Application Form for World Centre of Excellence on Landslide Risk Reduction 2023-2026

1. Name of Organization

   Institute of Geography, National Autonomous University of Mexico (UNAM)

2. Name of Leader

   Irasema Alcántara-Ayala

   Affiliation: position

   Full Professor

   Institute of Geography, National Autonomous University of Mexico (UNAM)

   Contact: postal address, phone, email

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   Col. Universidad Nacional Autónoma de México

   04310, Coyoacán, Ciudad de México

   Mexico City

   Core members of the activitiesNames/Affiliations: (4 individuals maximum)

   Ricardo J. Garnica-Peña

   Institute of Geography, National Autonomous University of Mexico (UNAM)

   Gabriel Legorreta-Paulín

   Institute of Geography, National Autonomous University of Mexico (UNAM)

   Ana Rosa Moreno

   Department of Public Health, Faculty of Medicine, National Autonomous University of Mexico (UNAM)

   Javier Urbina Soria, Faculty of Psychology, National Autonomous University of Mexico (UNAM)

3. Date of Submission of Application

   March 24, 2023

4. Activity scale and targeted region.

   1) Global, 2) Intercontinental, 3) Continental, **4) Regional, 5) National**

5. Short Title characterizing past and planned activities (10 words maximum)

   Integrated research on landslide disaster risk

6. Objectives for 3 years: (5 lines maximum; what you expect to accomplish?)

   We aim to continue supporting capacity building for integrated landslide disaster risk research, including

landslide monitoring and risk mapping, risk perception, strategies of landslide risk communication, and bridging the gap between science and policy-making and practice at the government level. Additionally, we aim to contribute to implementing the Sendai Partnerships 2015-2025 for the Global Promotion of Understanding and Reducing Landslide Disaster Risk at local and national levels, the Kyoto 2020 Commitment for Global Promotion of Understanding and Reducing Landslide Disaster Risk (KLC2020), as a commitment to the Sendai Framework for Disaster Risk Reduction 2015-2030, the 2030 Agenda Sustainable Development Goals, the New Urban Agenda, and the Paris Climate Agreement.

7. Background Justification: (10 lines maximum)

Like in many other countries of the region, the impact of landslide disasters in Mexico has continued to increase in recent years, particularly due to unsustainable practices and growing exposure to landslide hazards derived from population growth, urbanization, increasing inequality, and lacking collaboration between the scientific community and the policymakers. As such, and in agreement with the Sendai Framework for Disaster Risk Reduction, managing disaster risks instead of managing disasters has become a significant challenge. From this perspective, awareness and understanding of landslide disaster risk and preparedness are essential for managing landslide disaster risk at all levels. Therefore, our WCoE has committed to work, from an integrated research approach, on strategies of landslide disaster risk understanding, along with landslide risk communication in pursuance of risk knowledge as a core of Disaster Risk Reduction, Management, and Governance, particularly in mountain areas of Mexico, where the continuous development of settlements in areas exposed to landslides is a key ingredient of the social construction of disaster risk.

8. Resources available for WCoE activities

Personnel, Facilities, Budgets, and Affiliation and Contribution to ICL/IPL and KLC2020.

Soils lab

National Laboratory for Earth Observation

Field equipment

Research grants from UNAM to do investigations on landslides.

Grants for students to undertake postgraduate studies on landslides.

9. Description of your past activities related to risk reduction of landslides and other related earth system disasters (30 lines maximum)

Field campaigns with the participation of students: a series of field campaigns have been developed involving students in the project to undertake landslide recognition, monitoring and mapping, and landslide inventories.

Development of community workshops: A series of participatory community workshops have been developed in different communities of the Eastern Mountain ranges of Mexico to involve the community in the research projects. Of relevance were the workshops undertaken in schools.

Landslide disaster risk perception surveys have been carried out, and results analyzed to identify risk communication strategies at the local level.

Several Academic meetings have been organized with both researchers and students.

Interaction and advisory actions to local civil protection units of the regions affected by landslides in mountain areas.

Promoting landslide research among students at bachelor and postgraduate levels.

Supporting activities and collaborating with the National Center for Disaster Prevention (CENAPRED).

Promoting the application of Forensic Investigations for Disasters in landslide disaster studies.

Participating in the UNDRR activities at the international level (Regional and Global Platforms).

Participating in the UNDRR Advisory Board for Latin America and the Caribbean.

Publication of maps, scientific papers, book chapters, and books, including 3 chapters in the open-access book series "Progress in Landslide Research and Technology."

10. Planned future activities /Expected Results: (20 lines maximum; work phases and milestones)

We will continue working on evaluating the impact of landslides in Mexico and undertaking integrated research on landslide risk. Activities will include fieldwork, instrumentation and monitoring, mapping, development of community workshops, risk perception analysis, slope stability analysis, and landslide modeling, academic meetings.

Supporting young researchers to become future landslide researchers.

We will also participate in academic courses for Civil Protection personnel and organize sub-national and national multi-sectorial meetings.

Building alliances between the academia, the policymakers, and practitioners.

Participating and collaborating for the success of the WLF6 and further editions.

Publication of papers, book chapters, and books related to landslide disaster risk, including those for the open-access book series "Progress in Landslide Research and Technology" organized by ICL.

11. Beneficiaries of WCoE: (5 lines maximum; who directly benefits from the work?)

Young researchers, Communities where the research takes place, National Center for Disaster Prevention (CENAPRED), Civil Protection Units, Academia, and Policymakers.

12. References: 10 lines maximum, i.e., relevant publications, international/regional/national recognition supporting items 9-10.

Klein, J., Grêt-Regamey, A., Taber, A., Nolin, A., Müller, B., Steger, C., Tucker, C., Molden, D., Choudhury, D., Castellanos, E., Yeh, E., Alcántara-Ayala, I., et al. (2019), An Integrated Community and Ecosystem-Based Approach to Disaster Risk Reduction in Mountain Systems, Env. Science & Policy, 94, 143-152.

Sassa, K., Dang, K., Guzzetti, F., Casagli, N., Tiwari, B., Mikoš, M., Vilimek, V., Bobrowsky, P., Konagai, K., Arbanas, Z., Mihalić Arbanas, S., Lu, P., Sasahara, K., Alcantara-Ayala, I., et al. (2019). Invited and accepted speakers of the Fifth World Landslide Forum in Kyoto, 2020, **Landslides**, 16(2), 431–446

Murillo-García, F.G., Steger, S., Alcántara-Ayala, I. (2019), Landslide susceptibility: a statistically-based assessment on a depositional pyroclastic ramp, Journal of Mountain Science, 16, 3, 561–580.

Ruiz-Cortés N.S., Alcántara-Ayala I. (2020). Landslide exposure awareness: a community-based approach towards the engagement of children. **Landslides** 17, 1501–1514.

Alcántara-Ayala I., et al. (2020) Multi-sectoral reflections and efforts to strengthening partnerships to reduce disaster risk in Mexico: the first MuSe-IDRiM Conference, Intern. J. of Disaster Risk Science, 11:686–69.

Alcántara-Ayala I., Sassa, K. (2021) Contribution of the ICL to the implementation of the Sendai Framework for Disaster Risk Reduction: engraining to the Science and Technology Roadmap, **Landslides**

Garnica-Peña R.J., Alcántara-Ayala I. (2021) The use of UAVs for landslide disaster risk research and disaster risk management: a literature review. Journal of Mountain Science 18(2): 482-498

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Alcántara-Ayala, I., Pasuto, A., & Cui, P. (2022). Disaster risk reduction in mountain areas: an initial overview on seeking pathways to global sustainability. Journal of mountain science, 19(6), 1838-1846.

Alcántara-Ayala, I., Cui, P., & Pasuto, A. (2022). Disaster risk reduction in mountain areas: a research overview. Journal of mountain science, 19(6), 1487-1494.

Cardona Arboleda O.D., Carreño Tibaduiza M.L., Mendes Arraiol K.C, Alcántara-Ayala I., et al. (2020) Slope Instability and Landslides. In: Adaptation to Climate Change Risks in Ibero-American Countries — RIOCCADAPT Report, McGraw Hill, Madrid, Spain.

Alcántara-Ayala I. (2021) Size Matters: The Impact of Small, Medium and Large Landslide Disasters. In: Sassa K., et al. (eds) Understanding and Reducing Landslide Disaster Risk, Volume 1 Sendai Landslide Partnerships and Kyoto Landslide Commitment. WLF 2020. ICL Contribution to Landslide Disaster Risk Reduction, pp 519-525, Springer, Cham, Switzerland.

Adler C, Bhatt I, Huggel C, Muccione V, Prakash A, Alcántara-Ayala I, et al., Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom: Cambridge University Press.

Alcántara-Ayala, I. and Geertsema, M. (2022). Landslides, In: Tara McGee and Edmund Penning-Rowsell (Eds.), The Routledge Handbook of Environmental Hazards and Society, Routledge, London.

Alcántara-Ayala, I. and Garnica-Peña, R.J. (2022). Landslide warning systems in low- and lower-middle-income countries: future challenges and societal impact, In: Kyoji Sassa, Kazuo Konagai, Shinji Sassa, Binod Tiwari, Zeljko Arbanas (Eds.), **Progress in Landslide Research and Technology**, Vol. 1-1, 2022.

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Geertsema, M. and Alcántara-Ayala, I. (2022). Mountain Landslides – An Overview of Common Types and Future Impacts, In: Montology Palimpsest: A Primer of Mountain Geography. Springer/Nature-Switzerland.

Alcántara-Ayala, I. and Garnica-Peña, R.J. (2023). Landslide warning systems in upper middle-income countries: current insights and new perspectives, In: Kyoji Sassa, Kazuo Konagai, Shinji Sassa (Eds.), **Progress in Landslide Research and Technology**, Vol 1-2, 2023, Springer Nature Switzerland AG.

13. If your organization is an ongoing WCoE 2020-2023, please attach the articles as pdf files reporting activities of WCoE, IPL project and ICL network published/contributed or a list of planned reports of WCOE 2020-2023 to either journal "Landslides" or/and "P-LRT books."
(Those organizations with no activity report/no achievement in WCOE 2020-2023 will not be accepted as the candidate of WCOE 2023-2026 to be submitted to the Independent Panel of Experts for WCOEs.)

  See attached documents in a pdf file, please. Eight ICL publications reporting activities of WCoE, IPL project, and ICL network published/contributed are included.

  We plan to continue publishing our work in the Progress in Landslide Research and Technology books and the Landslides Journal.

Note: Please fill and submit this form by 30 March 2023 to **KLC2020 secretariat** <klc2020@iclhq.org>