Date of Submission	12 March 2023

IPL Project (IPL-261) Annual Report Form

Period of activity under report
from 1 January 2022 to 31 December 2022

1. **Project Number and Title: IPL-261 World-wide-web-based Landslide Observatory (W3bLO)**

2. **Main Project Fields – (1) Technology Development**

3. **Name of Project Leader – Professor Matjaž Mikoš**
   Affiliation: University of Ljubljana, UNESCO Chair on Water-related Disaster Risk Reduction
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   Core members of the Project: Jošt Sodnik, PhD (UL FGG), Nejc Bezak, PhD (UL FGG), Mateja Jemec-Auflič, PhD (Geological Survey of Slovenia–GeoZS), Mitja Jermol, MSc (Chair of IRCAI – Research Centre on Artificial Intelligence, Institute Jožef Stefan, Ljubljana, Slovenija – under auspices of UNESCO), Joao Pita Costa, PhD (IRCAI, IJS).

4. **Objectives -** Development of a web-based Landslide Observatory, capable of collecting/ presenting a nearly now-casted information on the present status of selected indicators relevant for landslide risk reduction at the global scale. For its development Artificial Intelligence (AI) techniques will be applied (e. g. Deep Learning, other algorithms), and selected large databases with data from public domain. The observatory is a first step towards building of a Digital Twin of Landslide Risk Assessment.

5. **Study Area -** Global scale using different on-line satellite data (i.e., Sentinel) and large web databases.

6. **Project Duration -** 3 years (July, 2022 – June, 2025).

7. **Report**

1) Progress in the project – in 2022, the methodology was tested on selected natural hazards (floods & heat waves) that offered enough social media and news information to be analyzed using text mining tools. The planned project activities were submitted to the Open-Ended Working Group for operationalization of the IXth programme of the Intergovernmental Hydrological Programme of UNESCO.

2) Planned future activities – in 2023, WP I – Development of AI tools and techniques to be used

for Landslide Observatory & WP 2 – Building up the observatory using available and curated open datasets and filtered news feeds.

3) Beneficiaries of Project for Science, Education and/or Society – The methodology will be tested in Slovenia and elsewhere, where publicly available databases in different languages can provide sufficient data for validation. Thus, other ICL members will be invited to support the development in its second phase to provide data, and test the observatory in their country and language. After the final inauguration of the observatory, general public and experts worldwide will be able to use it to plan prevention measures to mitigate and reduce landslide risk at regional and local scale.

4) Results – Mikoš, M. et al. (2023) Natural-Hazard-Related Web Observatory as a Sustainable Development Tool. In: Sassa, K., Konagai, K., Tiwari, B., Arbanas, Ž., Sassa, S. (eds) Progress in Landslide Research and Technology, Volume 1 Issue 1, 2022. Progress in Landslide Research and Technology. Springer, Cham. https://doi.org/10.1007/978-3-031-16898-7_5 & Bezak, N. et al. (2023) a paper on using social media and news information for analyzing floods and heat waves occurrence (in preparation).