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Summary

In 2019, the Faculty of Civil and Geodetic Engineering of the University of Ljubljana (ULFGG) celebrated its centennial: The precursor of the faculty was the Technical Faculty established in 1919 as one of five founding faculties of UL.

ULFGG, covering technical disciplines of civil and geodetic engineering, as well as water science and technology, has been involved in landslide risk reduction activities at the national level in Slovenia (former Yugoslavia, until 1991) for decades (Fig. A10). In 2008, ULFGG became an ICL Full Member and has gradually developed its ICL engagement. ULFGG has been awarded the title of the World Centre of Excellence (WCoE) in Landslide Risk Reduction for 5 consecutive periods (2008–2011, 2011–2014, 2014–2017, 2017–2020, 2020–2023). Together with the Geological Survey of Slovenia, another ICL member in Slovenia, ULFGG hosted the 4th World Landslide Forum in Ljubljana, Slovenia, from May 29 to June 2, 2017. ULFGG strongly supports diverse activities of the International Consortium on Landslides, Kyoto, Japan, and thus contributes to the 2030 Agenda for Sustainable Development, as well as to the Sendai Framework for Disaster Risk Reduction 2015–2030 (SF DRR). ULFGG was a signatory of the Sendai Landslide Partnerships 2015–2030, and is a strong promoter of the Kyoto Landslide Commitment 2020, a SF DRR voluntary commitment by ICL.

In 2019, ULFGG hosted, together with the Slovenian Chamber of Engineers, the World Construction Forum 2019 (WCF 2019; www.wcf2019.org) in Ljubljana under the forum

motto “Buildings and Infrastructure Resilience.” The Forum with one of the themes on Disaster Risk Management and Governance for Resilient Communities was co-organized by the World Federation of Engineering Organizations (WFEO) in support to the implementation of the 2030 Agenda for Sustainable Development. All lectures given at the WCF2019 are available for free on the forum web page, as a contribution to Open Science efforts.

In the field of capacity building, ULFGG offers several courses for graduate and postgraduate students in landslide mechanics and dynamics, landslide stabilization and landslide risk mitigation. In this paper, a short overview of the past activities of ULFGG as ICL Full Member is shown.

World Centre of Excellence on Landslide Risk Reduction and IPL projects

WCoE activities

The title of World Centre of Excellence (WCoE) on Landslide Risk Reduction is given to a governmental or non-governmental entity, which contributes to the landslide disaster risk reduction at a regional and/or global level in a specific unique field of expertise, as well as helps promoting International Programme on Landslides (IPL) and landslide research intellectually, practically and financially (<https://www.landslides.org/ipi-info/world-centre-of-excellence/>). ULFGG was granted the title of WCoE five consecutive times: (Fig. A.10)

- WCoE 2008–2011 & 2011–2014: Mechanisms of landslides in over-consolidated clays and flysch.
- WCoE 2014–2017: Mechanisms of landslides and creep in over-consolidated clays and flysch.
- WCoE 2017–2020: Landslides in Weathered Flysch: from activation to deposition.
- WCoE 2020–2023: Landslides in Weathered Heterogeneous Sedimentary Rock Masses such as Flysch.

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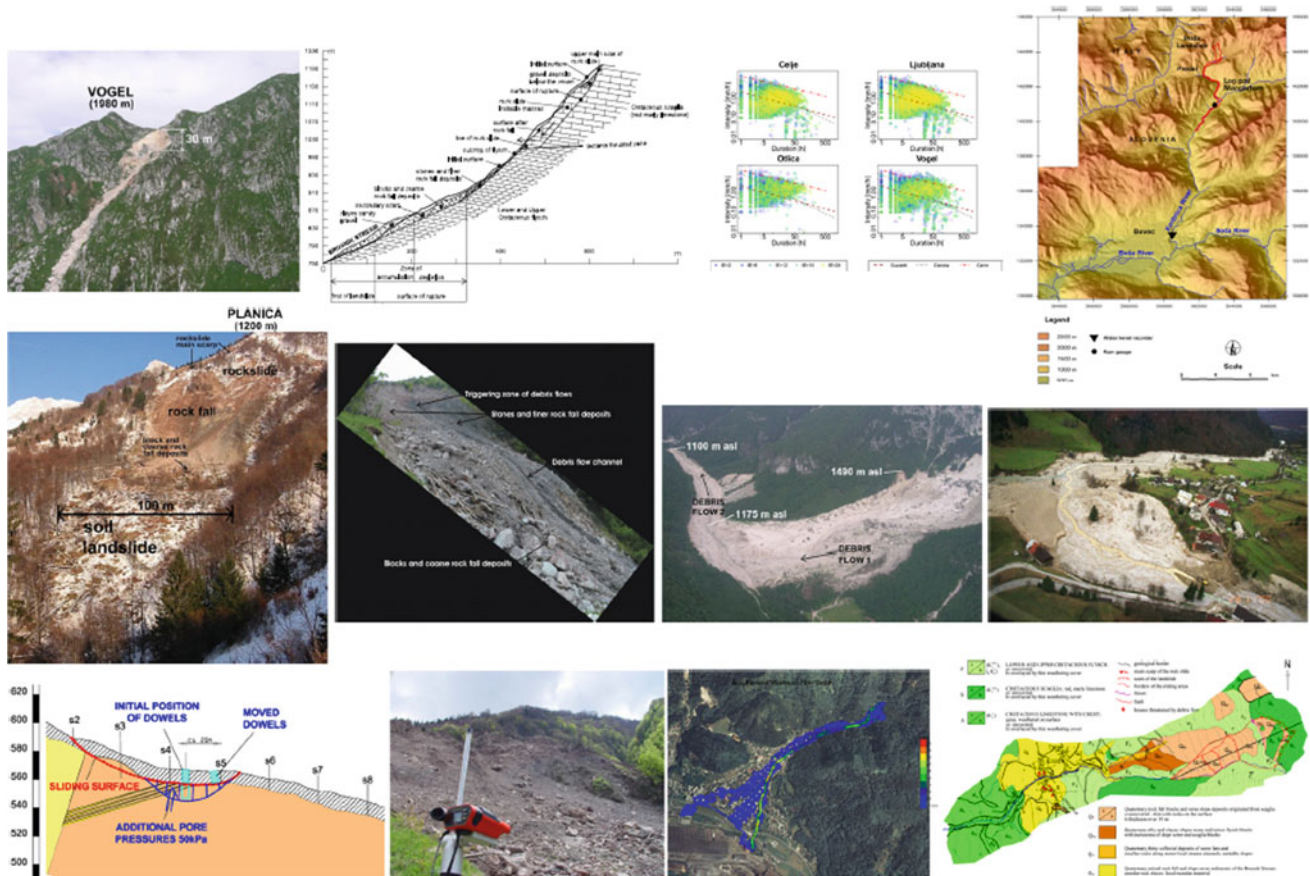


Fig. A.10 A collage of landslides in Slovenia and their investigation performed by UL FGG

The research efforts at ULFGG were focused on:

- Mechanisms of triggering such landslides (mud flows), estimation of debris-flow magnitudes triggered as shallow or deep-seated landslides (debris slides), and triggering of shallow rainfall-induced landslides using advanced statistical methods.
- Field and laboratory investigations of suction in over-consolidated clays and flysch, such as to improve the understanding of softening in stiff over-consolidated clays and marls, using soil matrix suction as an indicator for mudflow occurrence, and executing suction long-term monitoring of the Slano Blato landslide.
- Laboratory investigations of coarse debris-flow rheological parameters and soil–water characteristic curve of residual soil from a flysch rock mass.
- Mathematical modelling of debris flows (hazard assessment in deposition areas), using different numerical models and different digital terrain models.

The WCoE activities were financially supported by the Slovenian Research Agency through the Research Programme P2-0180 “Water Science and Technology, and Geotechnical Engineering: Tools and Methods for Process

Analyses and Simulations, and Development of Technologies,” as well as by several national and international (bi-lateral) research projects.

ULFGG and the Geological Survey of Slovenia jointly organized 4th World Landslide Forum (WLF4), in Ljubljana between May 29 and June 2, 2017, followed by a three-day field study tour to see the variety of landslide forms in Slovenia and in its immediate NW surroundings. With over 600 participants from 49 countries and 5 international organizations, WLF4 was promoting the culture of living with natural hazards.

IPL projects

An important ICL activity is IPL projects (<https://www.landslides.org/projects/icl-world-report-on-landslides/>). The IPL Evaluation Committee examines the submitted proposals of ICL members by carefully reading the written proposals and by listening to their presentations at annual ICL conferences. The initially accepted proposals by the IPL Evaluation Committee are discussed and then approved at the annual Board of Representatives meeting of ICL members (Annual Assembly). Finally, the IPL projects are approved annually

by the IPL Global Promotion Committee. ULFGG has successfully submitted several proposals for IPL projects and has been so far actively involved in the following ones:

- IPL-151 Soil matrix suction in active landslides in flysch—the Slano Blato landslide case (2010–2012).
- IPL-225 Recognition of potentially hazardous torrential fans using geomorphometric methods and simulating fan formation (2017–2020).
- IPL-226 Studying landslide movements from source areas to the zone of deposition using a deterministic approach (2017–2020)—coordinated by the Geological Survey of Slovenia.

ICL thematic and regional networks

Following the ICL Strategic Plan 2012–2021, several thematic networks and regional networks have been established (for an overview, see <https://www.landslides.org/projects/icl-networks/>).

Landslide Monitoring and Warning Thematic Network

In 2012, ULFGG proposed the ICL landslide monitoring and warning thematic network (abbr. LaMaWaTheN), and almost 10 ICL members joined the initiative. The general objective of the proposed network was to compare experiences in the field of landslide monitoring and installed early warning systems for active landslides in various regions of the world. A proposal for landslide monitoring techniques database was. The network was later coordinated by the Croatian Landslide Group from the Faculty of Civil Engineering, University of Rijeka, Croatia, and the Faculty of Mining, Geology and Petroleum, University of Zagreb, Croatia. Lately, we contributed to the network activities by preparing practice guidelines on monitoring and warning technology for debris flows.

The idea of the network was partially taken over by the web database ICL World Report on Landslides (<http://iplhq.org/lr-world-report-on-landslide/>), created to be a platform to share landslide case studies among the global landslide community, with monitoring and warning systems being a part of the story.

ICL Adriatic-Balkan Network

Jointly with other ICL members from Croatia and Serbia, in 2013, ULFGG proposed to establish an ICL Adriatic-Balkan Regional Network (ICL ABN; <https://www.klizista-hr.com/>

[en/organization/about-us/icl-abn/](https://www.klizista-hr.com/en/organization/about-us/icl-abn/)). Various network activities were proposed, the most active being the organization of biennial regional symposia on landslide risk reduction in the Adriatic-Balkan Region (called ReSyLAB). ULFGG supported the 1st Symposium in Zagreb (Croatia) in 2013 (March 6–9), and the 2nd in Belgrade (Serbia) in 2015 (May 14–16), and jointly organized the 3rd in Ljubljana (Slovenia) in 2017 (October 11–13) together with the Geological Survey of Slovenia (also an ICL member).

In the last decade, ULFGG has signed bilateral research projects with the ICL members in the region: “Adriatic-Balkan Regional Network: Landslide Risk Mitigation for Society and Environment” (2012–13 with University of Belgrade, Serbia), “Study of landslides in flysch deposits: sliding mechanisms and geotechnical properties for landslide modelling and landslide mitigation SoLiFlyD” (2014–15 with University of Rijeka, Croatia), and “Laboratory investigations and numerical modelling of landslides in flysch deposits in Croatia and Slovenia” (2016–17 with the University of Rijeka, Croatia). This joint research has helped strengthen regional cooperation within the ICL ABN regional network.

Other ICL-related international activities

ULFGG served the ICL by taking different leading roles in the Consortium, i.e. ULFGG member served as Chair of IPL Evaluation Committee, twice as ICL Vice President, and was elected to Co-Chair and in 2021 to Chair of the IPL-KLC (<https://www.landslides.org/ipi-info/ipi-klc-global-promotion-committee/>).

ULFGG has been strongly supporting the journal *Landslides: Journal of the International Consortium on Landslides*, published by Springer Nature (<https://link.springer.com/journal/10346>) since its launch in 2004. ULFGG works for the journal in the roles of reviewers and an associate editor, and regularly publishes its top research results in the journal, as well as disseminates information important for capacity building in landslide risk reduction in the journal.

ULFGG followed the development of the journal from its bibliometric perspective, and compared scientometric impacts of the journal with the other ICL publications (monographs, volumes from World Landslide Forums) in the field of landslide research.

ULFGG also contributed to the two-volume set of *Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools (LITT)*, namely to Volume 1: Fundamentals, Mapping and Monitoring by practice guidelines on monitoring and warning technology for debris flows (<https://www.springer.com/gp/book/9783319577739>), and to Volume 2: Testing, Risk Management and Country Practices (<https://www.springer.com/gp/book/9783319577760>) by a

state-of-the-art overview on landslide disaster risk reduction in Slovenia, a study on two-dimensional debris-flow modelling and topographic data, and by study on intensity-duration frequency curves for rainfall-induced shallow landslides and debris flows using copula functions.

UNESCO Chair on Water-related Disaster Risk Reduction

Experiences and knowledge accumulated in the past decades at the Chair on Hydrology and Hydraulic Engineering at ULFGG in the field of (applied) hydrology in experimental basins, landslide research, landslide risk reduction, and flood risk management, culminated in 2016 in the establishment of the UNESCO Chair on Water-related Disaster Risk Reduction (WRDRR Chair; www.unesco-floods.eu) at the University of Ljubljana. The UNESCO WRDRR Chair was positively evaluated in 2020 and prolonged for another 4 years (2020–2024). The Chair is associated to the university twinning and networking UNITWIN UNESCO—Kyoto University—ICL on “Landslide and Water-Related Disaster Risk Management”.

ULFGG supports activities of the Slovenian National Committee for UNESCO Intergovernmental Hydrological

Programme (www.ncihp.si) – focus of the activities is the development of the IHP-IX Programme (2022–2029).

Conclusions

ULFGG as one of World Centres of Excellence in Landslide Risk Reduction, hosts the UNESCO Chair on Water-related Disaster Risk Reduction. ULFGG strongly supports ISDR-ICL Sendai Partnerships 2015–2025 for global promotion of understanding and reducing landslide disaster risk, and its extension to 2030 and beyond: the Kyoto 2020 Commitment for Global Promotion of Understanding and Reducing Landslide Disaster Risk that that was signed in November 2020. ULFGG is proud to be its Official Promoter, and will specifically work for its Actions 2, 5, 6, 9 and 10.

This review contribution is intentionally written without giving references to described activities. For this purpose, listed websites and web search engines may be used.

The author wants to thank numerous colleagues from ULFGG and from the wide ICL community for a long-lasting excellent cooperation with a joint vision to reduce landslide disaster risk.