

Progress in Landslide Research and Technology

A comprehensive overview of Volume 2, Issue 1



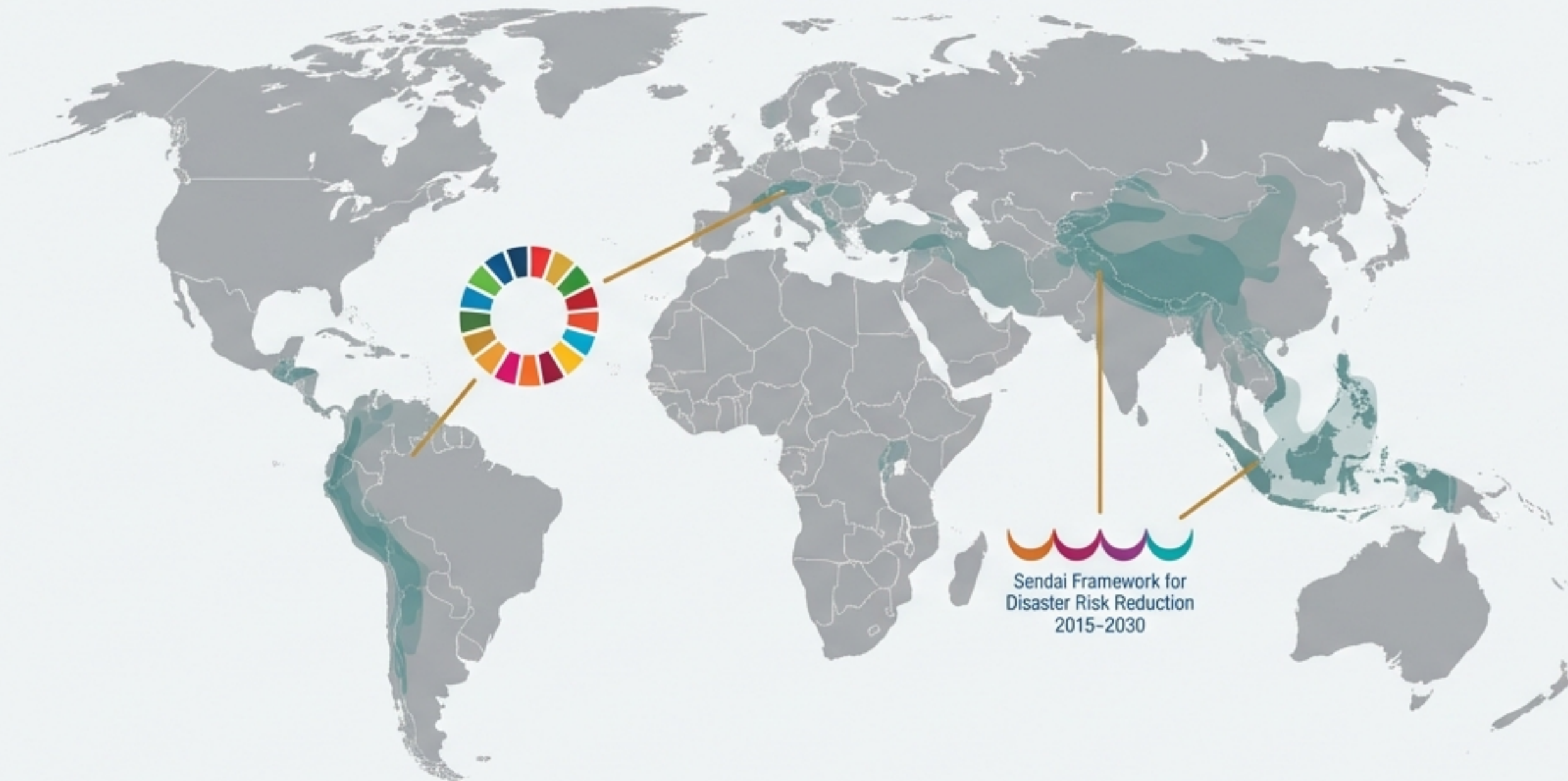
Cover Illustration: Buzulgan landslide. Photograph provided by Oleg V. Zerkal

- The Open Access book series of the International Consortium on Landslides (ICL).
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Advancing the Frontier of Landslide Science for a Safer World.

Grounded in a Global Commitment to Reducing Disaster Risk

The P-LRT series is the common platform for publishing progress in landslide science, directly contributing to critical global goals.



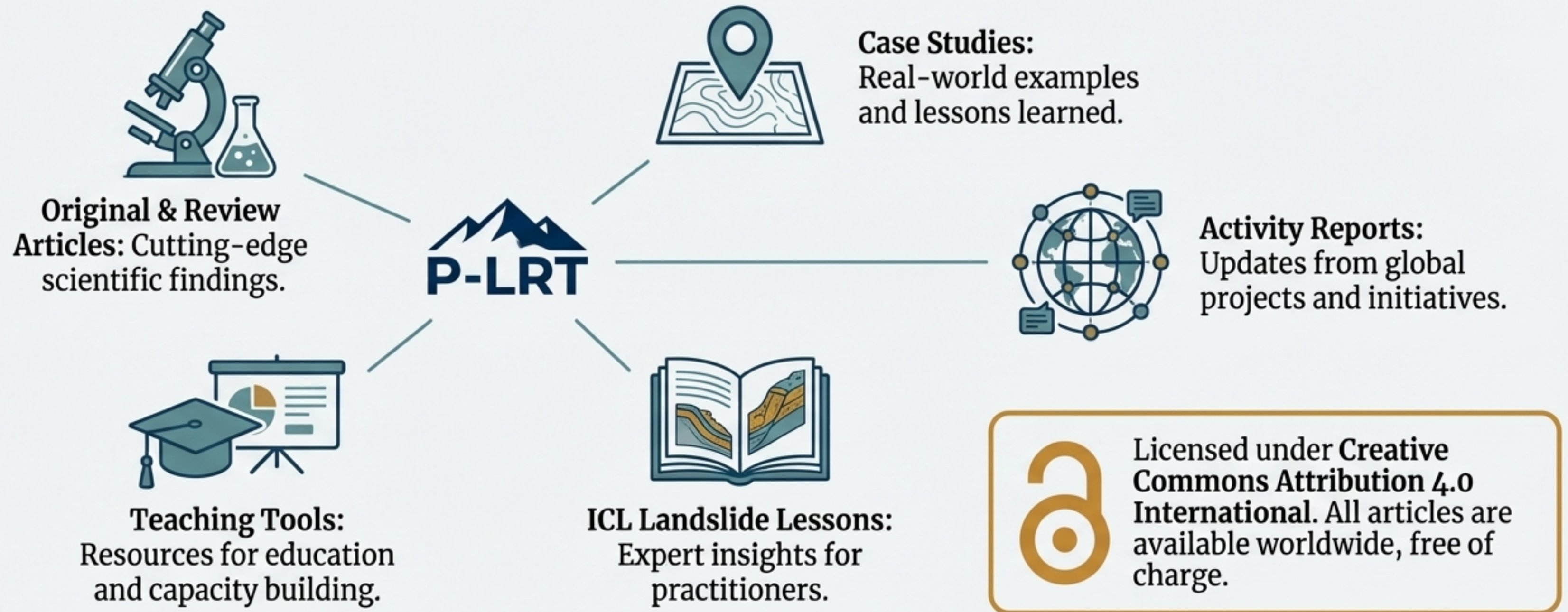
The Kyoto Landslide Commitment 2020 (KLC2020)

“A global commitment to promote the understanding and reduction of landslide disaster risk, expected to continue to 2030 and beyond.”

This initiative is hosted by the International Consortium on Landslides (ICL).

A Dedicated Platform for Research, Technology, and Teaching

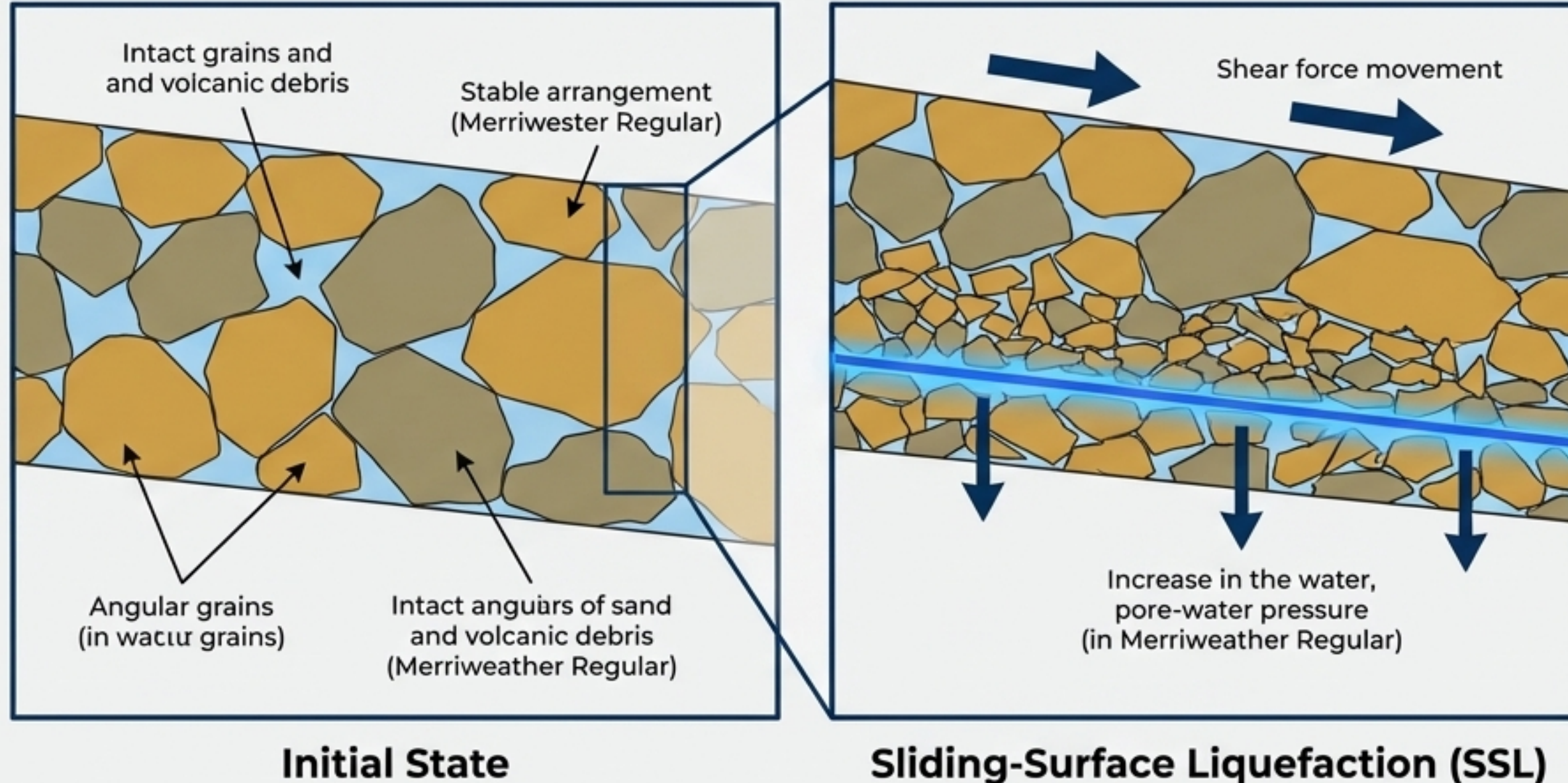
“The P-LRT series aims to be the common platform for the publication of recent progress in landslide research and technology for practical applications and the benefit of society.”



ZOOM IN: DECONSTRUCTING THE HAZARD

Understanding the Core Mechanism of Rapid, Long-Travelling Landslides

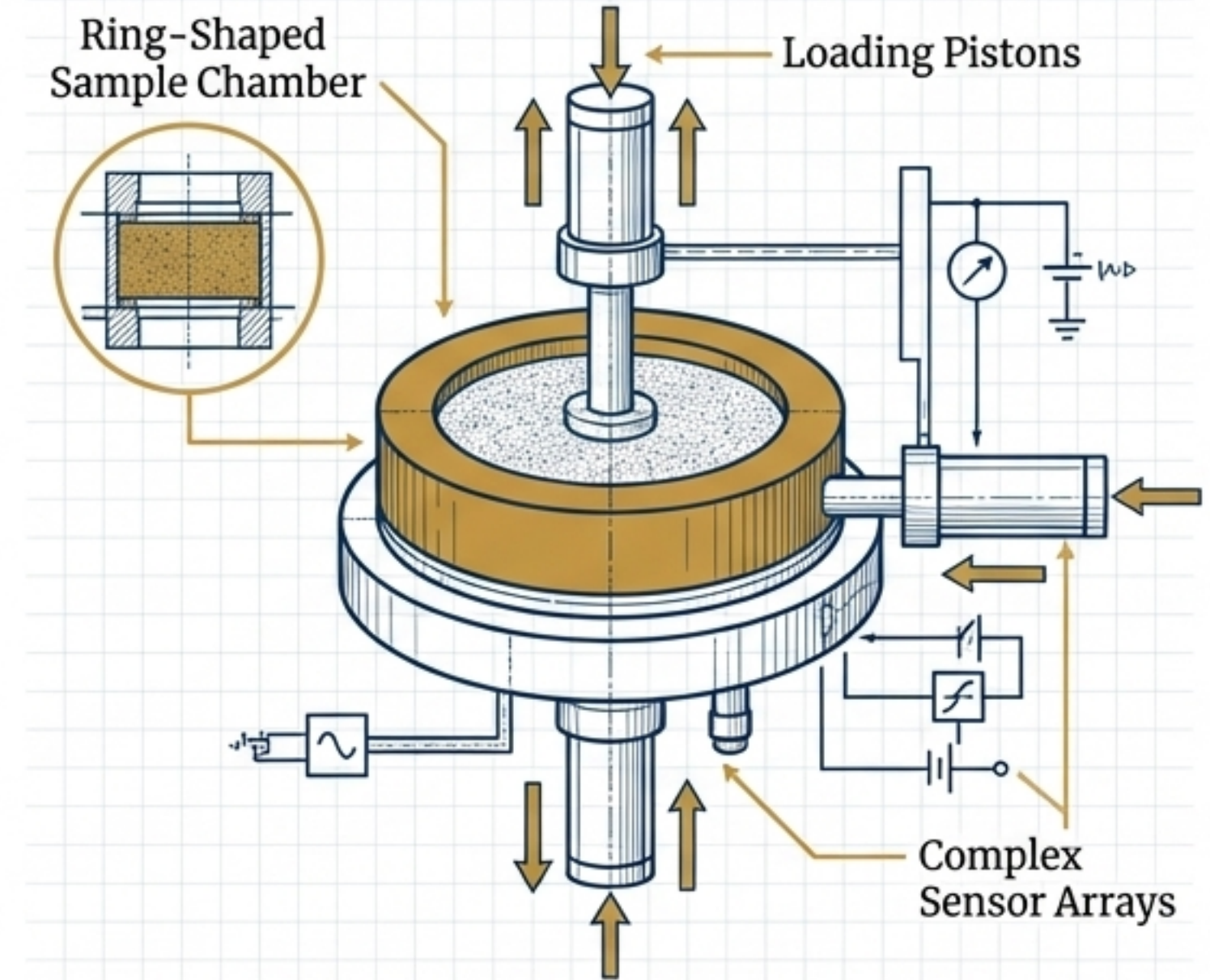
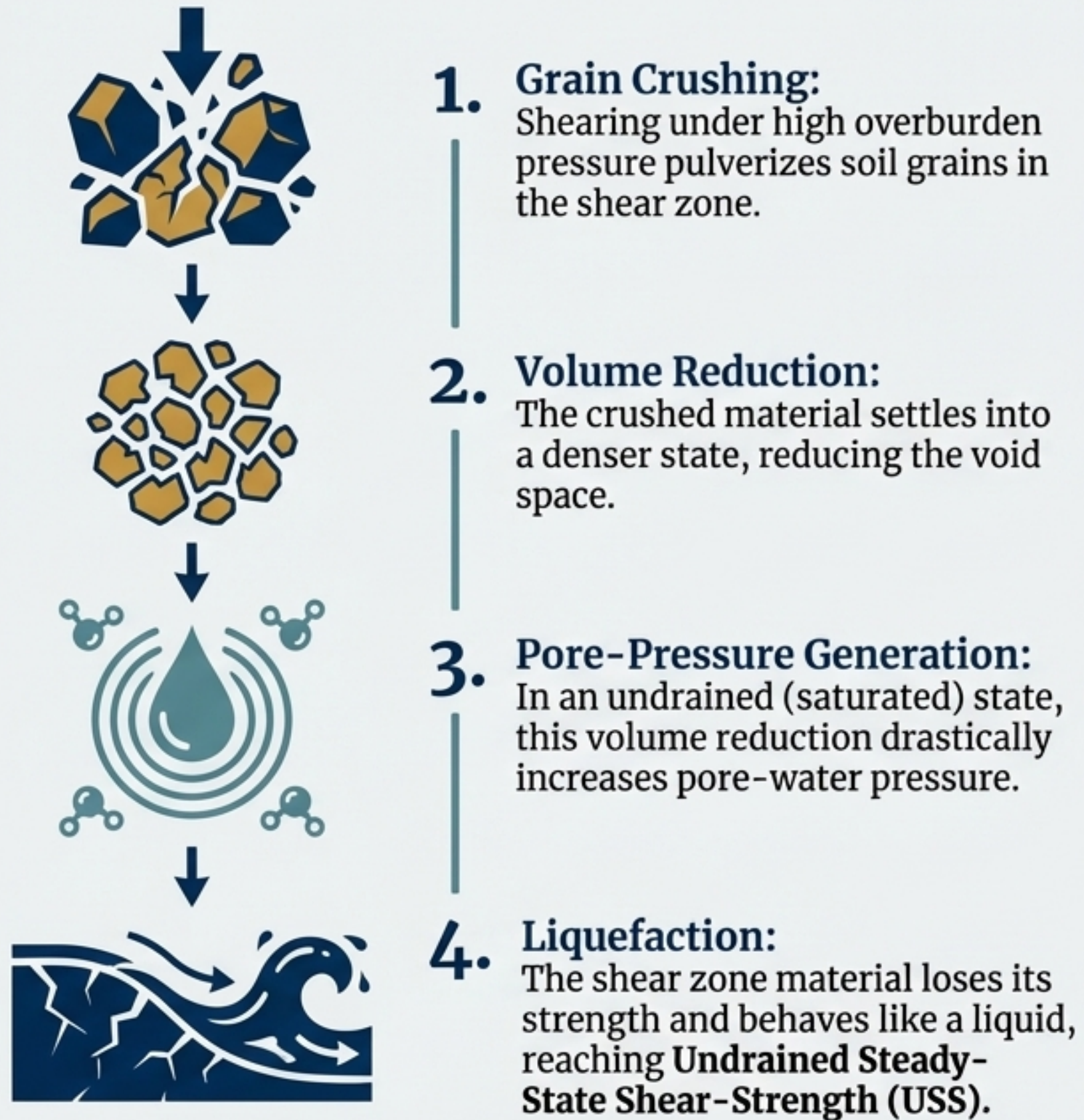
Focus Paper: "Sliding-Surface Liquefaction and Undrained Steady-State Shear-Strength"
by Kyoji Sassa, Loi Doan, Khang Dang, and Pham Tien.



Core Concept: This research explains "Sliding-Surface Liquefaction (SSL)," a key process behind the most dangerous and fatal landslides.

“Like skiing on snow or skating on ice, the landslide mass moves at high speed on a liquefied surface. The mechanism is analogous, but the trigger is grain crushing, not melting.”

The Four-Step Process of Sliding-Surface Liquefaction



This specialized apparatus physically simulates the entire landslide process—from initiation and failure to post-failure motion—allowing for precise measurement of shear stress and pore pressure under realistic conditions.

ZOOM IN: BUILDING RESILIENCE

Applying Science to Mitigate Risk in Critical Infrastructure Zones

Focus Paper: "Identification and Mitigation of Reservoir Landslides: Cases Studied in the Three Gorges Reservoir Area of China" by Huiming Tang.



This research addresses one of the most common and dangerous geohazards in reservoir areas, with direct implications for dam safety, transportation, and residential areas.

The paper provides a comprehensive overview of reservoir landslides, focusing on five key aspects:

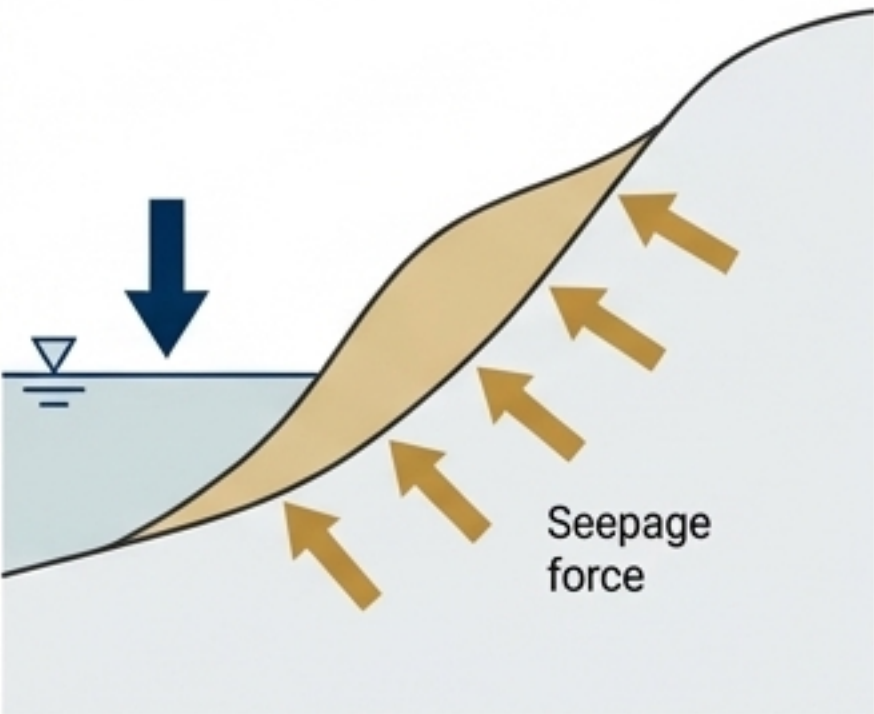
1. Characteristics & Distribution
2. Stability Evaluation Methods
3. In-situ Experiments on Slipping Zone Soil
4. Prevention and Control Measures
5. Forecasting Based on Physical-Mechanical Mechanisms

Key Learnings from the Three Gorges Reservoir Experience

Water is the key factor. Stability is determined by a complex interplay of hydrostatic pressure, buoyancy, hydrodynamic pressure, and material properties.

Two Primary Mechanical Characteristics

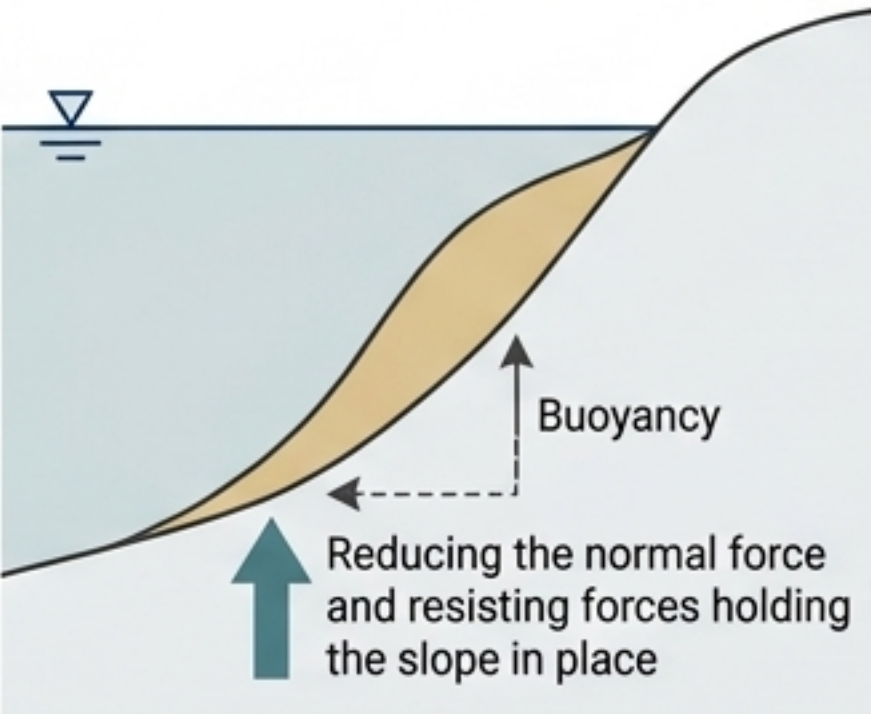
Seepage-Induced



Seepage-Induced

Deformation occurs mainly when the reservoir water level decreases.

Buoyancy-Induced



Buoyancy-Induced

Deformation occurs primarily when the reservoir water level is high.

Methodologies Spotlight

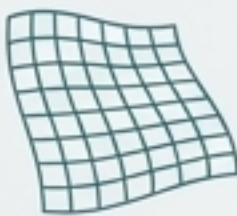
The research summarizes a range of stability evaluation methods, showing the breadth of the field:



Qualitative Methods
(Geological analysis)



Limit Equilibrium Methods
(Unbalanced thrust method)



Numerical Simulation
(Finite Element Method)



Probabilistic Analysis
(Monte Carlo simulation)

ZOOM OUT: A GLOBAL ALLIANCE

A Global Partnership of Public Institutions and Private Industry

The Kyoto Landslide Commitment 2020 is supported by a diverse group of Official Promoters, uniting science, government, and technology.

Public Sectors



Geological Survey
of Canada



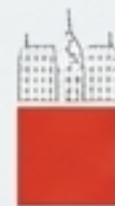
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The full editorial board comprises dozens of leading experts from institutions across the globe, including Mexico, Italy, China, Czech Republic, UK, and more, ensuring a rigorous and diverse peer-review process.

Fostering Excellence and Driving Future Research

The ICL and P-LRT are committed to recognizing and rewarding outstanding contributions to landslide science.



ICL Book Article Award

- **Prize:** Free Book Processing Charge (BPC) for 20 pages.
- **Purpose:** To reward the highest quality articles published within P-LRT.
- **Selection:** Nominated and voted on by the P-LRT editorial board.



IPL-KLC Award for Success

- **Prize:** USD \$3000 in cash.
- **Purpose:** To recognize authors in P-LRT and the journal *Landslides* who have reported on impactful IPL-KLC activities.
- **Selection:** Approved by the IPL-KLC Global Promotion Committee.

Join the Mission to Reduce Global Landslide Risk

We invite researchers, practitioners, and organizations to **contribute** to this global effort. The success of **this open access series** depends on the contribution of good articles and strong support from our **promoters**.

How to Get Involved



Contribute Your Research:
Submit original articles, case studies, or teaching tools to the P-LRT Open Access book series.



Become a KLC2020 Promoter:
Join the global alliance of public and private sector organizations dedicated to this cause.



Participate and Engage:
Attend and present at upcoming events, such as the **6th World Landslide Forum** in Florence, Italy.

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KLC2020 Secretariat