SLGS NEWSLETTER

SRI LANKAN GEOTECHNICAL SOCIETY

A Member Society of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

Established in 1986

2023 August: No 26

Message from the Editor

Dear readers,

We extend our warmest greetings as we present the August 2023 edition of our newsletter, bringing into focus significant developments within the realm of SLGS.

With heavy hearts, we convey the unfortunate news of the passing of Prof. Nimal Seneviratne, a former vice president of SLGS, leaving a void that will be deeply felt.

On a more positive note, we are pleased to share the successful culmination of the SLGS Project Day, which saw the active participation of many undergraduates from Sri Lanka's engineering universities.

We are delighted to announce that the SLGS is actively contributing to the establishment of a National Building Code for Sri Lanka, in collaboration with several key professional institutions.

The newsletter also features the Geotechnical Engineering Forums held physically during the past few months at NBRO, with the participation of renowned Geotechnical Engineers.

Also, for those who are interested in upcoming events, we have provided a summary of the ISSMGE Conferences scheduled for the year 2023.

Best regards, Dr. (Eng.) K. H. S. M. Sampath Editor, Newsletter

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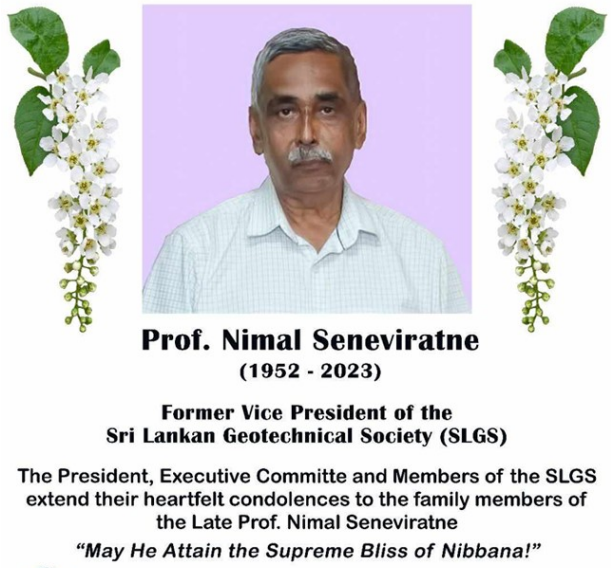
Sri Lankan Geotechnical Society Mourns the Loss of a Respected Leader — Professor Nimal Seneviratne

The Sri Lankan Geotechnical Society (SLGS) expresses its profound sorrow at the passing of Emeritus Professor Nimal Seneviratne, an esteemed figure in the field of Geotechnical Engineering and Soil Mechanics. Known for his exemplary contributions to academia and his warm-hearted personality, Prof. Seneviratne's legacy will forever remain imprinted on the hearts of his colleagues, students, and friends.



Prof. Nimal Seneviratne

(1952 - 2023)

Former Vice President of the Sri Lankan Geotechnical Society (SLGS)

The President, Executive Committe and Members of the SLGS extend their heartfelt condolences to the family members of the Late Prof. Nimal Seneviratne

"May He Attain the Supreme Bliss of Nibbana!"

Prof. Nimal Seneviratne, was a beacon of knowledge and a source of inspiration to many. His journey, marked by resilience and dedication, began in the Faculty of Engineering at Peradeniya University in 1970. With a passion for learning and an unwavering commitment to his field, he completed his B.Sc. Eng degree with First Class Honours, setting the stage for a remarkable career.

Upon earning his PhD from Cambridge University in 1979, Prof. Seneviratne returned to Sri Lanka, where he made significant contributions to the academic and engineering communities. His leadership, coupled with his expertise, led him to serve as the Head of the Department of Civil Engineering at Peradeniya University from 1997 to 2000. Throughout his 35-year tenure, he touched the lives of countless students, instilling in them a passion for engineering and an unwavering pursuit of excellence.

Prof. Seneviratne's influence extended beyond the classroom. He was a founding member of SLGS, established in 1986 to foster the exchange of geotechnical knowledge and promote research. His vision and dedication played a pivotal role in shaping the society into a hub of innovation and collaboration.

His commitment to education and empowerment was evident in his efforts to assist other universities, including the University of Jaffna and the South-Eastern University, in curriculum development and faculty setup. Prof. Seneviratne's impact on the engineering community reverberates through his published works, consultancy on national and international projects, and leadership roles in numerous committees.

His passing on July 3, 2023, leaves a void that cannot be filled. Prof. Nimal Seneviratne's contributions will forever be remembered by the Sri Lankan engineering society, and his memory will continue to guide and inspire us all.

Completion of the SLGS Project Day

The Sri Lankan Geotechnical Society (SLGS) concluded another successful SLGS Project Day competition on April 20, 2023. This event was inaugurated in 2000, with the objective of promoting research and enhancing the writing and presentation skills of undergraduate students doing research projects in geotechnical engineering at Sri Lankan universities. It was held annually without interruption over the last 22 years. This year, 18 participants from five universities competed for the award, submitting a 4–6-page research paper and a 5-minute presentation.

A distinguished evaluation panel, consisting of six eminent professionals with doctorates in geotechnical engineering and industry expertise, evaluated the submissions. Panel members were

- **Dr. Manasi Wijerathna,** (*PhD, MSc, BSc.Eng (Hons), MIEAust),* Geotechnical Engineer, Aurecon.
- **Dr. Priyanath Ariyarathne,** (*PhD, BSc.Eng (Hons)),* Geotechnical Engineer, Transport for NSW.
- **Dr. Chathuri Arachchige,** *(PhD, BSc.Eng (Hons)), MIEAust),* Postdoctoral Research Fellow, University of Technology Sydney.
- **Dr. Avanthi Liyanage,** *(PhD, BSc.Eng (Hons)),* Geotechnical Engineer, Beca, Melbourne.
- **Dr. Arivalagan Joseph,** *(PhD, BSc.Eng (Hons)),* Geotechnical Engineer, Tonkin and Taylor.
- **Dr. Subhani Medawela,** *(PhD, BSc.Eng (Hons)),* Postdoctoral Research Fellow, University of Technology Sydney.

The winners of the SLGS Project day are:

- 1st Place: **T. S. K. Fernando from the University of Ruhuna**, "*Numerical Modelling of Gravel Compaction Piles in Soft Soil Under Drain Condition*." The project was supervised by Dr. N. H. Priyankara.

- 2nd Place: **R. J. K. P. N. Ranathunga from the University of Moratuwa,** "*Rice Husk Ash for Soil Stabilization: An Analytical Study.*" The project was supervised by Dr. K. H. S. M. Sampath.

The event was graced by Dr. Marc Ballouz, President of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), who joined virtually despite the challenging time difference between the two countries. Other notable ISSMGE representatives in attendance were Dr. Anil Joseph, President of the Indian Geotechnical Society, and Dr. Sohail Kibria from the Pakistan Geotechnical Society.

Dr. Marc Ballouz, President of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), attending the SLGS Project Day

Dr. Anil Joseph, President of the Indian Geotechnical Society, attending the SLGS Project Day

The winners received cash prizes and certificates, while all participants received a certificate of participation. The SLGS Project Day has undoubtedly served as a platform for academic excellence and innovation in the field of geotechnical engineering, and many past winners have proceeded to higher studies in the field of Geotechnical engineering and serving as academics and practitioners in many parts of the globe and Sri Lanka.

Establishment of a National Building Code for Sri Lanka

The Sri Lankan government, in partnership with the Construction Industry Development Authority (CIDA), National Building Research Organization (NBRO), and Urban Development Authority (UDA), is taking significant strides towards ensuring a safer and disaster-resilient built environment in the country. A major milestone has been achieved with the successful initiation of the development of a **Unified National Building Code** for Sri Lanka, with technical assistance provided by the World Bank.

In a progressive move towards enhancing building safety standards, a consultation program was organized on **May 18, 2023, at the NBRO Auditorium**. This event brought together key professional institutions, including the

- Institution of Engineers Sri Lanka (IESL),
- Sri Lankan Institute of Architects (SLIA),
- Institute of Town Planners Sri Lanka (ITPSL),
- Society of Structural Engineers Sri Lanka (SSESL),
- Sri Lankan Geotechnical Society (SLGS),

along with representatives from CIDA, NBRO, and UDA.

The primary objective of the consultation was to gather insights and expertise from a diverse range of stakeholders, fostering a collaborative environment for the development of the Unified National Building Code. The enthusiastic participation of these institutions underscores the commitment of Sri Lanka's professional community to ensuring the safety and resilience of the country's built environment.

During the stakeholder consultation programme

A significant step in this groundbreaking initiative was the successful convening of a two-day technical mission from June 21 to 22, 2023, hosted at the Institution of Engineers Sri Lanka. This mission included a stakeholder workshop and focused group discussions, serving as a platform for robust exchange of ideas and insights among key public agencies, professional institutions, and private sector stakeholders.

SLGS President representing the Sri Lankan Geotechnical Society

The collaboration between the Sri Lankan authorities and the World Bank underscores the importance of international cooperation in achieving safety and disaster resilience goals. The technical assistance provided by the World Bank has greatly accelerated the development of the Unified National Building Code, leveraging global expertise and best practices.

Development of this unified code is a pivotal step towards creating a comprehensive framework that addresses building safety, structural integrity, disaster preparedness, and sustainable development. As Sri Lanka continues to experience rapid urbanization and economic growth, the need for a robust building code that ensures the safety and well-being of its citizens has never been more crucial.

The Sri Lankan government's commitment, coupled with the collective efforts of key professional institutions and the support of the World Bank, is propelling the nation towards a future where its built environment stands as a testament to safety, resilience, and sustainable progress. This landmark endeavor sets the stage for a brighter, safer, and more resilient future for all Sri Lankans.

Source: www.nbro.gov.lk

Read More >>

SLGS Geotechnical Forum by Dr.(Eng) Ashok Peiris — April and June

Geotechnical Forums for the months of **April and June 2023** were conducted by Dr.(Eng) Ashok Peiris, Technical Director – Geotechnics GHD Pty Ltd, Sydney, Australia. The forum was held at the Auditorium, National Building Research Organization (NBRO).

Dr.(Eng) Ashok Peiris
BSc Eng, MSc, DIC, PhD, CPEng, NER, MIEAust
Technical Director – Geotechnics
GHD Pty Ltd, Sydney, Australia

Dr. Ashok Peiris has over 30 years' experience in the geotechnical consulting and research/academic fields. As a consultant, he has been involved in a wide range of geotechnical projects including site investigations, construction monitoring, design and construction of road and rail infrastructure projects, foundation designs and slope stabilizations. He has worked in Australia, Japan, and Sri Lanka, where he has developed an extensive leadership experience at both technical and institutional levels as well as extensive design and construction experience on major infrastructure projects in Australia and overseas.

The two topics covered during the forums are as follows.

Reassessment of the performance of ground improvement based on monitoring data (back-analysis)

The ground improvement for the approach embankments for abutments of a major bridge was designed as part of the Motorway upgrade works. The soft ground treatment approach was to preload and surcharge with wick drains to accelerate the consolidation process. In order to treat the soft ground at the southern abutment, the preload treatment adopted for road embankment was extended to include the full extent of the southern abutment. Other ground improvement systems were considered but were discounted due to consideration of transition between the main embankment and the abutment. Prior to the placement of embankment fill, the bridge abutment site was installed with a range of geotechnical monitoring instrumentation.

In mid-October 2019, settlement of the approach slab was noted with some major cracking on the F-type barrier. The bridge abutment itself has been monitored continuously with negligible movement since construction as it is supported by piled foundation. A geotechnical investigation campaign was conducted in November 2019 following the approach slab settlement identified at the southern approach. Reassessment of the performance of the main embankment and approach embankment has been carried out. Hence, predict the future performance of the approach embankment and its impact on the pile foundation. In this reassessment, a few lessons learned with regard to the design approach, back-analysis and construction staging. Intervention strategy has been developed in the form of pavement correction.

Impact of tunnels and deep excavations on existing structures in Sydney area – Case Studies

The new transport infrastructure project in Sydney requires tunnels and deep excavations. Some of these tunnels are for roads and hence are with reasonably wide caverns. Deep excavations are mainly required for metro station box constructions. It is inevitable that these tunnels to cross existing underground infrastructure and utilities. Deep excavation for station boxes is typically required in congested areas where settlement sensitive structure in the vicinity. The construction of these new tunnels and deep excavations may cause deformations and additional stresses on an existing underground structures, utilities and overground structures.

In this presentation, the impact of construction of some tunnels on historical utility tunnels and the impact of deep excavation on nearby buildings were discussed. For these impact assessments, interpretation of ground condition and design parameter is very critical. Numerical modellings were presented which were carried out adopting appropriate construction staging with due care on modelling limitations. Few case studies were also presented to demonstrate the approach adopted in developing ground models and incorporating design parameters.

Some Glimpse of the Geotechnical Forum

SLGS Geotechnical Forum 2023

SLGS Geotechnical Forum by Dr. Upul Atukorala — August

Geotechnical Forum for the months of **August 2023** was conducted by DrDr. Upul Atukorala, Senior Principal Geotechnical Engineer, WSP Canada Inc, Vancouver, British Columbia, Canada. The forum was held at the Auditorium, National Building Research Organization (NBRO)

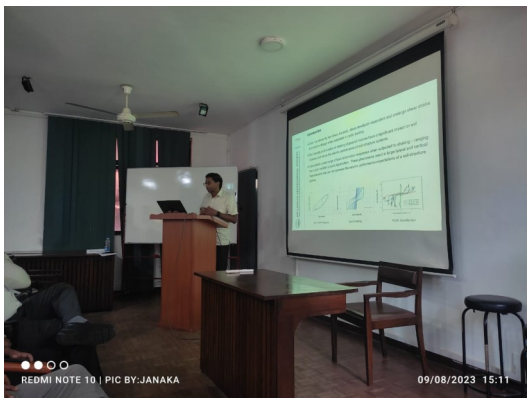
Dr. Upul Atukorala
PhD, PEng
Principal Geotechnical Engineer,
WSP Canada Inc, Vancouver,
British Columbia, Canada

Seismic Ground Motions for Performance-based Design of Soil-Structure Systems

Dr. Upul Atukorala is a Fellow and Senior Principal Geotechnical Engineer attached to the Vancouver office if WSP Canada. With more than 35 years of consulting experience, Dr. Upul is an industry-recognized specialist on ground response analysis and seismic design of earth structures, soil/structure interaction analysis under static and dynamic loads, and ground improvement methods to mitigate liquefaction.

The presentation summarized the current state-of-practice and the important aspects of the selection of seismic ground motions for performance-based design of soil-structure systems.

Some Glimpse of the Geotechnical Forum



Call for full-papers for SLGS Journal

SLGS wishes to call for full papers for its Annual Journal. Number of pages per paper is limited to 12.

All the papers will be subjected to double blind review by two referees.

Selected papers will be published in the SLGS Journal and will be made available online through the SLGS website.

Please send your papers to the following email address.

Editor Journal: nadeejpriyankara@yahoo.com

The previous journal publications can be found in SLGS website.

Please visit https://slgs.lk/journals/

SRI LANKAN GEOTECHNICAL SOCIETY S L G S 1986

Geotechnical Journal

Up coming ISSMGE Conferences

4th INTERNATIONAL SYMPOSIUM OF MACHINE LEARNING AND BIG DATA IN GEOSCIENCE

The 4th International Symposium of Machine Learning and Big Data in Geoscience & Geoengineering (ISMLG) will be held at **University College Cork, Ireland from the 29th of August to the 1st of September 2023.**

The theme of the symposium is **Data-centric solutions for reshaping the next generation geo-industries** and the symposium is hosted by ISSMGE Technical Committee of Machine Learning & Big Data (TC309).

For more details, visit https://www.ismlg2023.com/

Organizer: University College Cork & TC309 Machine Learning and Big Data

Contact Information : Abbey Conference & Events (ismlg2023@abbey.ie)

8th INTERNATIONAL SYMPOSIUM ON DEFORMATION CHARACTERISTICS OF GEOMATERIALS

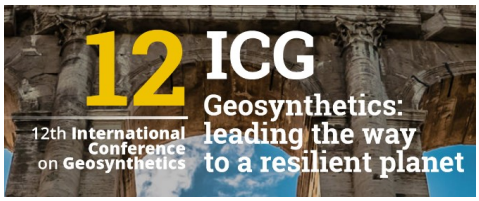
The Technical Committee on Laboratory Stress-Strain-Strength Testing of Geomaterials (TC101) of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), endorsed by the Portuguese Geotechnical Society (SPG) and the Faculty of Engineering of the University of Porto (FEUP), invite you to participate in IS-PORTO 2023: 8th International Symposium on Deformation Characteristics of Geomaterials to be held from the **3rd to the 6th September 2023 in Porto**.

This symposium will focus on the understanding of the deformation properties of geomaterials before failure, especially on the small-strain stiffness parameters as fundamental characteristics of geomaterials, and their implications in geotechnical design.

For more details, visit http://www.fe.up.pt/is-porto2023

Organizer: TC101-ISSMGE, endorsed by SPG and FEUP, **Contact Information**: Cristiana Ferreira (is-porto2023@fe.up.pt)

12th INTERNATIONAL CONFERENCE ON GEOSYNTHETICS



The Italian Geotechnical Society (AGI) and the Italian Chapter of IGS (AGI-IGS) invite you to attend the 12th International Conference on Geosynthetics, which will be held in **Roma, Italy, on 18 – 22 September 2023.**
After Sustainability, the ability to overcome the natural events effects, often related to climate change, and human activities forced to refer to a new keyword: Resiliency.
Hence the 12ICG intends to become the base for the next step therefore the conference theme will be: **Geosynthetics, Leading the Way to a Resilient Planet.**

For more details, visit http://www.12icg-roma.org

Organizer: Associazione Geotecnica Italiana, **Contact Information**: Susanna Antonielli (info@12icg-roma.org)

DFI 48th ANNUAL CONFERENCE ON DEEP FOUNDATIONS

The 48th Annual Conference on Deep Foundations in Seattle is a great platform to network with the largest gathering of international practitioners specializing in cutting-edge technologies and risk management for deep foundations, ground improvement, earth retention and excavation support. Participants can attend special lectures featuring the world-renowned keynote speakers, share experiences and lessons learned and discuss the advancements and innovations in the state-of-practice, research, materials and equipment.

The conference will be held on **October 31 – November 3, 2023 in Seattle, Washington.**

For more details, visit http://www.dfi.org/annual2023

Organizer: Deep Foundations Institute, **Contact Information**: Contact person: Theresa Engler (tengler@dfi.org)

9th GEOTECHNICAL SYMPOSIUM

The 9th geotechnical symposium, organized by the Istanbul branch of the UCTEA Turkish Chamber of Civil Engineers and supported by the Turkish Society for ISSMGE biannually, will be held on **22-24 November 2023 in Istanbul**. This is one of the most important conferences in Turkey, mainly national with international participation. Symposium themes cover an extensive range of topics including almost all aspects of geotechnical engineering.

For more details, visit https://9geoteknik.org/

Organizer: Istanbul branch of the UCTEA Turkish Chamber of Civil Engineers, **Contact Information**: 9geoteknik@imo.org.tr