

Date of Submission	
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## IPL New Project Proposal Form 2015

(MAXIMUM: 3 PAGES IN LENGTH)

1. Project Title: **Low frequency, high damaging potential landslide events in “low risk” regions – challenges for hazard and risk management**

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: Jan Klimeš, Ph.D.

Affiliation: (office and position)

Contact: (postal address, fax, phone, email)

Core members of the Project:

Filip Hartvich, Ph.D.

Tomáš Marek, MSc.

Ing. Jan Balek

Petr Tábořík, Ph.D.

Names/Affiliations: (4 individuals maximum)

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

The main objective is to collect new data showing that it is important to manage landslide hazard and risk even in countries, which are not recognized as those suffering from frequent and catastrophic slope processes such as countries in high mountains or seismically active areas. We will specify the most effective hazard and risk management approaches to provide “best practice” instructions for decision makers and potentially affected population.

5. Background Justification: (10 lines maximum)

Landslide hazard and risk is inherited mainly to high, tectonically active mountains with annual periods of

intense precipitations or occasionally occurring earthquakes. But there are also regions, where morphology, lithology or frequency and magnitude of possible triggering events is far from being considered as “typical” environment for evolution of dangerous landslides, hence, the landslides may cause high annual losses (e.g. United Kingdom - Gibson et al., 2013, Czech Republic - Krejčí et al., 2002), impose considerable risk to the population (Norway - Hermanns et al., 2013) or claim event fatalities (e.g. Czech Republic in 2013). In these countries, the environmental conditions are suitable for landslide development, but the local population and authorities fail to recognize it. Such conditions may lead to underestimation of the landslide hazard and risk, which further worsen the possible consequences of relatively rare, but highly damaging events. Long-term and sustainable landslide hazard and risk management in such conditions is highly challenging (Klimeš and Blahůt, 2012).

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

Most of the field works will be done in the Czech Republic and Spitsbergen Islands, but published landslide research from similar “low risk” countries and regions will be reviewed and considered.

7. Project Duration: (1 line maximum)

2015 – 2017

8. Resources necessary for the Project and their mobilization

Personnel and facilities as well as necessary budget are available at the IRSM institute, this project will facilitate the collaboration on the presented topic to achieve more interesting, and convincing results. It fits perfectly to the WCoE thematic topic, which the IRSM is leading until 2017.

9. Project Description: (30 lines maximum)

The proposed project is based on experiences gathered during last twenty years of landslide research in the Czech Republic, during which several “unexpected” landslide events occurred caught unprepared local authorities as well as public. It is despite of available landslide susceptibility maps, long-term monitoring of several different landslide types and successful evaluation of effects of past precipitations on landslide occurrence frequencies. Czech Republic is also a country with enough expert knowledge to avoid major financial losses caused by landslides. Despite of all that, landslides are damaging every year houses and roads and in extreme cases cause even fatalities. This project aims on gathering all available knowledge and experience to come up with best practice for effective and sustainable landslide risk management in conditions of countries or regions with relative low risk levels as compared with the global landslide “hot spots”.

10. Work Plan/Expected Results: (20 lines maximum; work phases and milestones)

The first step would be literature review aimed to identify countries and regions inside countries, where the landslide occurrence has been underestimated despite the environmentally favorable conditions. Secondly, variety of landslide activity monitoring approaches (e.g. precipitation measurements and evaluation, ground

water observations, landslide movement monitoring, landslide occurrence dating) will be applied to selected sites in Czech Republic and Spitzbergen Islands. Results of these monitoring methods will be reviewed and evaluated with respect to prediction of periods of increased landslide activity related possibly with high risk events. Then we will prepare database of landslide induced damages and losses, which is so far missing in the Czech Republic, to show negative effects of landsliding on the economic activities. We will also collect landslide occurrence information from publically available sources (e.g. using Google Alerts) to see how well they represent spatial and temporal landslide occurrence patterns and how they may be used to rise public awareness about landslide risk during time periods with low landslide occurrence frequencies. The ultimate step of the project will be summary of the acquired knowledge and its publication. Special attention will be paid to identify developing countries and regions within these countries where the landslide risk may be underestimated putting the local population to a great risk.

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

2016 – We will publish at least one scientific publication and one journal article informing the involved public (e.g. local authorities) about the landslide hazard and possible risks under specific conditions in Czech Republic and Spitzbergen Islands. In both publications we will focus on presenting examples of successful risk reduction or applicable methods to evaluate risk level and reduce it to the acquired level.

2017 – At least one scientific publication and one article for involved public will be published. They will summarize the successful approaches for effective and sustainable landslide hazard and risk mitigation applicable in variety of “low risk” areas or countries including developing economics.

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

End users of the project results will be mainly experts working for the local authorities and decision makers on local level. But attention will be also paid to the scientists and students (especially Ph.D. candidates), who may benefit from the gathered knowledge.

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

Note: Please fill and submit this form **by 1 March 2015** to ICL network <[ICL-network@iclhq.org](mailto:ICL-network@iclhq.org)>