership opportunities for women in geotechnical engineering. Together, these committees are enriching the intellectual, professional, and inclusive culture of our Society.

One of the most satisfying achievements of this quarter has been the successful completion of the purchase of the new IGS Headquarters at Prime Towers, Okhla, New Delhi. This milestone is much more than the acquisition of additional office space, it represents our confidence in the future of the Society. The new headquarters will strengthen our institutional capacity, improve administrative efficiency and provide the infrastructure required to support the expanding activities of IGS. I sincerely congratulate Dr. A.P. Singh and the entire SC16 Infrastructure Development Committee, SC5 Finance Committee, National Executive Committee and every member whose vision, perseverance and teamwork made this long-cherished objective a reality. During this period, we were able to conduct the sale of the property at Deepali Building with the efforts of the infrastructure committee.

The SC17 Laboratory Testing Forum, under the convenorship of Dr. C.N.V. Satyanarayana Reddy, is promoting excellence in laboratory testing practices by facilitating technical discussions and knowledge sharing among professionals. Complementing these efforts, the SC18 Skill Development Forum, led by Prof. H.N. Ramesh, is actively fostering capacity building through initiatives aimed at strengthening the practical skills and technical proficiency of engineers and young professionals. Meanwhile, the SC19 Committee, under the leadership of Prof. B.K. Maheshwari, continues to enrich the Society's digital learning ecosystem by expanding access to advanced geotechnical software and technical resources. The committee has been instrumental in providing software support, including PLAXIS, for student research and academic projects, while also pursuing the acquisition of additional specialized software such as MIDAS to further enhance learning, research, and professional practice across the IGS community.

As we move towards the **12th International Symposium on Field Monitoring in Geomechanics (ISFMG 2026)**, I invite every member to actively participate in this prestigious international event. It presents an excellent opportunity to showcase India's technical capabilities while strengthening collaborations with researchers and practitioners from around the world. Let us work together to make ISFMG 2026 another landmark achievement in the history of our Society.

The future of IGS will not be defined merely by the conferences we organize or the milestones we achieve, but by our ability to inspire innovation, uphold professional integrity, mentor young engineers and serve society through engineering excellence. I am confident that, with the continued support of every member, we will further elevate the standing of IGS as one of the most respected geotechnical societies in the world. I conclude with the timeless words of **Nelson Mandela**, "*Vision without action is just a dream. Action without vision just passes the time. Vision with action can change the world.*" Let us continue to transform our shared vision into meaningful action and work together to build a stronger, more resilient and globally respected Indian Geotechnical Society. Together we can and we will.

Dr. Anil Joseph

Case Study on Foundation Optimisation for a high-rise building

C.R. Balaji¹ and Prof. V.S. Raju²

High rise buildings are very common due to urbanisation and limited land resources. The majority of foundations adopted based on recommendations of geotechnical investigation agency are pile foundations (bored cast in-situ piles).

Foundation optimisation is the key to ensure economy, speed of construction and sustainability.

A case study on a high-rise having configuration of 4 basements, ground floor and 24 upper floors is presented. The founding level is 20 m below existing ground level (EGL). The project has already constructed high end villas on one side, major connecting roads on two sides and an open plot on one side.

The initial investigations were in the form of trial pits only. Five trial pits upto a depth of 3.7 m depth below EGL were done. The strata is highly weathered rock at top, followed by moderately weathered rock and hard rock even within the explored depth of 3.7 m. During site visit, rock outcrops were also seen. The recommended safe bearing capacity was 40 t/m², which is not only too low and also inappropriate as the founding level is at 20 m depth below EGL.

The inadequacy of soil investigations were brought to the notice of the owners. The owners discussed with the structural consultants and on their recommendations, it was decided to do 15 additional boreholes. However, considering the uniformity in the soil stratification, only 3 additional boreholes were recommended by us upto a depth of 3 m below founding level. To save time, pneumatic drilling equipment was used to advance the borehole upto the founding level. Rock coring was done from that level to 3 m below founding level.

The core recoveries were in the range of 30% to 60%. However, the core recoveries reported were lower than what is expected in such strata (based on our visual identification). The lower core recoveries are attributable to poor quality soil investigations. Because of wobbling of the soil boring rig, the cores were broken and could not be collected.

Unconfined compressive strength tests were carried out on the samples which was ranging between 7400 t/m² to 10,000 t/m². The point load strength was in the range of 130 to 260 t/m². This translates to 3250 t/m² to 6500 t/m² of compressive strength of rock.

Based on the above, the rock mass rating (RMR) was done. The net safe bearing pressure works out to 210 t/m².

Considering all the above, we recommended isolated footings with a minimum size of footing as 2 m x 2 m with SBC of 400 t/m². However, the requirements from structural consideration was 250 t/m² only.

With increased SBC from 40 t/m² to 250 t/m², the originally envisaged raft foundation was converted to isolated footings with stitched slab resulting in savings of excavation in hard rock, volume of concrete and steel (as compared to a raft foundation). This also reduced control blasting as the same needs to be done keeping in mind the presence of the adjacent high-end villas.

Appropriate soil investigations are the key for optimum and safe foundations. The cost of soil investigations is a miniscule compared to the total cost of the project. In addition, substantial savings in the cost of foundation system and time of execution are achieved.

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2. Formerly: Director, IIT Delhi; Prof & Dean, IIT Madras, vsraju40@gmail.com

IGC - 2027

IGC-2027
would be hosted by

IGS-Patna Chapter

The venue, theme, scheduled dates etc.
are being worked out and shall be announced soon.

Now Online Membership Available

The homepage of the Society has been updated and a new online membership platform has been created to facilitate joining of new members.

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SUMMARY OF Ph.D THESES

Title of Thesis:

Efficacy of Microorganisms to Improve the Behaviour of Ganga River Sand using Microbially Induced Calcite Precipitation (MICP) Technique for Geotechnical and Geoenvironmental Applications



Name of the Student: Dr. Abhishek Tarun

Supervisor: Dr. Arvind Kumar Jha

Department & Institute: Department of Civil and Environmental Engineering, Indian Institute of Technology Patna

SUMMARY: This research investigates sustainable Microbially Induced Calcite Precipitation (MICP) for improving Ganga River sand through systematic optimization of treatment parameters, bacterial concentration, cementation cycles, and nutrient composition. The study evaluates enhancements in engineering properties, erosion resistance, and durability while exploring heavy metal immobilization and bioremediation of contaminated soils. Sustainable bio-cementation is achieved using waste-derived resources, including cattle urine as an alternative urea source and eggshell powder as an eco-friendly calcium source, reducing environmental impacts. Advanced characterization techniques validate calcite precipitation and microstructural changes, demonstrating an environmentally responsible, cost-effective, and scalable ground improvement technology for geotechnical and geoenvironmental engineering applications.

Title of Thesis:

Thermo-Mechanical and Freeze-thaw induced Damage in Jointed and Grouted Rock Mass under Different Loading Systems



Name of Student: Dr. Gaurav Kumar Mathur

Supervisor: Dr. Arvind Kumar Jha and Dr. Gaurav Tiwari

Department & Institute: Department of Civil and Environmental Engineering, Indian Institute of Technology Patna

SUMMARY: This research work investigates the thermo-mechanical and freeze-thaw induced damage behavior of jointed and grouted rock masses under different loading systems. Artificial rock samples (Plaster of Paris and dental plaster) and natural Chunar sandstone were tested in ungrouted and grouted conditions using cement, SCB, and epoxy grouts. Experimental studies involved high-temperature exposure, freeze-thaw cycles, uniaxial compression, cyclic loading, indirect tensile loading, and cyclic confining pressure. Digital Image Correlation, FESEM, XRD, and MIP analyses were used to evaluate fracture evolution and microstructural changes. Results demonstrate that grouting improves strength and durability, though performance significantly depends on environmental severity.

Title of Thesis:

Performance Evaluation of Service Pile due to Adjacent Supported Excavation



Name of Student: Dr. Abhirami B

Supervisor: Dr. S Karthigeyan

Department & Institute: Division of Soil Mechanics and Foundation Engineering, Faculty of Civil Engineering, College of Engineering, Guindy, Anna University, Chennai

SUMMARY: This study investigates the behaviour of loaded single piles and pile groups adjacent to excavations in sandy soil using validated three-dimensional PLAXIS 3D numerical models. The influence of excavation depth, pile geometry, soil density, load combinations, pile spacing, and group configuration was evaluated through comprehensive parametric analyses. Results indicate that excavation depth and pile-head lateral loading significantly affect pile deformation and bending moments. The study provides practical insights and predictive relationships for assessing service pile performance near excavations.

Title of Thesis:**Analysis of Laterally Loaded Piles on Sloping Ground under Static and Cyclic Loading in Cohesionless Soil****Name of Student:** Dr. Rathod Kiran**Supervisor:** Dr. G. Kalyan Kumar**Department & Institute:** Department of Civil Engineering, National Institute of Technology Warangal

SUMMARY: The behavior of piles under lateral loading varies significantly between horizontal and sloping ground conditions. This research aims to investigate the behavior of single piles and pile groups in horizontal and sloping ground under static, cyclic, and combined loading conditions. A 1-g model study was conducted using aluminium model piles fabricated according to dimensional scaling laws, with aspect ratios of 12, 25, and 40. The study evaluates variations in load–deflection response and bending moment characteristics under different loading conditions. Results indicate that sloping ground significantly affects pile performance, leading to reduced lateral load capacity and altered deflection patterns compared to horizontal ground. The findings provide valuable insights for the design and analysis of pile foundations in sloping ground.

Title of Thesis:**Seismic Hazard Assessment Incorporating Local Site Effects and Land Use Land Cover****Name of Student:** Dr. Rajana Siva Raghava Siddhardha**Supervisor:** Dr. G. Kalyan Kumar**Department & Institute:** Department of Civil Engineering, National Institute of Technology Warangal,

SUMMARY: This study integrates local site effects and land use land cover (LULC) dynamics into deterministic and probabilistic seismic hazard assessment of Prakasam district, India, using statistical and machine learning techniques. A homogenized earthquake catalogue (1800–2023) and seismotectonic characterization were used to delineate seismic source zones, estimate Gutenberg–Richter seismicity parameters, and rank GMPEs using the Log-likelihood(LLH) method. DSHA and PSHA produced spatial PGA maps and Uniform Hazard Spectra. LULC changes (2001–2024) were mapped using Maximum likelihood (ML), Random Forest (RF) and Support Vector Machine (SVM) classifiers. MASW based Vs30 and 1D equivalent-linear ground response analysis quantified site amplification, enabling development of an integrated seismic hazard and LULC map for resilient infrastructure planning.

Title of Thesis:**Response of Laterally Loaded Piles Placed on and Near Finite Slopes****Name of Student:** Dr. Yamini Jala**Supervisor:** Prof. Vishwas A. Sawant and Prof. Anumita Mishra**Department & Institute:** Department of Civil Engineering, Indian Institute of Technology Roorkee, Uttarakhand

SUMMARY: The study investigates the lateral response of single piles and 2×2 pile groups in sandy slopes under static and dynamic loading using validated three-dimensional PLAXIS 3D finite-element analyses and laboratory model tests. Parametric investigations consider soil relative density (30-70%), slope angle (10° - 30°), slope height (15-35 m), embedment ratio ($L/D = 10$ -30), and pile location from the embankment side crest to the slope toe. Mohr-Coulomb and Hardening Soil models are employed to represent soil behavior. Modified p-y curves are developed from cubic spline-fitted bending moment profiles. Findings improve understanding of soil-pile interaction and provide practical guidance for pile design in sloping ground.

Title of Thesis:**Behaviour of Connected and Unconnected Piled Raft Foundation on Cohesive Soils****Name of Student:** Dr. Shashank Singh**Supervisor:** Prof. Chandresh H. Solanki and Dr. Shruti J. Shukla**Department & Institute:** Department of Civil Engineering, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, Gujarat

SUMMARY: This thesis investigates the behaviour of Connected and Unconnected Piled Raft Foundations (CPRF and UCPRF) on cohesive soils under vertical static loading using three-dimensional finite element modelling and experimental validation. The influence of pile spacing, pile length, raft thickness, number of piles, and cushion stiffness on load-sharing and settlement response was systematically evaluated. Results indicate that CPRF provides superior settlement reduction and stiffness compared to UCPRF, while UCPRF exhibits delayed pile mobilisation due to the compressible cushion. Time-dependent consolidation analyses demonstrated significant reductions in excess pore water pressure and consolidation time for CPRF, with progressive transfer of load from piles to the raft during consolidation. The study proposes practical design recommendations for optimising piled raft foundations in cohesive soils, leading to economical and reliable foundation solutions.

Title of Thesis:

Reliability Analysis of Unsaturated Finite Slopes under Rainfall Conditions Using Data-Driven Computational Frameworks

Name of Student:

Dr. Abdul Waris

Supervisor:

Prof. B. Munwar Basha

Department & Institute: Department of Civil Engineering, Indian Institute of Technology Hyderabad, Kandi, Sangareddy



SUMMARY: This research presents computational frameworks for deterministic and reliability-based analysis of unsaturated soil slopes under rainfall conditions by integrating unsaturated soil mechanics, the Morgenstern–Price method, machine learning, and surrogate-assisted reliability techniques. Novel formulations are developed for displacement-based slope analysis and probabilistic assessment considering geotechnical variability, soil-water characteristic curve parameter correlations, and rainfall infiltration. Kriging-assisted Monte Carlo simulation provided accurate reliability estimates with substantially lower computational cost than direct simulation. The developed framework identified the influence of friction angle and variability on failure probability, produced reliability-based design charts, and successfully reproduced the Idukki (2018) and Rize (2017) landslides, demonstrating its practical applicability.

Title of Thesis:

Stabilization of Expansive Soil with Agro-based Waste Products: An Experimental Investigation and Prediction Modeling

Name of Student:

Dr. Ankur Abhishek

Supervisor:

Prof. Anasua Guha Ray and Prof. Toshiro Hata

Department & Institute: Department of Civil Engineering, BITS Pilani - Hyderabad Campus



SUMMARY: This research integrated experimental geotechnical testing, microstructural characterization, predictive modeling, reliability-based assessment, field-scale plate load testing, and advanced numerical simulation into a unified framework for sustainable ground improvement. The findings demonstrated that Rice Husk Ash (RHA) and Coconut Husk Ash (CHA) are effective, eco-friendly stabilizers for expansive Black Cotton Soil (BCS), improving engineering performance while reducing reliance on conventional stabilizing agents. The developed predictive and reliability models, together with validated PLAXIS 3D simulations, provided practical tools for the design and analysis of foundations and pavement subgrades constructed on stabilized expansive soils.

Title of Thesis:

Coupled Effect of Calcined Coal Gangue and Xanthan Gum in Enhancing the Geotechnical Properties of Dispersive Soil

Name of Student:

Dr. Narlagiri Snehasree

Supervisor:

Dr. Arif Ali Baig Moghal

Department & Institute: Department of Civil Engineering, National Institute of Technology Warangal (NITW), Warangal, Telangana



SUMMARY: This study addresses the instability of dispersive soils caused by high exchangeable sodium and low electrolyte content, which can lead to erosion and structural failures. To overcome environmental and economic drawbacks of conventional stabilizers like lime and cement, the research explores sustainable alternatives—Calcined Coal Gangue (CCG) and Xanthan Gum (XG). Their individual and combined effects on geotechnical properties, including Unconfined Compressive Strength, compaction,

swelling, and erosion resistance, were evaluated over varying curing periods. Microstructural analyses (XRD, FTIR, SEM) revealed improved performance through ion exchange and binding mechanisms. The study also assesses CO₂ emissions and leachability, demonstrating that CCG–biopolymer treatment is an effective, eco-friendly solution for stabilizing dispersive soils.

Title of Thesis:

Development of a Mix Design Method for Effective Stabilisation of Expansive Soils using Lime and Rice Husk Ash

Name of Student: Dr. Chandru S.

Supervisor: Dr. S. Jayalekshmi

Department & Institute: Department of Civil Engineering, National Institute of Technology, Tiruchirappalli



SUMMARY: This study evaluated lime stabilisation of expansive soils using two approaches: Self-induced Pozzolanic Treatment (SPT) and Externally induced Pozzolanic Treatment (EPT) with rice husk ash (RHA). EPT enhanced pozzolanic reactions, producing higher strength, complete lime utilisation, and stable C–S–H formation. Compared with SPT, EPT showed superior resistance to moisture, sulphate, carbonation, and desiccation-induced deterioration, reducing the risk of premature failures. A simplified electrical conductivity-based batch test was developed to determine optimum lime content and mix design for soils of varying expansivity. The proposed EPT method provides a durable, sustainable, and practical solution for resilient expansive soil stabilisation.

Title of Thesis:

Explainable Machine Learning Framework for Landslide Susceptibility and Slope Stability with Site Characterization in the Himalayan Region

Name of Student: Dr. Sonam Ladol

Supervisor: Dr. Satyendra Mittal, Dr. Alok Bhardwaj and Dr. Mark Jaksa

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



SUMMARY: This research aims to develop an Explainable Machine Learning-based landslide susceptibility framework, followed by a detailed site-specific investigation of critical landslides along NH-707 in Himachal Pradesh, India. The statistically consistent Random Forest model effectively identifies landslide-prone areas and supports sustainable infrastructure planning. A combined UAV survey, geotechnical characterization, rainfall threshold analysis, slope stability assessment, and remedial measure design were also performed. Furthermore, surrogate machine learning models with a graphical user interface were developed to enable rapid FoS estimation and provide reliable tools for geotechnical engineering applications.

Title of Thesis:

Assessment of Tunnel-Soil Interaction under Dynamic Conditions

Name of Student: Dr. Amith K.S.

Supervisor: Dr. Ganesh Kumar S., Prof. Jie Li, Dr. Jianhu Shen and Dr. Rajeev Roychand

Department & Institute: Academy of Scientific and Innovative Research at CSIR CBRI Roorkee under AcSIR-RMIT Joint PhD Program, Geotechnical Engineering and Geohazards Group



SUMMARY: This thesis investigated the dynamic responses of square and circular tunnels in dry and varying saturated ground conditions using 1-g shaking table tests and numerical simulations. Results revealed that shaking history and duration primarily governed pore water pressure generation and tunnel displacement under multiple earthquake events. Additionally, numerical simulations demonstrated that stone columns, as a ground improvement technique, effectively mitigated excess pore water pressure and tunnel uplift under seismic loadings.

Title of Thesis:

Liquefaction Potential Assessment of Sandy Soils Using Nonlinear Finite Element Analysis

Name of Student: Dr. Shiladitya Mandal

Supervisor: Prof. G.R. Dodagoudar

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



SUMMARY: This study investigates Holocene sand-like deposits in Kolkata, India, using effective-stress-based nonlinear ground-response analysis for seismic microzonation. Site-specific calibration using multiple in-situ geotechnical data and liquefaction triggering criterion is validated against the Wildlife case study for the 1987 Superstition Hills earthquake. While 1-D analysis captures pore-pressure buildup, it underestimates spectral response due to simplified formulations. Fully coupled plasticity models within 2-D and 3-D finite element analyses, including bidirectionality and permeability variations post-liquefaction, improve understanding of liquefaction potential and site-response characteristics, supporting seismic microzonation, future risk assessment, and mitigation planning.

Title of Thesis:

Seismic Response and Potential Failure Mechanisms of Geosynthetic Reinforced Soil (GRS) Walls Comprising Various Fascia Configurations

Name of Student: Dr. Mihretab Madamo

Supervisor: Dr. Arindam Dey

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



SUMMARY: This research focuses on understanding how geosynthetic reinforced soil (GRS) retaining walls behave during earthquakes. Using advanced numerical modelling, I compared different wall facing systems under static, pseudo-static, and dynamic loading conditions. The study examined how wall geometry, reinforcement properties, backfill soil, and earthquake characteristics affect wall movement, reinforcement forces, and failure patterns. The results show that wall facing, reinforcement stiffness, and backfill soil properties play a major role in improving seismic performance. This research provides practical recommendations for designing safer, more durable, and earthquake-resistant reinforced soil retaining walls for engineering applications.

Title of Thesis:

Seismic Response of Granular Slope Stabilized by Geocell Fascia and Reinforcement: 1-g Shake Table Testing and Finite Element Analysis

Name of Student: Dr. Sureka S.

Supervisor: Dr. Arindam Dey

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



SUMMARY: The seismic behaviour of geocell-reinforced granular slopes is investigated through integrated experimental and numerical studies. Elemental testing, 1-g shake table experiments, 3D-printed geocells, and finite element modelling were employed to evaluate different reinforcement configurations and geocell types under various earthquake motions. Results demonstrate that geocell reinforcement enhances stiffness, damping, confinement, and seismic resilience while significantly reducing deformation and lateral earth pressures. The fascia with internal reinforcement configuration provided the best overall performance. The study also validates the Equivalent Composite Approach for modelling geocells and offers practical design recommendations for resilient geocell-reinforced slopes and retaining systems in earthquake-prone regions.

Title of Thesis:

A Mechanistic and Trait-Based Framework for Selecting Indigenous Species for Slope Bioengineering Using Root Reinforcement and Soil-Root Interaction

Name of Student: Dr. Charu Chauhan

Supervisor: Dr. Kala Venkata Uday and Dr. Prashanth Vangla

Department & Institute: School of Civil and Environmental Engineering, Indian Institute of Technology Mandi



SUMMARY: The research work investigates the biomechanical, chemical, and architectural properties, including tensile strength, stiffness, cellulose content, and various root traits, of native western Indian Himalayan species. The study investigates the combined influence of soil and root characteristics on individual root pullout resistance. Furthermore, 3D-printed root models were fabricated to represent an idealized root system architecture with controlled geometry to understand the influence of root system architecture on root-soil mechanical interactions. The findings of this work provide a comprehensive understanding of the mechanical role of Himalayan plant roots in soil reinforcement and offer optimized parameter combinations for use in nature-based slope stabilization strategies. Also, the study proposes a root trait-based framework for selecting and positioning vegetation species to optimize slope reinforcement.

IGS Bangalore Chapter

The workshop on Applications of Geosynthetics for Sustainable Infrastructure (AGSI)-2026 was successfully organised on May 8, 2026, at the Faculty Hall, Indian Institute of Science (IISc), Bengaluru. The event was organised by the IGS Bengaluru Chapter in association with IISc Bengaluru and Geoquest India Pvt. Ltd. The workshop aimed to provide a comprehensive understanding of geosynthetics and their role in sustainable infrastructure development. It brought together academicians, industry experts and practising engineers to discuss innovations, applications and practical challenges in the field.

During the inaugural session, Prof. Ananth Ramaswamy highlighted the legacy and excellence of IISc and its Department of Civil Engineering. Prof. G. V. Rao spoke on the importance of geosynthetics in sustainable infrastructure. Mr. Atanu Adhikari introduced Geoquest India and its contributions to the field, while Dr. Anand Hulagabali outlined the objectives of the AGSI-2026 workshop.

The technical sessions covered advancements in soil reinforcement; the design and construction of mechanically stabilised earth (MSE) walls; and real-world case studies demonstrating their applications. Other topics included



Participants with the speakers of the workshop

cost-effective drainage solutions using geosynthetics; riverbank and canal protection using fabric form concrete mattresses; applications in high-speed rail projects; soft ground improvement techniques using basal reinforcement and prefabricated vertical drains; and 3D printing of geosynthetics, focusing on customisation and performance enhancement.

A key highlight of the workshop was the panel discussion on MSE wall failures, during which experts deliberated on the causes of failures, preventive measures and relevant codal guidelines. The interactive session enabled participants to gain valuable practical insights from experienced professionals. The workshop concluded with closing remarks followed by a visit to the Geosynthetics Laboratory at IISc, where participants gained practical exposure

to testing methods and laboratory applications.

The IGS Student Chapter of the Department of Civil Engineering, Ramaiah Institute of Technology (RIT), Bengaluru, organised a technical talk on Principles of Design and Construction of Reinforced Earth Walls on May 26, 2026. The session was delivered by Dr. Anand Murigeppa Hulagabali, Senior Manager – Specification Engineering, Geoquest India, a subsidiary of Soletanche Freyssinet. The programme was attended by M.Tech Structural Engineering students of RIT and undergraduate students from Ramaiah University of Applied Sciences.

In his talk, Dr. Hulagabali discussed the importance of reinforced earth (RE) walls in a wide range of infrastructure projects and explained the principles involved in their design and construction. He elaborated on the various geosynthetics used in RE wall systems, including Geostrips and Fabric Form Concrete Geomattresses, supported by practical case studies. The session also emphasised the importance of providing an aggregate layer adjacent to RE walls for efficient pore water dissipation. Recent advancements and innovations in the aesthetic design of facing elements used in reinforced earth wall systems were also presented. The interactive session provided participants with valuable insights into current industry practices and recent developments in reinforced earth technology.



IGS Bhubaneswar Chapter

The two-day international workshop, Geoenvironment 2026: International Workshop on Landfill Mining of Legacy Waste, was organised at IIT Bhubaneswar on May 22–23, 2026, by the IGS Bhubaneswar Chapter. The workshop brought together researchers, practitioners, policymakers, industry representatives and government officials to discuss the scientific, technical and policy challenges associated with the implementation of biomining projects in India. The primary objective of the workshop was to deliberate on the scientific and technical challenges associated with the large-scale

implementation of biomining projects under the Swachh Bharat Mission (SBM) 2.0.

The Chief Guest of the inaugural session was Sh. Chanchal Rana, Commissioner, Bhubaneswar Municipal Corporation. In his inaugural address, Sh. Rana emphasised the importance of scientific investigations and technical deliberations for the successful execution of biomining projects. He highlighted the need to balance scientific rigour with societal considerations while addressing the unique challenges of waste management in the Indian context.

The workshop witnessed participation from approximately 140 delegates

representing five countries, attending in both offline and virtual modes. The participants included representatives from academia, government organisations, urban local bodies (ULBs), industries, pollution control boards, consulting organisations and policy-making institutions. The technical programme featured 18 invited lectures delivered by distinguished researchers and professionals working in the fields of landfill mining and sustainable waste management.

On the second day, a panel discussion was organised to deliberate on the future prospects, challenges and pathways for the sustainable implementation of landfill mining in India. The discussion provided a valuable platform for experts from diverse sectors to exchange perspectives and formulate recommendations for improving biomining practices and policy frameworks.

The workshop successfully provided a multidisciplinary platform for knowledge exchange and highlighted the need for stronger scientific, technical and regulatory frameworks to enhance the effectiveness and sustainability of biomining projects in India.



IGS Dhanbad Chapter

As part of its commitment to strengthening professional competence in geotechnical engineering, the IGS Dhanbad Chapter, in collaboration with the Departments of Mining Engineering and Civil Engineering, IIT (ISM) Dhanbad, successfully organised a two-day Expert Discussion and Hands-on Workshop on "Slope Stability, Tunnelling and Open Pit Mining using MIDAS GTS NX (GeoNX 2026)" on May 8–9, 2026. The programme served as a unique platform for integrating theoretical knowledge with practical applications in advanced geotechnical analysis and numerical modelling.

The workshop witnessed the enthusiastic participation of around 80 delegates, including postgraduate students, doctoral scholars, faculty members, researchers and practising engineers from academia and industry. The diverse participation fostered meaningful

technical interactions and provided an excellent opportunity for knowledge exchange among experts and young professionals.

GeoNX 2026 addressed key challenges in modern geotechnical and mining engineering, with particular emphasis on slope stability analysis, underground tunnelling and open-pit mine design. The programme featured expert lectures delivered by experienced academicians and industry professionals, who shared practical insights into contemporary engineering practices, design methodologies and technological advancements adopted in major infrastructure and mining projects.

A major highlight of the workshop was the hands-on training using MIDAS GTS NX, a leading finite element analysis (FEA)-based geotechnical software package. Participants gained practical experience in developing numerical models, defining material

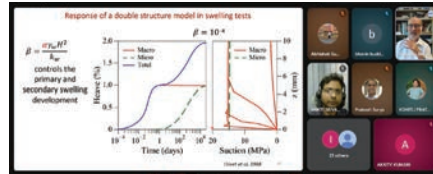


properties and boundary conditions, generating finite element meshes, interpreting stress–strain behaviour, and evaluating the stability and performance of geotechnical systems under varying loading conditions. The software demonstrations illustrated the application of advanced numerical techniques for analysing complex geological conditions encountered in slopes, tunnels and open-pit mines.

Special emphasis was placed on addressing engineering challenges associated with heterogeneous ground conditions, excavation-induced

deformations, slope failures and underground construction through real-life case studies and interactive problem-solving sessions. The workshop also strengthened academia–industry collaboration by showcasing the research expertise, computational facilities and infrastructural capabilities of the Departments of Mining Engineering and Civil Engineering at IIT (ISM) Dhanbad, while providing valuable networking opportunities for students, researchers and practising engineers.

GeoNX 2026 successfully combined expert discussions with intensive software-based training, equipping participants with advanced analytical skills and practical knowledge for addressing contemporary challenges in geotechnical, mining and underground infrastructure engineering. The overwhelming response reaffirmed the growing importance of such industry-oriented capacity-building programmes and further strengthened the role of the IGS Dhanbad Chapter in advancing geotechnical education, research and professional practice.



On June 18, 2026, the IGS Dhanbad Chapter, in association with the Department of Civil Engineering, IIT (ISM) Dhanbad, successfully organised an online expert talk by Prof. Eduardo Alonso, Full Professor of Geotechnical Engineering at the Universitat Politècnica de Catalunya (UPC), Barcelona, Spain. The lecture, titled "The Positive History of an Error: Modelling the Heave of a Nuclear Power Station," attracted active participation

from faculty members, research scholars, students and geotechnical professionals.

During the lecture, Prof. Alonso shared the fascinating story of how an unexpected engineering challenge led to significant advances in the understanding and modelling of expansive soils and unsaturated soil behaviour. His presentation, enriched with practical experiences and research perspectives, stimulated an engaging interaction with the participants. The programme concluded with a vote of thanks, expressing gratitude to Prof. Alonso for his inspiring lecture and valuable contribution to the geotechnical community.

IGS Goa Chapter

The IGS Goa Chapter, in association with the Department of Civil Engineering, Goa Engineering College, organised the Dr. Victor de Mello Centenary Symposium on May 14, 2026, to commemorate the birth centenary of Dr. Victor de Mello. The celebrations commenced with the garlanding of the busts of Dr. A.P.J. Abdul Kalam, Dr. M. Visvesvaraya, and Dr. Victor de Mello by Prof. T. G. Sitharam, Professor, IISc Bengaluru and Chairman, BOG, NIFTEM-T, Thanjavur; Prof. M. R. Madhav, Emeritus Professor,

IIT Hyderabad; and Dr. Anil Joseph, President, IGS.

Prof. Purnanand Savoikar, Chairman, IGS Goa Chapter, welcomed the gathering and highlighted the activities of the Chapter and the centenary celebrations, while Prof. Ganesh Hegde, Head, Department of Civil Engineering, outlined the department's activities. Dr. M. S. Krupashankara, Prof. M. R. Madhav, and Dr. Anil Joseph also addressed the gathering. In his inaugural address, Chief Guest Prof. T. G. Sitharam encouraged students to embrace



emerging challenges by integrating AI tools with traditional field wisdom. Er. Umesh Kulkarni, Secretary, IGS Goa Chapter, was also present on the dais.

The technical programme featured the Centenary Lecture by Prof. M. R. Madhav on *The Third Alternative – Geosynthetic Reinforced Foundation Beds*; a presentation on the life of Dr. Victor de Mello by Prof. Purnanand Savoikar; the 8th Dr. Victor de Mello Lecture by Prof. T. G. Sitharam on *Chenab Bridge – The Arch of Ambience: Advanced Geotechnical Strategies and Sustainable Foundation Design*; and technical lectures by Dr. Anil Joseph (*From Distress to Stability: Geotechnical Solutions for Infrastructure Projects*),



Dr. K. Balan (*Experiences with the Design and Execution of Rockfill Dam*), Er. Luiz Guilherme de Mello (*Design and Performance of a Test Embankment on Very Soft Mexico Clay Deposit Improved by Vacuum and Surcharge Preloading with PVDs*), Prof. Fernando Schnaid (*Geotechnical Investigation in Tailings Storage Facilities: Importance, Challenges and Risks*), and Dr. Werner Bilfinger (*Settlements due to Blasting Vibrations in an Urban Tunnel Excavation*).

The symposium was attended by about 100 delegates, including undergraduate and postgraduate students, research scholars, post-doctoral researchers, academicians, and industry professionals from Goa, Kerala, and Gujarat. The programme was compered by Dr. Smita Aldonkar, while Prof. Purnanand Savoikar summarised the proceedings and proposed the vote of thanks.

The IGS Goa Chapter, in association with the Department of Civil Engineering, Goa Engineering College, organised the ISSMGE TC-107 Symposium on Landslides in Lateritic Soils on May 15, 2026. Prof. Purnanand Savoikar, Chairman, IGS Goa Chapter, welcomed



the gathering and outlined the activities of ISSMGE Technical Committee (TC)-107 and the objectives of the symposium. Prof. Ganesh Hegde, Head, Department of Civil Engineering, highlighted the department's activities.

The keynote lecture was delivered by Prof. Neelima Satyam, Professor, IIT Indore, on "Recent Landslide and Debris Disaster in Mandi District in Himachal." Dr. R. Shivashankar, Dr. K. Balan, Prof. J. Jayamohan, Dr. K. S. Sajinkumar, and Er. Umesh Kulkarni, Secretary, IGS Goa Chapter, were also present on the dais. They participated in a panel discussion on the activities of TC-107, research on residual soils, and the proposal to

publish a special issue commemorating the symposium.

The technical programme comprised six lectures: Dr. R. Shivashankar on *Geotechnical Engineering with Lateritic Soils and Slope Stability in Lateritic Formations*; Prof. Purnanand Savoikar on *Applications of AI in Landslides and Slope Stability*; Dr. K. Balan on *Slope Stability in Residual Soils of Kerala*; Prof. J. Jayamohan on *Reconstruction of Failed Embankment Resting on Soft Soil – A Case Study*; Dr. K. S. Sajinkumar on *Mobile App-based Early Warning System for Landslides in Kerala*; and Dr. Rohan Deshmukh on *Numerical Modeling of Rainfall-Induced Landslides: Insights from FEM, LEM and Integrated Geotechnical Workflows*.

The symposium was attended by about 80 delegates, including undergraduate and postgraduate students, research scholars, post-doctoral researchers, academicians, and industry professionals from Goa, Kerala, and Gujarat. The programme was compered by Prof. Sumitra Kandolkar and Prof. Radha Rao, while Prof. Purnanand Savoikar summarised the proceedings and proposed the vote of thanks.

IGS Hyderabad Chapter

GeoApps 2026, a one-day symposium on Geotechnical Applications, was successfully organised on April 4, 2026, by Dr. Deepti and Dr. Hari Prasad in association with the IGS Hyderabad Chapter and the Department of Civil Engineering, Mahindra University.

The symposium featured invited lectures by Prof. P. Anbazhagan (IISc Bengaluru), Mr. Vinod Kumar Maurya (NTPC), Mr. Sandip Shivaji Bhutale (Menard Group), and Prof. Hossam Aboel Naga, FIEAust, of La Trobe University, Australia. The speakers shared their expertise on contemporary geotechnical engineering practices and applications, providing participants with valuable academic and industry perspectives.

The symposium also provided a platform for research scholars from the Hyderabad region to present their research contributions and interact with experts in the field. The event



witnessed active participation from students, academicians, researchers, and

practising engineers from academia and industry, fostering technical discussions and knowledge exchange.

The Department of Civil Engineering, Anurag University, under the IGS-AU Student Chapter, successfully organised a Faculty Development Programme (FDP) on "Impacts of Climate Change on Water Resources, Soil Health and Environmental Sustainability" from June 22–27, 2026.



state-of-the-art research facilities.

The FDP provided an excellent platform for enhancing knowledge, fostering collaboration, and promoting sustainable engineering practices to address emerging environmental challenges.

The programme was chaired by Dr.

Pallavi Badry, Professor and Head, Department of Civil Engineering, Anurag University, and coordinated by Dr. K. Madhusudan Reddy, Associate Professor, and Dr. Venkar Rao, Professor, Department of Civil Engineering, Anurag University.

Around 48 faculty members from across India participated in the programme in both online and offline modes, making it a successful forum for professional development, knowledge exchange, and collaboration in the areas of climate change, water resources, soil health, and environmental sustainability.

IGS Jabalpur Chapter

The IGS–TIET Jabalpur Students' Chapter, in association with the Department of Civil Engineering, Takshshila Institute of Engineering and Technology (TIET), Jabalpur, organised a seminar on "Earthquake: A Natural Disaster – Reasons and Diagnosis" on May 23, 2026, commemorating the 29th anniversary of the 1997 Jabalpur Earthquake. Dr. A. S. Khan, Senior Geologist, Geological Survey of India, was the Chief Guest, while Shri R. N. Paharia, Chairman, Takshshila Group of Institutions, presided over the function.

Dr. Khan explained the causes



of the May 22, 1997, Jabalpur Earthquake, highlighting the geological characteristics of the Narmada North Fault (NNF), Narmada South Fault (NSF), and the regional stratigraphy. Dr.

Sanjay Verma, Honorary Secretary, IGS Jabalpur Chapter, Head, Department of Civil Engineering, and Vice-Principal, presented the extent of human and economic losses and discussed the most severely affected areas. A documentary, Bhukamp: Kampti Zameen Par Sthir Jeevan, and a poster exhibition on the geology of Jabalpur and Madhya Pradesh highlighted earthquake causes, disaster mitigation measures, and earthquake-resistant construction practices. The seminar was attended by about 80 students from various disciplines, and certificates were presented to the participants.

IGS Kochi Chapter

The IGS Kochi Chapter celebrated its 18th Chapter Day on April 24, 2026. The function was graced by Ms. G. Priyanka, IAS, District Collector, as the Chief Guest, and Shri Cherian Varkey, Former National President of the Builders Association of India, as the Guest of Honour.

The celebration was attended by distinguished dignitaries, including Dr. Mandip Subedi, Honorary Secretary, Association of Geotechnical Societies of South Asia and Former President, Nepal Geotechnical Society; Dr. A. P. Singh, Honorary Secretary, Indian Geotechnical Society; and Dr. Anitha G. Pillai, NEC Member, IGS. A coffee table book documenting the activities of the IGS Kochi Chapter since its inception was released by Dr. A. P. Singh to commemorate the occasion.

The programme also featured recorded messages from Dr. Marc Ballouz, President, International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE); Prof. Keh-Jian



Shou, Vice President (Asia), ISSMGE; and Prof. M. R. Madhav, Former Vice President (Asia), ISSMGE.

The Executive Committee of the IGS Kochi Chapter, led by its Patron Dr. Babu T. Jose, felicitated Dr. Anil

Joseph on his election as Vice President (Asia) of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) for the 2026–2030 term, recognising his outstanding contribution to the international geotechnical engineering community.

IGS Kolkata Chapter

A full-day technical programme comprising two invited lectures was successfully organised on June 13, 2026, in the Department of Civil Engineering, Aliah University, Kolkata.

The first lecture, titled "Cyclic Response of Clayey Soils," was delivered by Prof. Ramendu Bikash Sahu, Professor, Department of Civil Engineering, Jadavpur University. He discussed the cyclic behaviour of inorganic and organic clayey soils under stress-controlled and strain-controlled loading conditions, highlighting their significance in geotechnical engineering applications. The lecture provided valuable insights into the response of clayey soils under cyclic loading and was highly beneficial to undergraduate and postgraduate students, research scholars, and practising engineers.

The second lecture, "Performance Evaluation of Piled-Raft Foundation in High-rise Buildings," was delivered by Mr. Utpal Santra, Director and Partner, M. N. Consultants Pvt. Ltd. The presentation focused on the behaviour and performance of piled-raft foundation systems for high-rise buildings, emphasising the role of soil-structure interaction in achieving safe and economical foundation designs. Practical case studies and field experiences illustrated the effectiveness of piled-raft foundations in reducing construction costs while maintaining structural performance. The lecture also highlighted contemporary deep foundation systems and hybrid



foundation technologies adopted in and around Kolkata.

The programme was attended by faculty members, practising engineers, research scholars, and students, providing an excellent platform for technical discussions and meaningful interaction between academia and industry.

During the period April–June 2026, the IGS Kolkata Chapter conducted more than five Executive Committee (EC) meetings in both physical and hybrid modes.

The meetings primarily focused on planning and organising the Indian Young Geotechnical Engineers' Conference (IYGEC-2027), along with other administrative and technical matters. To facilitate systematic planning and effective execution of the conference, a dedicated Steering Committee was constituted. The Committee held several meetings during the reporting

period to deliberate on the formation of various conference committees, publication plans, sponsorship, publicity, logistics, financial planning, and other organisational matters.

In addition to conference planning, the Executive Committee reviewed the Chapter's ongoing activities and discussed future initiatives to strengthen its technical and professional outreach. Deliberations focused on enhancing collaboration among academia, industry, and government organisations, and promoting geotechnical engineering through technical programmes, professional interactions, and knowledge-sharing activities.

The Executive Committee reaffirmed its commitment to advancing geotechnical engineering by organising high-quality technical programmes and encouraging the active participation of professionals, researchers, and young geotechnical engineers.

IGS Mumbai Chapter

The IGS Mumbai Chapter, in association with IIT Bombay and Bentley Systems, organised a two-day hands-on workshop titled "Advanced Tunnelling Analysis Using PLAXIS Software" on June 5–6, 2026. More than 45 participants from industry and academia attended the workshop. Prof. Shrikrishna V. Kulkarni, Dean (R&D), IIT Bombay, graced the occasion as the Chief Guest. He highlighted the growing importance of advanced computational tools in infrastructure

engineering. Representatives from the Bentley Education Team also introduced

various initiatives aimed at supporting engineering education.





The technical programme covered constitutive modelling, fundamentals of finite element analysis, geological modelling using Leapfrog Works, OpenTunnel Designer, and practical workflows using PLAXIS 2D and PLAXIS 3D. During the hands-on sessions, participants carried out numerical simulations of NATM tunnelling, ground response and damage caused by TBM tunnelling, and three-dimensional subsurface geological modelling. These sessions helped participants connect theoretical concepts with practical engineering applications.

The workshop included expert lectures and training sessions delivered by Prof. Ashish Juneja of IIT Bombay and Dr. Upasana Nath, Mr. Aniruddha Chopadekar, Dr. Keerthi Raaj S., Dr. Rajendra Bisht, and Dr. Rohan Deshmukh from Bentley Systems India.



Interactive discussions, quizzes, and networking sessions further encouraged active participation throughout the programme.

The organisers expressed their sincere gratitude to Prof. Ashish Juneja for his leadership and guidance, Dr. Vinay Kumar Pandey for his valuable support, and members of the Bentley Education Team—Mr. Harsh Nagpal, Mr. Parmarth

Saini, and Ms. Monica Jedhe—for their contributions. The programme concluded with closing remarks emphasising the need for continued collaboration and the wider adoption of advanced digital technologies in underground infrastructure projects.

IGS Mumbai Chapter organized a technical lecture at IIT Bombay on June 22, 2026, by Prof. David Frost of the Georgia Institute of Technology, USA. Prof. Frost has recently been nominated as Vice President for North America on the ISSMGE Board. The lecture was titled “The Role of (In)Compatibility in Geosynthetic Interface Behaviour.” Prof. Frost explained the fundamental mechanisms that control the behaviour of soil–geosynthetic interfaces. He discussed how compatibility between soil and geosynthetics affects frictional resistance, deformation, and long-term stability. The lecture covered several important factors, including the shape and spacing of surface irregularities, particle size in relation to the geosynthetic opening size, surface direction, relative roughness, material hardness, stress level, and particle shape. Prof. Frost also presented several innovative concepts for future applications. The lecture provided valuable insights into soil–geosynthetic interaction and its growing role in sustainable geotechnical engineering.

IGS Patna Chapter

The IGS IIT Patna Students' Chapter, in association with the IGS Patna Chapter and the Department of Civil and Environmental Engineering, Indian Institute of Technology Patna, successfully organised a series of technical activities during April 2026 to promote advanced learning and strengthen interaction between academia and professional practice in geotechnical engineering.

During the reporting period, the Chapter concluded GeoLecture Series–03, conducted under the theme “Advancements and Novel Mitigation Approaches in Soil Dynamics.” The lecture series provided students, researchers, and professionals with exposure to emerging developments and

innovative approaches in geotechnical and earthquake engineering.

The third lecture of the series was held on April 12, 2026, and delivered by Prof. Neelima Satyam Devarakonda on “Significance of Geotechnical Investigation in Major Infrastructure Projects.” The lecture highlighted the critical role of systematic geotechnical



investigations in ensuring the safety, sustainability, and long-term performance of major infrastructure projects, emphasising detailed site characterisation and informed engineering decision-making during planning and design.

The concluding lecture of GeoLecture Series–03 was organised on April 18, 2026, and delivered by Dr. Pradipta Chakraborty on “Liquefaction Susceptibility Assessment and Mitigation of Quaternary Alluvial Soil in Indo-Gangetic Plains.” The lecture provided an in-depth understanding of liquefaction mechanisms, assessment methodologies, and mitigation strategies for alluvial deposits, contributing to a better understanding of seismic geotechnical challenges in vulnerable regions.

An Invited Expert Talk was also organised on April 13, 2026, by the IGS IIT Patna Students' Chapter in collaboration with the IGS Patna Chapter and the Department of Civil and Environmental Engineering, IIT Patna. Prof. Sarat Kumar Das, Professor, Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, delivered a lecture

on "Advances in AI/ML Applicable for Geotechnical Engineering." He highlighted recent developments in Artificial Intelligence and Machine Learning and their growing applications in addressing complex geotechnical engineering problems through data-driven analysis.

The programmes witnessed enthusiastic

participation from faculty members, research scholars, students, and practising professionals. These successful academic initiatives reaffirmed the Chapter's commitment to professional development, technical excellence, and strengthening collaboration between academia and industry in geotechnical engineering.

IGS Pune Chapter

The IGS Pune Chapter was conferred the "Achievement Award for Creating Social Development and Impact" at the prestigious 17th CIDC Vishwakarma Awards 2026, held on April 10, 2026, at the Dr. Ambedkar International Centre, New Delhi.

This national recognition acknowledges the Chapter's sustained efforts in promoting student development through its extensive network of Student Chapters and in creating meaningful social and professional impact within the geotechnical engineering community. The Chapter has consistently undertaken initiatives in industry networking and mentorship, career guidance, professional exposure, leadership and skill development, and providing students and young professionals with access to technical knowledge, resources, and opportunities.

The award ceremony was attended by Er. Ramesh Kulkarni, Mentor, Er. Suman Jain, Chairperson, and Dr. Sachin Jain, Executive Committee Member, who represented the IGS Pune Chapter. The



award was presented by Er. Chandan Ghosh and other distinguished members of the award jury.

The recognition reflects the Chapter's continued commitment to technical excellence, capacity building, professional engagement, and the development of future geotechnical engineering professionals through impactful outreach and knowledge-

sharing initiatives.

Er. Suman Jain, Chairperson of the IGS Pune Chapter, was honoured with the "Woman in Construction Industry" Award at the prestigious 17th CIDC Vishwakarma Awards 2026, held on April 10, 2026, at the Dr. Ambedkar International Centre, New Delhi.

The award recognises her outstanding contributions to the construction and geotechnical engineering profession, exemplary leadership, and dedicated efforts towards the advancement of the engineering community. It was presented by Er. Chandan Ghosh and other distinguished members of the CIDC Award Jury during the award ceremony.

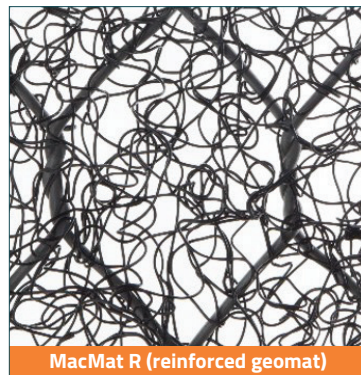
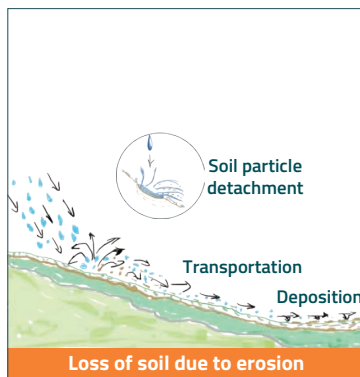
The recognition reflects Er. Suman Jain's continued commitment to professional excellence, capacity building, innovation, and leadership in the construction industry, and acknowledges her significant contribution to the advancement of geotechnical engineering and the engineering profession.





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- The facility houses more than 30 sophisticated testing equipment with several more under procurement.
- PO for GCTS SRC-100 Universal Soil Dynamics Testing System (Resonant Column and Cyclic Triaxial) was placed in the last week of July 2026.

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- Geotextiles Abrasion Tester
- Cone Drop Test Apparatus
- Hydrodynamic Sieve Test Apparatus
- Thickness Gauge
- Digital Direct Shear Test Equipment with Interface Friction
- Large Pull-out Test Equipment for Geotextiles
- Geotextile Permeameter
- Cross-Permeability Test Apparatus
- In-Plane Permeability Test Apparatus
- UV Light Accelerated Weathering Tester
- Dew Point Potentiometer for SWCC
- Static Plate/Pile Load Test Setup with Square Tank (1.2 × 1.2 × 1.0 m)
- Infrared Moisture Meter

2 GEODYNAMIC LABORATORY

- 100 kN Dynamic Actuator with Circular Soil Tank
- Large Direct Shear Test Equipment with Interface Friction (0.3 × 0.3 × 0.15 m)
- Uniaxial Shake Table (2 m × 2 m) (PO placed)
- Laminar Box
- Sensors with Data Acquisition System

3 SOIL DYNAMICS LABORATORY

- Automatic Triaxial Testing System
- Cyclic Triaxial Testing Equipment (PO placed)
- Resonant Column Testing Equipment (PO placed)
- Ground Penetrating Radar (GPR) (Under Procurement)
- MASW Equipment (Under Procurement)

4 LANDSLIDE EARLY WARNING & MITIGATION LABORATORY

- Large Tilting Flume with Variable Rainfall Simulator (3 × 1.2 × 1.2 m)
- Small Tilting Flume with Rainfall Simulator (1.5 × 0.6 × 0.6 m)
- Data Acquisition System
- Soil EC & Moisture Sensors
- Pore Pressure Sensors
- LiDAR and Depth-Sensing Cameras

5 EARTHQUAKE ENGINEERING LABORATORY

- Bi-Axial Shake Table
- Laminar Box
- Pore Pressure Sensors
- Laser Displacement Sensors
- Data Acquisition System



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EXPRESSION OF INTEREST

Faculty members, scientists, research scholars, and postgraduate students interested in utilizing these facilities are requested to send an email briefly describing the institution and Department, Equipment/facility required, the tentative testing schedule, and any technical support required. Based on availability, suitable dates can be allotted on a first-come, first-served basis.



CONTACT

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✉ sreevalsa@nitk.edu.in



EQUIPMENT DETAILS & BOOKING

For detailed equipment specifications, testing capabilities, facility brochure and booking requests, please contact via email: sreevalsa@nitk.edu.in



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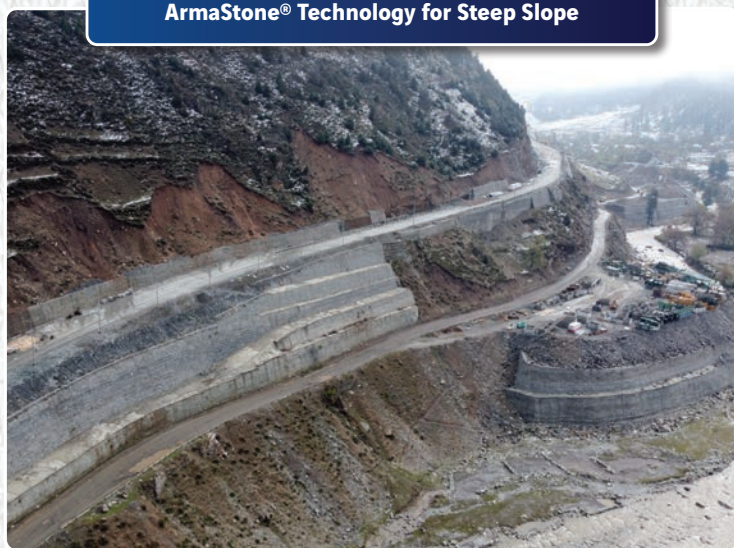


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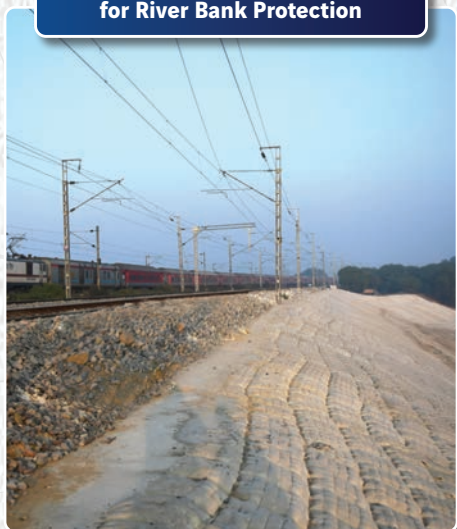
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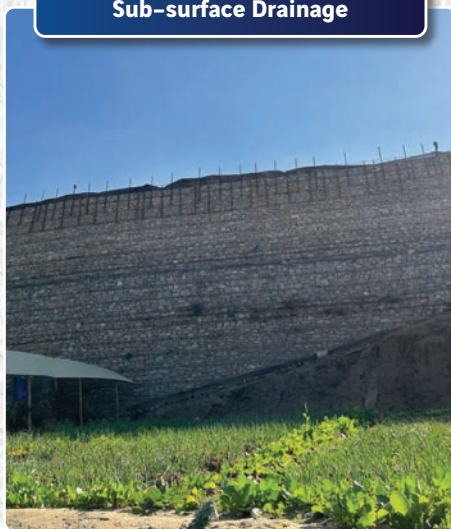
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MEMBERS' NEWS



Dr. M.R. Madhav (HF-0009)

Dr. M.R. Madhav will be honoured with the Eminent Personality Award in the Civil Engineering Category. This recognition is a testament to his remarkable contributions to the construction industry, reflecting his unwavering dedication and exemplary achievements. The Award would be presented on 21st August, 2026 at the Eros Hotel, Nehru Place, New Delhi.

Dr. M.R. Madhav has been designated as an Outstanding Reviewer for 2025 by ASCE for his volunteer efforts as a peer reviewer.

IGC - 2028

IGC-2028
would be hosted by

IGS - Surathkal Chapter

The venue, theme, scheduled dates etc.
are being worked out and shall be
announced soon

ISSMGE BULLETIN

Vol. 20, Issue 1, June 2026

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IMPORTANT NEWS



- ✓ Indian Geotechnical Journal is being published in 12 issues from 2026.
- ✓ Cover page of the Indian Geotechnical Journal has changed.



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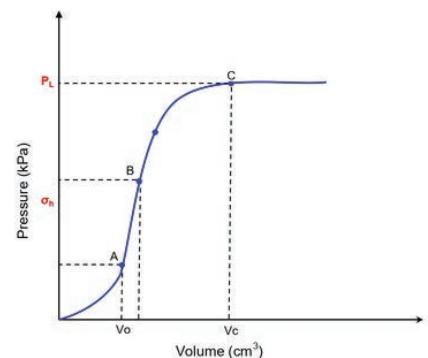
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deformation analysis

P_L LIMIT
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resistance of soil
or rock

σ_h Horizontal
Stress (σ_h)

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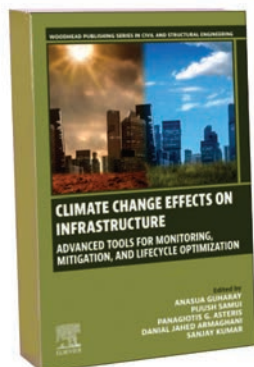
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BOOK PUBLISHED



Dr. Pijush Samui has edited the book entitled 'Climate Change Effects on Infrastructure'. The details of the book is given below:

The design of structures and infrastructure facilities has typically assumed a future climate that is much the same as today's. However, a changing climate and the resulting more extreme weather events mean those climate bands are becoming outdated, leaving infrastructure operating outside or at the limit of its tolerance levels.

With its evaluation of a host of assets in the built environment, Climate Change Effects on Infrastructure: Advanced Tools for Monitoring, Mitigation, and Lifecycle Optimization instructs readers how to assess and predict structural vulnerabilities resulting from climate change as well as ensuing hazard patterns using mathematical tools and data-driven models. The carefully compiled contributions also comprehensively survey the latest technological developments and the most useful approaches to counteract and/or prevent damage and connected socio-economic risks.

IGS-FERROCO TERZAGHI ORATION 2026



The prestigious IGS Ferroco Terzaghi Oration (IFTO) the tenth in the series is scheduled on 3rd October 2026 at Indore to be organized by IGS-Indore Chapter.

The tenth Oration shall be delivered by the eminent Prof. Manoj Datta, Former Emeritus Professor, Department of Civil Engineering, IIT Delhi on 'The Urgent Requirement Of Geoenvironmental Guidelines for Safe Storage and Utilization of MSW Residues in India'.

This earlier nine 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), Prof. K.S. Rao (2022) and Prof. Guilia M.B. Viggiani (2024) alternatively by an eminent foreign and an eminent Indian Geotechnical Engineer.

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1. Geotechnical Engineer – Team Lead

Location: Noida
Minimum Experience: 10 years in Geotechnical Engineering
Vacancies: 1

Key Responsibilities:

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- Utilize advanced geotechnical testing methods and technologies.
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- Coordinate with clients and stakeholders to achieve project objectives.
- Mentor junior engineers and oversee both field and office activities.
- Ensure compliance with applicable industry standards and regulations.
- Support business development activities and proposal preparation.

2. Testing Engineer (Site-Based)

Location: Pan India
Minimum Experience: 1 year in Geotechnical Testing
Vacancies: 3

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- Lead and supervise geotechnical testing operations.
- Ensure accurate and efficient execution of laboratory and field tests in accordance with industry standards.
- Implement and maintain quality assurance and quality control procedures.
- Analyze test data and prepare comprehensive technical reports.
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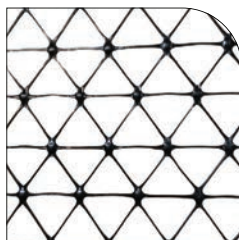


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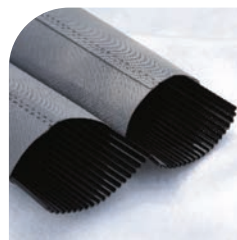
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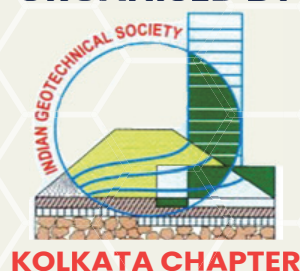


11th Indian Young Geotechnical Engineers
Conference (IYGEC 2027)
KOLKATA

11TH INDIAN YOUNG GEOTECHNICAL ENGINEERS CONFERENCE 2027 (11 IYGEC, 2027), KOLKATA

Pre-Conference Workshop: 25th March, 2027
Conference: 26th - 27th March 2027

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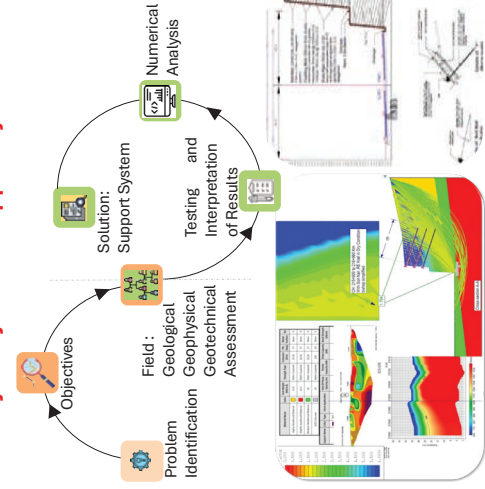


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Karl Terzaghi (1883-1963)

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 Slope Stabilization, Kinematic Analysis, Numerical Analysis Geological, Geophysical and Geotechnical Assessments

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Laboratory and Field Investigations



**ANNUAL CONFERENCE OF THE INDIAN GEOTECHNICAL SOCIETY
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IGC 2026: GEOCHENNAI

“GEOTECHNICAL CHALLENGES IN ENGINEERING ASSOCIATED WITH INFRASTRUCTURE”

Organised by

**IGS CHENNAI CHAPTER IN ASSOCIATION WITH INDIAN INSTITUTE OF TECHNOLOGY MADRAS
AND COLLEGE OF ENGINEERING GUINDY (CEG), ANNA UNIVERSITY, CHENNAI**

December 17-19, 2026; RESEARCH PARK, IIT Madras, Chennai

FULL PAPER SUBMISSION CLOSSES 15th AUGUST



INVITATION

Indian Geotechnical Society (IGS) Chennai Chapter in association with IIT Madras and CEG Anna University, extend a warm invitation to the IGC 2026 to be held at IITM research park, IIT Madras, Chennai.

CONFERENCE THEME

Geotechnical Challenges in Engineering Associated with Infrastructure, GEOCHENNAI.

SUB-THEMES

- Geotechnical Investigation, Laboratory and Field Testing
- Foundations Engineering and Earth-retaining structures
- Geosynthetics and Reinforced Soil Structures
- Ground Improvement
- AI-ML Applications in Geotechnical Engineering
- Case Studies in Geotechnical Engineering
- Case Studies in Geotechnical Engineering
- Slope Stability and landslides.
- Uncertainties, risk and reliability in geotechnical engineering
- Soil dynamics and Earthquake Engineering
- Offshore Geotechnical engineering
- Computational Geomechanics and Numerical modelling
- Rock mechanics, tunnelling and underground structures
- Transportation Geotechnics
- Geo-environmental engineering and unsaturated soil

Important Dates

Last Date for abstract Submission	15.03.2026
Intimation of abstract acceptance	15.05.2026
Last Date for full paper submission	15.07.2026 / 15.08.2026
Intimation of Paper acceptance	15.09.2026
Submission of Camera-ready Paper	30.09.2026
Last date for registration of accepted papers	15.10.2026

Visit the website www.igc2026.org to register and abstract submission. Selected papers will be published in scopus indexed Springer proceedings.

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Delegation Category	Upto 31 st Oct.2026 INR	After 31 st Oct. 2026 INR
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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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		SAQIB FAYAZ SOFI	SM-0518

Dear IGS Members,

You are invited to contribute small technical articles, informative case studies, research findings, experiences etc. you wish to share through the IGS-Newsletter.

Dr. A.P. Singh
Honorary Secretary, IGS

48th IGS ANNUAL LECTURE 2026



The prestigious

48th IGS Annual Lecture 2026

will be delivered by Prof. N.K. Samadhiya, Professor, Department of Civil Engineering, Indian Institute of Technology Roorkee, Roorkee, Uttarakhand.

The topic of his lecture is

“Rock Mass Characterization, Behaviour of Isotropic and Anisotropic Rocks under Triaxial and Polyaxial States of Stress.”

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