GEOHAZARDS IN THE ASIAN REGION – ANTICIPATING RISKS AND CHALLENGES TOWARD 2075 - NEPAL

HTC SESSION

Prof. Neelima Satyam

The ISSMGE Heritage Time Capsule (HTC) session was held on 29th November 2024 at Kathmandu, Nepal during the GeoMandu 2024, bringing together geotechnical experts to focus on the critical theme of geohazards in Asia. The session began with an insightful introductory address by Prof. Keh-Jian (Albert) Shou, Vice President for Asia of ISSMGE. He elaborated on the HTC project's vision and objectives, emphasizing its importance in preserving geotechnical knowledge while fostering global collaboration and knowledge sharing among professionals. Prof. Shou discussed how HTC sessions are being conducted at various locations worldwide, bringing together geotechnical experts to reflect on past achievements and plan for future advancements. His remarks effectively set the stage for the session's focus on geohazards in the Asian region.

The session, chaired by Dr. Neelima Satyam, was a significant gathering of experts and early-career researchers exploring geohazard challenges in Asia. This session, under the aegis of the Discovery Sub-Committee (HTC) and HTC Asia Team, forms part of the broader ISSMGE Heritage Time Capsule initiative. The initiative aims to document geotechnical milestones and strategize for future challenges. The theme, "Geohazards in the Asian Region: Anticipating Risks and Challenges Toward 2075," was both timely and critical, given Asia's complex and dynamic geohazard landscape.

Dr. Satyam highlighted the region's susceptibility to a wide range of geohazards, including earthquakes, landslides, tsunamis, floods, and cyclones. These natural challenges are exacerbated by factors such as rapid urbanization, population growth, and climate change. She addressed the immense scale of these challenges, emphasizing the need for innovative, interdisciplinary, and collaborative approaches to anticipate and mitigate risks effectively. Dr. Satyam also discussed the cascading nature of geohazards, where one event often triggers others, creating complex problems that require multidimensional solutions.

The session featured presentations by prominent geotechnical leaders from various national member societies. Dr. Anil Joseph (Indian Geotechnical Society) provided an overview of India's geohazard landscape, discussing seismic risks in the Himalayas, monsoon-induced floods in river basins, and coastal cyclones. He highlighted the importance of revising construction codes, improving early warning systems, and promoting resilient infrastructure to mitigate these hazards effectively.

Dr. Young Uk Kim (Korean Geotechnical Society) spoke about landslides and sinkholes, particularly in urban and mountainous areas, and showcased smart technologies and real-time monitoring systems for risk reduction. He also shared lessons learned from past large-scale landslides, which have influenced Korea's current mitigation strategies.

GEOHAZARDS IN THE ASIAN REGION – ANTICIPATING RISKS AND CHALLENGES TOWARD 2075 - NEPAL

HTC SESSION

Dr. Mandip Subedi (Nepal Geotechnical Society) detailed Nepal's unique challenges with earthquakes, glacial lake outburst floods (GLOFs), and monsoon-triggered landslides. He stressed the importance of hazard mapping, community-based disaster risk management, and robust institutional frameworks for effective mitigation.

Engr. Amjad Agha (Pakistan Geotechnical Engineering Society) addressed the compounded impact of climate change on Pakistan's geohazards, including urban flooding, glacial melt, and extreme weather. He outlined key mitigation measures such as reforestation, enhanced water management, and investments in renewable energy to strengthen resilience.

Eng. K L S Sahabandu (Sri Lankan Geotechnical Society) focused on the high prevalence of landslides, which affect nearly 20% of the country's land area. He emphasized the role of Sri Lanka's National Building Research Organization (NBRO) in implementing landslide hazard zonation, early warning systems, and community engagement to mitigate risks.

The session included a vibrant open floor discussion, where participants explored critical topics such as population pressures in hazard-prone areas, the integration of AI and GIS technologies in hazard management, and opportunities for collaboration among ISSMGE Technical Committees (TCs) and Asian Regional TCs (ARTCs) to address emerging geohazard challenges. The discussion also examined the potential for HTC and initiatives like Geo-Engineers without Borders (GeoWB) to champion collaborative efforts in mitigating geohazards. This interactive exchange underscored the importance of sharing best practices, fostering regional and international collaboration, and addressing the urgent need for capacity building in geohazard preparedness.

Dr. Albert Shou

Dr. Marc Ballouz

Dr. Marc Ballouz, President of ISSMGE, concluded the session with reflective remarks on the origins and goals of the Heritage Time Capsule project. He updated attendees on the HTC website, launched earlier this year at GeoShanghai 2024 in China, and discussed plans for the 100-year ISSMGE Time Capsule sealing event at the 21st ICSMGE in Vienna, Austria, in 2026. Dr. Ballouz emphasized the significance of preserving and sharing geotechnical knowledge to inspire future generations and highlighted the HTC project as a cornerstone of ISSMGE's legacy initiatives. For more information about the HTC project, readers can visit the website at htc.issmge.org.

GEOHAZARDS IN THE ASIAN REGION – ANTICIPATING RISKS AND CHALLENGES TOWARD 2075 - NEPAL

HTC SESSION

The ISSMGE HTC session on geohazards in the Asian region was a landmark event, shedding light on the evolving risks and challenges posed by natural hazards. It raised critical questions: Are geohazards an area of sufficient concern to drive collaboration among Asian member societies? How can HTC and GeoWB foster such collaboration? The session also highlighted the vital role of ISSMGE TCs and ARTCs in facilitating knowledge sharing and fostering cross-border partnerships to address shared risks.

By reflecting on past experiences, sharing current practices, and envisioning a resilient future, the session underscored the power of collective efforts in building safer and more sustainable communities. It called on the global geotechnical community to innovate, collaborate, and act decisively to mitigate the mounting risks of geohazards in Asia and beyond.

Dr. Marc Ballouz, President of ISSMGE, along with representatives of various National Geotechnical Societies, presenting a memento to Dr. Neelima Satyam for conducting HTC session in GeoMandu