



## Mountain Geotechnics for Infrastructure Development

Redefining Geotechnics for the Mountainous Landforms

# GeoMandu 2027, 11TH AYGEC and 1ST SACG

17-19 March, 2027, Kathmandu, Nepal

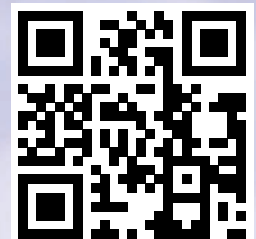
# FIRST CIRCULAR

## Organizers



**AGSSA**  
Association of Geotechnical Societies of South Asia

GeoMandu Website



## Contact

Nepal Geotechnical Society  
Chakupat, Lalitpur, Nepal

[ngeotechs.org](http://ngeotechs.org)  
[ngeotechs@gmail.com](mailto:ngeotechs@gmail.com)

[geomandu.ngeotechs.org](http://geomandu.ngeotechs.org)  
[geomandu2027@gmail.com](mailto:geomandu2027@gmail.com)

[geomandu.ngeotechs.org](http://geomandu.ngeotechs.org)

# Introduction

The Nepal Geotechnical Society (NGS) warmly invites geotechnical engineers, geoscientists, professionals, and researchers from around the globe to participate in “GeoMandu 2027: An International Conference Series of the Nepal Geotechnical Society.” This special edition of the GeoMandu series held in conjunction with the 11th Asian Young Geotechnical Engineers Conference (AYGEC), event of ISSMGE, and the 1st South Asian Conference on Geotechnics (SACG) under Association of Geotechnical Societies of South Asia (AGSSA) will take place in Kathmandu, Nepal, from 17–19 March 2027, under the central theme “Mountain Geotechnics for Infrastructure Development.”

In recent years, civil engineering has increasingly emphasized sustainable, resilient, and environmentally conscious infrastructure, driven by rapid urbanization, climate change, and evolving global development priorities. Nepal reflects this global transition through significant achievements: expanding its road network from less than 10,000 km to nearly 45,000 km, advancing hydropower generation capacity toward national targets of 25,000 MW, and accelerating progress in road tunnels, rail connectivity, irrigation systems, water supply projects, and modern urban development initiatives.



Official Deceleration Program of GeoMandu 2027

Yet, these advancements especially within steep and fragile Himalayan terrains—face persistent challenges from geohazards such as landslides, earthquakes, and the escalating impacts of climate change. In this context, geotechnical engineering stands at the forefront of civil engineering practice, addressing the behavior of earth materials, their interaction with infrastructure, and the overall resilience of development efforts in mountainous regions. The effective application of mountain geotechnics ensures infrastructure that is not only functional and efficient but also safe, sustainable, and capable of adapting to future environmental uncertainties.

GeoMandu 2027, together with the 11th AYGEC and 1st SACG, will serve as a dynamic platform for knowledge exchange, technical dialogue, and regional and international collaboration. The conference will bring together experts, researchers, and young professionals to explore innovative approaches that strengthen mountain infrastructure across Asia and beyond.

We extend our heartfelt invitation to join us in the scenic landscapes of Nepal as we collectively advance this important mission. Together, through “Mountain Geotechnics for Infrastructure Development,” we can contribute to building a safer, greener, and more resilient future for generations to come.



Group Photo of GeoMandu 2024

## Conference Objectives

The key objectives of GeoMandu 2027 are as follows:

1. **Knowledge Dissemination:** To facilitate the dissemination of the latest research, innovations, and best practices in the field of geotechnical engineering for sustainable infrastructure.
2. **Global Collaboration:** To provide a platform for international collaboration and networking among geotechnical engineers, geoscientists, professionals, and researchers from around the world.
3. **Sustainable Solutions:** To emphasize the role of geotechnical engineering in addressing the challenges of sustainable and resilient infrastructure development, particularly in the context of global dynamics, urbanization, and climate change.
4. **Inspiration and Education:** To inspire and educate participants by showcasing Nepal’s remarkable progress in infrastructure development and how it aligns with the principles of sustainability.
5. **Resilience in Infrastructure:** To explore the critical role of geotechnical engineering in ensuring infrastructure resilience, especially in the face of natural disasters and climate-related challenges.
6. **Long-Term Impact:** To establish a recurring conference series, held every two years, that serves as a consistent forum for advancing the discourse on geotechnical engineering and sustainable infrastructure globally.
7. **Capacity Building:** To foster the growth of knowledge and expertise in geotechnical engineering, contributing to the development of secure and efficient urban environments and infrastructure.
8. **Global Outreach:** To promote global awareness of Nepal’s contributions to the field of geotechnics and its commitment to sustainable infrastructure development.

In summary, the “GeoMandu” conference series aims to promote knowledge sharing, collaboration, and sustainable solutions within the geotechnical engineering community, with a focus on sustainable infrastructure development on a global scale.

## Organizers

### Nepal Geotechnical Society (NGS)

Nepal Geotechnical Society (NGS) is a leading scientific organization established on May 18, 1994. We are an independent, non-profit institution dedicated to advancing Geotechnical Engineering and related Geosciences in Nepal.

Since affiliating with the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) in 1995, NGS has proudly represented Nepal as one of the Asian member societies in the global forum of geotechnical engineers and professionals.



NGS serves as a driving force in the geotechnical profession by fostering national collaboration and facilitating the exchange of knowledge on research and developments in geotechnical engineering, geosciences, and related fields. Our commitment is to contribute to the advancement of Nepal and to the well-being of global society through our professional work.

More about NGS: <https://ngeotechs.org/>

### International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

The International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) is a global professional organization dedicated to advancing the science and practice of geotechnical engineering. It brings together engineers, researchers, academics, and practitioners who work with soil, rock, and ground-related engineering problems such as foundations, slopes, retaining structures, and underground works.

ISSMGE originated from the First International Conference on Soil Mechanics and Foundation Engineering held at Harvard University in 1936. It was initially known as the International Society for Soil Mechanics and Foundation Engineering and later adopted its current name in 1997 to better reflect the broader scope of geotechnical engineering beyond foundations alone.



The main mission of ISSMGE is to promote international cooperation and knowledge sharing in geotechnical engineering. It achieves this through technical committees, research dissemination, publications, training programs, webinars, and the organization of major international and regional conferences, including the flagship International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE).

Today, ISSMGE consists of around 90 national member societies representing tens of thousands of geotechnical professionals worldwide. It plays a key role in improving engineering standards, supporting professional development (especially for young engineers), and addressing global challenges such as infrastructure safety, sustainability, and natural hazard mitigation through geotechnical expertise.

More about ISSMGE: <https://www.issmge.org/>

## Association of Geotechnical Societies of South Asia (AGSSA)

### Founding Member Societies:

- Indian Geotechnical Society (IGS)
- Nepal Geotechnical Society (NGS)
- Pakistan Geotechnical Engineering Society (PGES)
- Sri Lankan Geotechnical Society (SLGS)



The Association of Geotechnical Societies of South Asia (AGSSA) is a regional body established to promote collaboration, knowledge exchange, and professional advancement in geotechnical engineering across South Asia. It was formally founded during **GeoMandu 2024** in Kathmandu and became operational in **January 2025**.

AGSSA comprises the geotechnical societies of India, Nepal, Pakistan, and Sri Lanka, and operates under a rotational leadership framework with its Secretariat hosted by the **Nepal Geotechnical Society**. As a regional partner of **ISSMGE Asia**, AGSSA supports coordinated action on shared geotechnical challenges and regional capacity building.

A key milestone of AGSSA is the organization of the **1st South Asian Conference on Geotechnics (SACG)**, to be held alongside **GeoMandu 2027**, marking a significant step toward strengthening regional cooperation in geotechnical engineering.



Photographs of AGSSA formation and AGSSA meeting at 17th ICGE and 8th ISG

# Welcome Messages

## Message from the Chair

Assoc. Prof. Dr. Mandip Subedi



It is my honor to welcome colleagues (engineers/ geoscientist/ researchers/ professionals) across the globe to GeoMandu 2027, the third in our biennial international conference series, to be held in Kathmandu, Nepal, at 17 to 19 March 2027. Organized by the Nepal Geotechnical Society, GeoMandu has, in only a few years, become a recognized platform for geotechnical engineers, researchers, and policymakers to engage in meaningful dialogue on today's critical challenges.

We are honored that along with GeoMandu 2027, NGS will host the 11th Asian Young Geotechnical Engineers Conference (11th AYGEC) and the 1st South Asian Conference on Geotechnics (1st SACG). Nepal was privileged to win the bid for the 11th AYGEC during the ISSMGE Asia Council Meeting at Geotech Asia 2025, Goa, India, reflecting trust and recognition from the regional geotechnical community. The 1st SACG is currently proposed and will be finalized at the upcoming AGSSA meeting in Lahore.

We are honored that along with GeoMandu 2027, NGS will host the 11th Asian Young Geotechnical Engineers Conference (11th AYGEC) and the 1st South Asian Conference on Geotechnics (1st SACG). Nepal was privileged to win the bid for the 11th AYGEC during the ISSMGE Asia Council Meeting at Geotech Asia 2025, Goa, India, reflecting trust and recognition from the regional geotechnical community. The 1st SACG is currently proposed and will be finalized at the upcoming AGSSA meeting in Lahore.

The theme of this conference, “Mountain Geotechnics for Infrastructure Development” reflects both Nepal’s national priorities and the broader realities of many mountainous regions worldwide. More than 80 percent of Nepal is mountainous, and our landscapes combine fragile geology, steep terrain, monsoon rainfall, and seismic activity. These conditions produce persistent hazards such as landslides and slope failures, yet they also hold vast potential for hydropower, transportation networks, and sustainable urban expansion. Advancing mountain geotechnics is therefore not only an academic endeavor, but also a cornerstone of resilient development.

GeoMandu 2027 is designed to serve as a bridge between cutting-edge research and real-world application. Recent advances in slope stabilization, landslide hazard assessment, seismic performance of mountain infrastructure, and sustainable ground improvement offer exciting opportunities for practice. Our aim is to connect global expertise with local realities, fostering collaboration that transforms technical innovation into solutions with lasting social and economic impact.

November is also one of the most beautiful times of year to experience Nepal. I encourage you to take this opportunity to combine professional exchange with exploration of our country’s rich natural and cultural heritage. On behalf of the Organizing Committee, I warmly invite you to join us in Kathmandu for GeoMandu 2027. I look forward to welcoming you to an engaging and inspiring gathering.

## Message from the NGS President

**Prof. Dr. Indra Prasad Acharya**

I am honored to greet you through this message and express my sincere appreciation for your support and belief in me as the President of the Nepal Geotechnical Society.

It is with great pride that I acknowledge the society's recognition in Nepal and globally, thanks to its activities and international representation in ISSMGE and various forums. Geotechnical Engineering, a vital aspect of civil engineering, focuses on the design and study of structures situated on or beneath the ground level. Given Nepal's geography, with its towering young mountains and its location in a seismically active zone, it becomes even more crucial to consider geotechnical parameters. Unfortunately, this profession is often overlooked in Nepal, leading to numerous challenges in infrastructure development.



Consequently, our infrastructure lacks sustainability in terms of both lifespan and functionality. It is imperative that we unite to promote geotechnical professionalism, empower our members, and raise awareness about its importance to the government. I am fully aware of these challenges and will make every effort to fulfill my responsibilities to the best of my abilities. We have lunched our two-year plan/goals and work accordingly.

## Message from the Convener

**Dr. Dhundi Raj Pathak**



I extend my invitation to you for the upcoming GeoMandu 2027: an international conference, organized by the Nepal Geotechnical Society, along with the 11th Asian Young Geotechnical Engineers Conference (AYGEC) and the 1st South Asian Conference on Geotechnics (SACG) of AGSSA, which will be held from 17 - 19 March, 2027, with the theme "Mountain Geotechnics for Infrastructure Development".

The theme reflects Nepal's national priorities as well as the broader challenges faced by mountainous regions worldwide. I invite researchers, practitioners, policymakers, and industry leaders to submit research papers, technical notes, field case studies, and innovative project reports on topics such as: sustainable mountain geotechnics and climate-resilient infrastructure; geohazard risk, slope stability, and seismic design in complex terrains; underground construction, foundations, and environmental geotechnics; digital and remote sensing technologies for modern geotechnical engineering.

I am also pleased to announce that all accepted papers will be published by Springer as part of a peer-reviewed proceedings volumes indexed in Scopus & EI Compendex. Through the conference and its publications, we aim to foster the exchange of novel ideas and innovations, bridging the gap between research and practice in geotechnical and geoenvironmental engineering.

On behalf of NGS and as Convener of GeoMandu 2027 with 11th AYGEC & 1st SACG, I sincerely invite for your active participation to advance knowledge and solutions for sustainable mountain infrastructure.

## Message from the Youth Convener

Er. Rajan KC

It is my great pleasure to welcome you to GeoMandu 2027, the Third International Conference of the Nepal Geotechnical Society, to be held from 17–19 March 2027 in Kathmandu, Nepal. This prestigious event is being organized in conjunction with the 11th Asian Young Geotechnical Engineers Conference (AYGEC) and the 1st South Asian Geotechnical Conference (SACG), bringing together the global geotechnical community on a common platform.

As a young geotechnical engineer, I am truly honored to serve as the Youth Convener of GeoMandu 2027. The conference is organized under the theme “Mountain Geotechnics for Infrastructure Development,” which directly reflects the pressing challenges faced by Nepal and other mountainous regions, including landslides, seismic hazards, and complex ground conditions affecting infrastructure development.

The Youth Conference at GeoMandu 2027, aligned with AYGEC and SACG, provides a dedicated forum for young professionals and students to present their work, engage with leading experts, and exchange innovative ideas. This initiative is strongly supported by the Young Member Presidential Group (YMPG) of ISSMGE, reinforcing ISSMGE’s commitment to nurturing future leaders in geotechnical engineering.

I firmly believe that the enthusiasm, creativity, and technical competence of young engineers, combined with the experience and guidance of senior professionals, will contribute significantly to advancing resilient and sustainable infrastructure in mountainous regions.

On behalf of the youth community, I warmly welcome all delegates to GeoMandu 2027 and look forward to insightful discussions, meaningful collaborations, and a memorable conference experience in Kathmandu.



# GeoMandu Committees

## Patron

**Dr. Marc Ballouz**

President, International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

**Prof. Dr. Keh-Jian Shou**

Vice-President (Asia), International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

**Dr. Anil Joseph**

President, Association of Geotechnical Societies of South Asia (AGSSA)

**Prof. Dr. Netra Prakash Bhandary**

Founding Chair, GeoMandu Conference Series; Past President, Nepal Geotechnical Society

**Prof. Dr. Indra Prasad Acharya**

President, Nepal Geotechnical Society

## Advisory Committee

**Er. Tuk Lal Adhikari**

Past President, Nepal Geotechnical Society (NGS)

**Prof. Dr. Ram Krishna Poudel**

Past President, Nepal Geotechnical Society (NGS)

**Dr. Gyaneshwor Pokhrel**

Founding Member, Nepal Geotechnical Society (NGS)

**Er. Indu Sharma Dhakal**

Past General Secretary, Nepal Geotechnical Society (NGS)

**Prof. Krishna Reddy**

University of Illinois at Chicago, USA

**Prof. Dimitrios Zekkos**

Professor of Civil and Environmental Engineering, UC Berkeley

**Prof. Ikuo Towhata**

Honorary Member, Nepal Geotechnical Society (NGS)

**Prof. Dr. Akkal Bahadur Singh**

Past President, Nepal Geotechnical Society (NGS)

**Prof. Dr. Madan Bahadur Karkee**

Past President, Nepal Geotechnical Society (NGS)

**Dr. Bishwa Ranjan Shahi**

Past General Secretary, Nepal Geotechnical Society (NGS)

**Prof. Dr. Binod Tiwari**

California State University, Fullerton, USA

**Dr. Keshab Sharma**

BGC Engineering Inc., Canada

**Alex Baumgard, Ph.D., P.Eng.**

BGC Engineering Inc., Canada

**Dr. Ganga Lal Tuladhar**

Honorary Member, Nepal Geotechnical Society (NGS)

**Dr. Amod Mani Dixit**

Honorary Member, Nepal Geotechnical Society (NGS)

**Eng. Amjad Ali Agha**

President, Pakistan Geotechnical Engineering Society

**Prof. Askar Zhussupbekov**

President, Kazakhstan Geotechnical Society

**Prof. Youngcheol Hwang**

President, Korean Society for Geotechnical Engineering

**Er. Srilal Sahabandhu**

President, Sri Lankan Geotechnical Society

**Prof. A.M.M. Safiullah**

President, Bangladesh Society for Geotechnical Engineering

**Prof. Ryosuke Uzuoka**

President, Japan Society for Geotechnical Engineering

## Organizing Committee

**Dr. Mandip Subedi**

Conference Chair, GeoMandu 2027

Universal Engineering and Science College, Lalitpur, Nepal

**Dr. Dhundi Raj Pathak**

Conference Convener, GeoMandu 2027

Center of Research for Environment, Energy and Water (CREEW), Nepal

**Er. Rajan KC**

Conference Youth Convener, GeoMandu 2027

Geoinfra Research Institute, Lalitpur, Nepal

### Members

**Dr. Mohan Prasad Acharya**

NEA Engineering Company Pvt. Ltd., Kathmandu

**Er. Jibendra Mishra**

Ehime University, Japan

**Er. Kalpana Adhikari**

Department of Roads, Government of Nepal

**Er. Darshan Babu Adhikari**

Senior Geotechnical Engineer, Chilime Engineering & Services Company Limited

**Er. Madan Puri**

Managing Director, Himalaya Geo-Solutions Pvt. Ltd., Nepal

**Er. Kamal Prasad Regmi**

Senior Civil Engineer, Full Bright Consultancy Pvt. Ltd.

**Er. Khem Raj Pokhrel**

Earthquake / Structural Engineer, Gokarneshwor Municipality, Government of Nepal

**Er. Samundra Kadel**

Geotechnical Researcher, Nepal Academy of Science and Technology

**Er. Sandip Regmi**

Managing Director and Founder, Aron Engineering Pvt. Ltd.

**Er. Bishwa Bastakoti**

NEA Engineering Company, Chakupat, Lalitpur

**Dr. Bhim Kumar Dahal**

IOE, Pulchowk Campus

**Er. Suvarna Singh Raut**

Himalaya College of Engineering, Nepal

**Er. Mandakini Karki**

Technical Director, Soil Test Pvt. Ltd.

**Er. Bipul Mainali**

Assistant Lecturer, Universal Engineering and Science College

**Er. Madan Ranabhat**

Multi Lab (P) Ltd., Kupondole, Lalitpur

**Er. Sahishnu Pokhrel**

Civil Engineer, Department of Roads, Ministry of Physical Infrastructure and Transport, Nepal

**Dr. Pradeep Pokhrel**

Viswa Consult Pvt. Ltd., Nepal

**Er. Udaya Raj Neupane**

Geotechnical Engineer / Managing Director, Clay Engineering Pvt. Ltd.

**Er. Ram Babu Paudyal**

Senior Road Expert, Infrastructure Development Directorate (IDD), Gandaki Province

**Er. Nitesh Thakur**

Civil Engineer, Geoinfra Research Institute, Lalitpur, Nepal

## Editorial Board

**Prof. Dr. Netra Prakash Bhandary**

Ehime University, Matsuyama, Japan

**Prof. Dr. Indra Prasad Acharya**

Institute of Engineering, Tribhuvan University, Lalitpur, Nepal

**Dr. Mandip Subedi**

Universal Engineering and Science College, Lalitpur, Nepal

**Dr. Keshab Sharma**

BGC Engineering Inc., Canada

**Er. Rajan KC**

Geoinfra Research Institute, Lalitpur, Nepal

**Prof. Dr. Binod Tiwari**

California State University, Fullerton, USA

**Dr. Mohan Prasad Acharya**

NEA Engineering, Nepal

**Dr. Dhundi Raj Pathak**

Center of Research for Environment, Energy and Water (CREEW), Nepal

**Dr. Bhim Kumar Dahal**

Institute of Engineering, Tribhuvan University, Lalitpur, Nepal

## Scientific Committee

**Dr. Abilash Pokhrel**

University of Canterbury, New Zealand

**Prof. Dr. Amod Mani Dixit**

National Society for Earthquake Technology, Nepal

**Dr. Arindam Dey**

IIT Guwahati, India

**Dr. Basanta Raj Adhikari**

Institute of Engineering, Tribhuvan University, Lalitpur, Nepal

**Er. Bikash Devkota**

UniSA STEM, University of South Australia

**Prof. Dr. Binod Tiwari**

California State University, Fullerton, USA

**Prof. Dimitrios Zekkos**

Professor of Civil and Environmental Engineering, UC Berkeley

**Er. Dipendra Gautam**

Earthquake Engineering Research Center, University of Iceland

**Dr. Ellen Robson**

Durham University, UK

**Dr. Hem Nath Ghimire**

SMEC International

**Er. Jibendra Misra**

Ehime University, Japan

**Er. Kaushal Raj Gynwali**

University of British Columbia, Canada

**Prof. Krishna Reddy**

University of Illinois at Chicago, USA

**Alex Strouth, Ph.D.**

BGC Engineering, Canada

**Ar. Apil KC**

Michigan University, USA

**Dr. Arvind Kumar Jha**

IIT Patna, India

**Dr. Bhim Kumar Dahal**

Institute of Engineering, Tribhuvan University, Lalitpur, Nepal

**Er. Binayak Sharma**

Lahmeyer International GmbH

**Prof. Dr. Deepankar Chowdhury**

IIT Bombay, India

**Prof. Dr. Dinesh Pathak**

Central Department of Geology, Tribhuvan University

**Er. Diwakar Khadka**

Tongji University, China

**Er. Harish Paneru**

Ehime University, Japan

**Prof. Dr. Indra Prasad Acharya**

Institute of Engineering, Tribhuvan University, Nepal

**Er. Kalpana Adhikari**

Department of Roads, Government of Nepal

**Dr. Keshab Sharma**

BGC Engineering Inc., Canada

# Conference Themes

Not restricting fully to the items listed, this international conference is planned to accommodate the following sub themes.

- **Geohazard Risk Assessment and Climate-Responsive Geotechnical Solutions**

Mountainous regions like the Himalayas face increasing geohazards—landslides, rockfalls, debris flows, and GLOFs—intensified by climate change through heavier rainfall, glacier retreat, and permafrost loss. This theme focuses on innovative approaches for risk assessment, mapping, and climate-resilient geotechnical solutions. Key areas include advanced hazard modeling, early warning systems, climate-responsive slope stabilization, low-cost community-based practices, and integration of climate projections in design codes. The session aims to connect research, engineering, and policy to develop safe, sustainable, and resilient mountain infrastructure.

- **Tunneling and Underground Construction in Complex Geology**

Tunneling in the Himalayas faces challenges from complex geology, fault zones, groundwater inflow, and seismic risks. This theme explores advanced design, excavation, and monitoring methods for hydropower, transport, and utility tunnels. Key focus areas include geotechnical investigations, fault zone management, modern tunneling techniques (NATM, TBM), seismic risk mitigation, and lessons from real projects to enhance safe, efficient, and sustainable underground construction.

- **Sustainable Slope Engineering and Stabilization Techniques**

Mountainous regions face frequent slope failures due to rainfall, seismic activity, and fragile geology. This theme highlights innovative and eco-friendly stabilization methods, including bioengineering, MSE systems, geosynthetics, and climate-responsive designs. It promotes low-cost, sustainable solutions using local materials and showcases practical applications for roads, hydropower, and urban development to ensure long-term safety and resilience.

- **Geotechnical Investigations and Foundation Design for Steep Slopes**

Building infrastructure on steep slopes in mountain regions poses challenges of instability, erosion, and seismic risk. This theme addresses advanced site investigation methods, deep foundation solutions, slope–foundation interaction, and seismic design considerations. It highlights innovative, site-specific, and sustainable approaches to ensure safe and resilient construction for bridges, hydropower, and hillside structures.

- **Earthquake Geotechnics and Seismic Design of Mountain Infrastructure**

Mountainous regions face high earthquake risks that trigger landslides, slope failures, and infrastructure damage. This theme focuses on seismic hazard assessment, earthquake-resistant design, liquefaction mitigation, and post-earthquake restoration for mountain roads, bridges, tunnels, and hydropower projects. It promotes innovative, site-specific solutions to enhance resilience and reduce disaster impacts.

- **Geo-Environmental Issues and Waste Management in Mountain Settings**

Mountain regions face increasing geo-environmental challenges due to rapid urbanization, tourism growth, infrastructure expansion, and climate change impacts. Unmanaged construction waste, poorly designed landfills, improper disposal of solid waste, and mining residues threaten fragile ecosystems, water resources, and community health. The steep topography and limited land availability further complicate sustainable waste management and geo-environmental practices in these areas. This theme focuses on landfill design,

mine waste stabilization, sustainable construction waste practices, and nature-based solutions to protect fragile ecosystems. It highlights geotechnical approaches for resilient, eco-friendly waste management in mountainous terrains.

- **Riverbank Erosion, Sediment Management, and Infrastructure Protection**

Mountain rivers are dynamic systems characterized by steep gradients, high sediment loads, and frequent flash floods. In regions like the Himalayas, riverbank erosion and uncontrolled sedimentation pose significant threats to infrastructure such as roads, bridges, hydropower plants, and riverine settlements. These challenges are further intensified by climate change, which alters river flow regimes, accelerates glacial melt, and increases the frequency of extreme weather events. This theme addresses riverbank stabilization, sediment control, and climate-resilient protection measures, including bioengineering and structural methods. It focuses on integrated management approaches and case studies to safeguard infrastructure from flash floods and GLOFs.

- **Geotechnics for Rural Road Development and Accessibility**

Rural roads are vital for connecting remote communities but often face geotechnical challenges like unstable soils, landslides, and erosion. Proper geotechnical investigations help in selecting road alignments, designing stable pavements, and implementing slope protection measures. Techniques such as soil stabilization, drainage management, and bioengineering can enhance road durability. Sustainable rural road development ensures safe, accessible, and low-maintenance transportation networks that support socio-economic growth in rural areas.

- **Digital Technologies and Remote Sensing in Geotechnics**

Digital technologies and remote sensing enhance geotechnical engineering by providing accurate, large-scale, and real-time data. Tools such as GIS, IoT sensors, LiDAR, and satellite imagery help in terrain analysis, slope stability assessment, and hazard monitoring. Integration of these technologies enables predictive modeling, efficient planning, and safer infrastructure development.

The poster features the following content:

- Logos:** 3rd GeoMandu (NDS International Conference Series, Since 2016) and 11th AYGEC 1st SACG (Kathmandu, Nepal | 17-19 March, 2027).
- Title:** Mountain Geotechnics for Infrastructure Development
- Subtitle:** Redefining Geotechnics for the Mountainous Landforms
- Dates:** 17–19 March, 2027, Kathmandu, Nepal
- Call for papers:** Large text with a calendar icon.
- Submission Deadline:** Abstract submission deadline 28 February, 2026.
- Submit Abstract:** QR code and a small button.
- Springer:** Selected papers from this conference will be published by Springer as a peer-reviewed proceedings book volume.
- Organizer:** Logo of the organizing institution.
- Supported By:** Logos of supporting organizations.
- Contact:** ● geomandu2027@gmail.com, ● geomandu.geotechs.org

To submit your abstract

Click Here

# Pre-Conference Workshop

## Geohazard and Geotechnical Capacity Building

As part of its ongoing commitment to advancing geotechnical practice in mountainous regions, GeoMandu regularly organizes focused pre-conference workshops on geohazards and applied geotechnical engineering. These workshops are designed to integrate theoretical knowledge with practical applications, encourage knowledge exchange, and strengthen technical capacity for addressing complex ground-related challenges.

The Pre-Conference Workshop is an integral supporting activity of the GeoMandu conference series, organized to strengthen understanding of geohazards and applied geotechnical engineering in mountainous and hazard-prone regions. The workshop is designed to enhance technical awareness, promote practical problem-solving & support capacity building among students, researchers, practicing engineers, consultants & institutional stakeholders.

Focusing on real-world geotechnical challenges, the workshop combines thematic lectures and hands-on learning to bridge the gap between theory and practice. It contributes to improving professional competence and informed decision-making for resilient infrastructure development in complex terrain.



Photograph Highlights of Geohazard Risk Management Workshop 2024

# Pre-Conference Events

## Geotechnical Model Competition

The Geotechnical Model Competition is a recurring pre-conference activity of the GeoMandu conference series, organized by the Nepal Geotechnical Society (NGS) to promote early engagement with geotechnical engineering among undergraduate civil engineering students. The competition is intended to enhance awareness of geotechnical hazards, encourage problem-based learning, and stimulate interest in innovation and research related to ground engineering and infrastructure development.

Through physical and conceptual model demonstrations, students explore real-world geotechnical problems relevant to mountainous and geologically complex regions. The activity complements formal academic learning by providing a hands-on platform that encourages critical thinking and practical understanding of geotechnical challenges.



Photograph Highlights of Geotechnical Model Competition 2023, 2024 and 2026

## NGS Youth Symposium

The NGS Youth Symposium is a pre-conference platform of the GeoMandu conference series, initiated to support youth-led technical dialogue in geotechnical engineering. Designed by the youth, for the youth, the symposium brings together students, early-career professionals, young researchers, and academic staff to discuss emerging geotechnical issues, share experiences, and connect research with engineering practice.

The symposium focuses on thematic lectures, case-study-based talks, and moderated discussions, creating an open environment for learning, professional interaction, and mentorship. It plays a supporting role within the GeoMandu framework by strengthening youth engagement and fostering long-term involvement in the geotechnical profession.



Photograph Highlights of NGS Youth Symposium 2026

# Highlights of GeoMandu 2024

- 500+ participants from 26 countries, 6 continents.
- 32 special (keynote and distinguished) lectures by global experts.
- 16 technical sessions: ~90 oral & 35 poster presentations.
- GeoMandu Proceeding, published in Springer's Lecture Notes in Civil Engineering series (4 volumes).
- Featured the ISSMGE Heritage Time Capsule (HTC) session.
- Geohazard Risk Management Workshop 2024, with 60+ participants
- Geotechnical Model Competition 2024, with 1000+ participants.
- Formation of the Association of Geotechnical Societies of South Asia (AGSSA).
- Outreach to all ISSMGE member societies and major geotechnical forums.



## About Venue

Kathmandu, the capital of Nepal, offers a unique blend of heritage, scenic landscapes and urban development, providing a remarkable backdrop for GeoMandu 2027.

