

ONLINE WEBINAR

Impacts of Climate Change on Slope Stability in Singapore: Engineering Approaches to Understanding Rainfall-Triggered Landslides



17 MARCH 2025

TIME: 5PM TO 7PM

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IMPORTANT

- ✓ Each approved registrant will receive a unique Zoom link for the webinar.
- ✓ A minimum attendance of 75% is required in order to obtain a certificate of attendance.

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SYNOPSIS

This study explores how climate change influences the stability of natural and man-made slopes in Singapore. The primary objectives are to (1) develop a comprehensive database of historical slope failures and (2) evaluate the effects of various weather conditions, with a focus on rainfall, on slope stability.

The database indicates that while small landslides are relatively common, large landslides are rare. Most landslides occur on steep slopes and are triggered by rainfall during the northeast monsoon season.

Although prolonged heavy rainfall is typically linked to landslides, the incomplete data leaves some uncertainty about this relationship. Certain rainfall patterns during the monsoon season frequently led to annual landslides.

The study determines the rainfall threshold necessary to trigger landslides and finds that the likelihood of landslides increases with higher rainfall amounts. Projections suggest that increased heavy rainfall, potentially resulting in larger landslides, will become more frequent, thus heightening the risk of slope instability.

SPEAKER BIODATA

Dr. Muthusamy Karthikeyan has over 29 years of experience in Geotechnical and Coastal Engineering research and consultancy. He holds a Ph.D. and a Master of Engineering in Geotechnical Engineering from the National University of Singapore and is a registered Chartered Engineer in Infrastructure in Singapore.

Throughout his career, he has contributed to major reclamation projects in Singapore, specializing in offshore site investigations, seabed characterization, ground improvement, land reclamation, polder design, coastal engineering, and embankment construction.

Dr. Karthikeyan has received several prestigious awards, including the C.A. Hogentogler Award from ASTM in 2007, the Best Research Paper Award from the Japanese Geotechnical Society in 2009, and the Outstanding Geotechnical Engineer Award 2024 from the Geotechnical Society of Singapore. He is currently the Singapore representative for the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) Technical Committees on Land Reclamation (TC217), Ground Improvement (TC211), and Coastal and River Disaster Mitigation (TC303). He has published many technical papers and is the Immediate Past President of the Geotechnical Society of Singapore (GeoSS).