Date of Submission	June 23, 2024

IPL Project Proposal Form 2024

(MAXIMUM: 3 PAGES IN LENGTH)

1. Project Title: (2 lines maximum) Landslide Alert: Co-Production of Knowledge Based on Community Participation

   Select one of two below.

   (1) New project

   (2) Second stage of ongoing project

2. Main Project Fields

   Select the suitable topics. If no suitable one, you may add new field.

   (1) Technology Development

   A. Monitoring and Early Warning, B. Hazard Mapping, Vulnerability and Risk Assessment

   (2) Targeted Landslides: Mechanisms and Impacts

   A. Catastrophic Landslides, B. Landslides Threatening Heritage Sites

   (3) Capacity Building

   A. Enhancing Human and Institutional Capacities

   B. Collating and Disseminating Information/ Knowledge

   (4) Mitigation, Preparedness and Recovery

   A. Preparedness, B. Mitigation, C. Recovery

3. Name of Project leader: Irasema Alcántara-Ayala

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Core members of the Project:

Ricardo J. Garnica Peña, Institute of Geography, National Autonomous University of Mexico (UNAM)

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Jorge González-Sánchez, Institute of Geography, National Autonomous University of Mexico (UNAM)

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

4. Objectives: (5 lines maximum; what you expect to accomplish?)

1. Enhance Community Awareness and Preparedness: Develop and implement participatory strategies to increase community understanding of landslide risks and foster prospective preparedness measures.

2. Co-Create Effective Communication Tools: Collaborate with community members to design and disseminate accessible and engaging educational materials that effectively convey landslide risks.

3. Integrate Local Knowledge and Scientific Data: Combine local knowledge with scientific research to produce a comprehensive and context-specific understanding of landslide hazards and their impacts.

4. Evaluate and Improve Risk Communication Strategies: Assess the effectiveness of the co-produced communication tools and strategies in improving community resilience and make iterative improvements based on

community feedback and evolving scientific insights.

5. Strengthen Collaborative Partnerships: Foster solid and ongoing partnerships between community members, scientists, local authorities, and disaster management agencies to sustain long-term engagement and improve landslide risk communication and response.

5. Background Justification: (10 lines maximum)

Mountain zones are highly susceptible to landslides. Communities in these areas face significant risks, making it essential to enhance their preparedness and resilience. This project aims to increase community awareness and preparedness by developing participatory strategies involving residents in understanding hazards, recognising warning signs, and taking preventive measures to protect lives and property. Collaborating with community members to design educational materials ensures that these tools are culturally appropriate, linguistically accurate, and relevant to local experiences, enhancing the effectiveness of risk communication. Integrating local knowledge with scientific research provides a comprehensive understanding of landslide hazards, leading to more accurate risk assessments and effective mitigation strategies. Regularly assessing and improving co-produced communication tools based on community feedback and evolving scientific insights ensures these strategies remain relevant and effective in enhancing community resilience. Building solid and ongoing partnerships among community members, scientists, local authorities, and disaster management agencies facilitates coordinated responses to landslide risks. This ensures sustained engagement and continuous improvement in risk communication and response strategies.

6. Study Area: (2 lines maximum; where will the project be conducted/applied?)

The project will be conducted in Mexico and Nicaragua.

7. Project Duration: (1 line maximum)

Four years (2024-2027)

8. Resources necessary for the Project and their mobilisation

Personnel, Facilities, and Budgets

The Institute of Geography (UNAM) has the necessary personnel and facilities for the proposed project. These include a soil laboratory, a National Laboratory for Earth Observation, high-resolution GPS, UAVs, LIDAR, field equipment, and a Cessna Turbo aircraft for aerial surveys. Additionally, UNAM provides research grants for landslide investigations and offers support for research projects at the local level, as well as resources for developing the research proposal. It also provides grants for students pursuing postgraduate studies on landslides.

9. Project Description: (30 lines maximum)

To undertake the project "Landslide Alert: Co-Production of Knowledge Based on Community Participation", the following activities will be implemented:

a) Community Engagement and Initial Assessment:

Conduct community meetings and workshops to introduce the project and gather initial input.

Surveys will be performed to assess current knowledge, attitudes, risk perception, and practices related to landslide risks and preparedness.

b) Participatory Risk Mapping and Hazard Assessment:

Organise participatory mapping sessions with community members to identify landslide-prone areas and gather local knowledge on past events.

Conduct landslide hazard assessments and integrate this data with community inputs.

c) Development of Educational Materials:

Co-create educational materials such as pamphlets, posters, videos, and interactive tools with the community to ensure they are culturally appropriate and easily understandable.

Translate materials into local languages and use local symbols and references to enhance relatability and comprehension.

d) Capacity Building and Training:

Conduct training sessions and workshops on landslide awareness, early warning, and emergency response for community members, local leaders, and schoolteachers.

e) Integration of Local Knowledge and Scientific Data:

Facilitate workshops where project participants and community members can share knowledge and jointly analyse data.

Develop a community-friendly database that combines local observations with scientific findings.

f) Communication Strategy Development and Implementation:

Design and implement a comprehensive risk communication strategy using co-created materials.

To disseminate information, utilise various communication channels, including community radio, social media, local newspapers, and public meetings.

g) Continuous Monitoring and Evaluation:

Conduct periodic evaluations to assess the impact of the educational materials and training on community awareness and preparedness.

Gather feedback from community members to identify areas for improvement and adapt strategies accordingly.

h) Strengthening Collaborative Partnerships:

Facilitate meetings between community representatives, scientists, local authorities, and disaster management agencies to discuss progress and challenges.

Foster a network of stakeholders committed to sustained engagement and collaboration on landslide risk management.

10. Work Plan/Expected Results: (30 lines maximum; work phases, milestones and publication) including the contribution plan of articles on the IPL project (progress/result) to the Open Access Book Series P-LRT in the coming few years.

Phase 1: Initial Engagement and Assessment

Activities: Conduct community meetings and workshops to introduce the project; perform a baseline survey to assess current knowledge, attitudes, and practices; identify key stakeholders and form a project steering committee.

Milestones: Completion of baseline survey and initial community engagement; formation of project steering committee.

Phase 2: Participatory Risk Mapping and Hazard Assessment

Activities: Conduct participatory mapping sessions with community members; collaborate with geologists for scientific hazard assessments.

Milestones: Completing participatory risk maps; integrated local and scientific hazard assessment.

Phase 3: Development of Educational Materials and Training

Activities: Co-create educational materials with community, students and teacher inputs; conduct training workshops on landslide awareness and emergency response.

Milestones: Distribution of educational materials and completion of initial training workshops.

Phase 4: Establishment of Monitoring Networks and Implementation of Communication Strategy

Activities: Set up community monitoring networks, provide training, and implement a risk communication strategy using various channels. Develop a local-based instrument for science-informed early warning.

Milestones: Launched landslide disaster risk communication campaign.

Phase 5: Continuous Monitoring and Evaluation

Activities: Conduct periodic evaluations and gather community feedback.

Milestones: Evaluation reports with feedback for improvement.

Phase 6: Strengthening Partnerships and Dissemination of Findings

Activities: Facilitate regular stakeholder meetings, document and publish project outcomes and lessons learned.

Documentation and Dissemination of Findings:

Documenting project activities, outcomes, and lessons learned through reports, case studies, and academic publications. Special priority will be given to publishing results in the ICL open-access book series "Progress in Landslide Science and Technology (P-LRT)" and the Landslide Journal (throughout the project). Sharing findings with broader audiences, including other at-risk communities, policymakers, and other scientific networks, to promote best practices and encourage replication of successful strategies. This will include the diverse activities organised by ICL.

11. Deliverables/Time Frame: (10 lines maximum; what and when will you produce?)

Community workshops

Surveys and engagement activities at the local level

Scientific articles to be published in Journals, including Landslides (throughout the project)

Scientific chapters to be published in the ICL open-access book series "Progress in Landslide Science and Technology (P-LRT)" (throughout the project)

Thesis (throughout the project)

Popular science publications (throughout the project)

Series of maps at the local scale (throughout the project)

Landslide disaster risk perception analysis (throughout the project)

Landslide disaster risk communication material (throughout the project)

Activities	Year 1	Year 2	Year 3	Year 4
Community workshops				
Surveys and engagement activities at the local level				
Maps at local scale				
Thesis				
Popular science publications				
Scientific Articles and P-LRT Book Chapters				
Landslide disaster risk perception analysis				

12. Project Beneficiaries: (5 lines maximum; who directly benefits from the work?)

The authorities of Civil Protection of diverse municipalities in Mexico and Nicaragua, along with their residents. The National Centre for Disaster Prevention, the Civil Protection Coordination Unit of Puebla State and Nicaragua. The students of UNAM and the National Autonomous University of Nicaragua, Unan-Managua, and all members of society and the communities involved in the project.

13. References (Optional): (6 lines maximum; i.e. relevant publications)

Velásquez Espinoza G.*, Alcántara-Ayala I. (2024). Spatio-Temporal Distribution of Rainfall-Induced Landslides in Nicaragua (2000–2022): Preliminary Insights to Communicate Landslide Disaster Risk. In: Abolmasov, B., et al. Progress in Landslide Research and Technology, Volume 3 Issue 1, 2024. Progress in Landslide Research and Technology. Springer, Cham.

Alcántara-Ayala, I., Sassa, K. (2023). Landslide risk management: from hazard to disaster risk reduction. Landslides 20, 2031–2037 https://doi.org/10.1007/s10346-023-02140-5

Alcántara-Ayala I., Gomez, C., Chmutina, K., van Niekerk, D., Raju, E., Marchezini, V., Cadag J.R. & Gaillard, J. C. (2023). Disaster Risk. Taylor & Francis, London, 626 pp.

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 Science1, 19(6), 1838-1846. https://doi.org/10.1007/s11629-022-7468-5

Note: Please fill and submit this form by 15 August 2024 to:

KLC secretariat <klc2020@landslides.org> and ICL Network <icl-network@landslides.org>