6th WORLD LANDSLIDE FORUM
2023 FLORENCE ITALY
14-17 NOVEMBER 2023

LANDSLIDE SCIENCE FOR SUSTAINABLE DEVELOPMENT

Proceedings of the 6th World Landslide Forum.
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Abstract book

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INTRODUCTION

The 6th World Landslide Forum was held in Florence from November 14 and 17, 2023.

The World Landslide Forums are organized every three years to bring together scientists, engineers, practitioners, businesses, and policy makers, from around the world to share progress on landslide risk reduction on a global scale.

The 6th World Landslide Forum is jointly organized by the International Consortium on Landslides and the UNESCO Chair on Prevention and Sustainable Management of Geo-hydrological Hazards at the University of Florence, under the International Programme on Landslides (IPL) supported by five United Nations' organizations (UNESCO, WMO, FAO, UNDRR, UNU) and four international scientific organizations (ISC, WFEO, IUGS e IUGG).

The 6th World Landslide Forum was awarded the Medal of the President of the Italian Republic, which is given to events of great scientific and cultural importance.

More than 1100 participants from more than 60 countries attended the general plenary sessions, parallel scientific sessions, technical exhibitions, workshops and other side events during the four days of the Forum.

The Forum is entitled Landslide Science for Sustainable Development and contributes to the Sendai Framework for Disaster Risk Reduction, through the Kyoto Commitment for Landslide Risk Reduction which was signed by 90 institutions in 2020.

The aim of the Forum is to create a common platform to promote cooperation between all stakeholders involved in landslide risk reduction. This objective is particularly important considering that the Forum is taking place on the 60th anniversary of the Vajont landslide, the largest landslide disaster in Italy, which claimed more than 1900 lives.

The city of Florence was the cradle of the Renaissance of Arts and Science and is still today a cutting-edge city of science, culture, hospitality, and beauty. Florence has also been hit by severe natural disasters in the past, such as floods and landslides, which have caused enormous damage to its artistic and cultural heritage. We therefore consider Florence an ideal place to discuss the latest advances in research, technology, and policies for risk mitigation.

The General Conference on Landslide Risk Reduction, at the Opening Plenary Session on November 14, addressed the latest strategies of the landslide community to help achieve the global targets of the Sendai Framework for Disaster Risk Reduction. The High-Level Panel Discussion on the same day adopted the Florence Declaration on Landslide Risk Reduction, to share information and best practices, support research and development of new technologies, and build capacity at all levels to improve landslide preparedness and response.

Scientific plenary lectures were given by renowned scientists from four continents: Prof. Giovanni Battista Crosta from the University of Milan Bicocca, Prof. Xuanmei Fan from Chengdu University of Technology in China, Dr. Jonathan Godt from the United States Geological Survey and Prof. Olivier Dewitte from the Royal Museum for Central Africa.

The scientific program includes six main themes:

1. Kyoto Landslide commitment for sustainable development

2. Remote sensing, monitoring and early warning

3. Testing, modeling and mitigation techniques

4. Mapping, hazard, risk assessment and management

5. Climate change, extreme weather conditions, earthquakes and landslides

6. Progress in landslide science and applications

In the following days there were 47 parallel scientific sessions, with 853 scientific contributions, including 643 oral presentation and 210 posters.

In the Closing Plenary Session on November 17 the baton was passed to the 7th World Landslide Forum which will take place in Taipei in 2026.

We would like to thank all those who have contributed to the organization of the Forum over the past three years: especially the scientific committee, organizing committee, supporting organizations, partners, bodies that granted the patronage, and sponsors, for their contribution and strong commitment to the success of the 6th World Landslide Forum.

Nicola Casagli

WLF6 Chairman and ICL President

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A LANDSLIDE DATA BASE MODEL FOR CLIRTHEROADS PROJECT IN SERBIA

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Within the project Mainstreaming Climate Resilience in the Road Transportation Management in Serbia (CliRtheRoads), a complex software solution was developed to support Public Enterprise Roads of Serbia in climate change adaptation planning and management. The software solution comprises 1) web portal for data entry and management for authorised users 2) publicly available web GIS part 3) mobile GIS application and 4) back-end database (Figure 1).
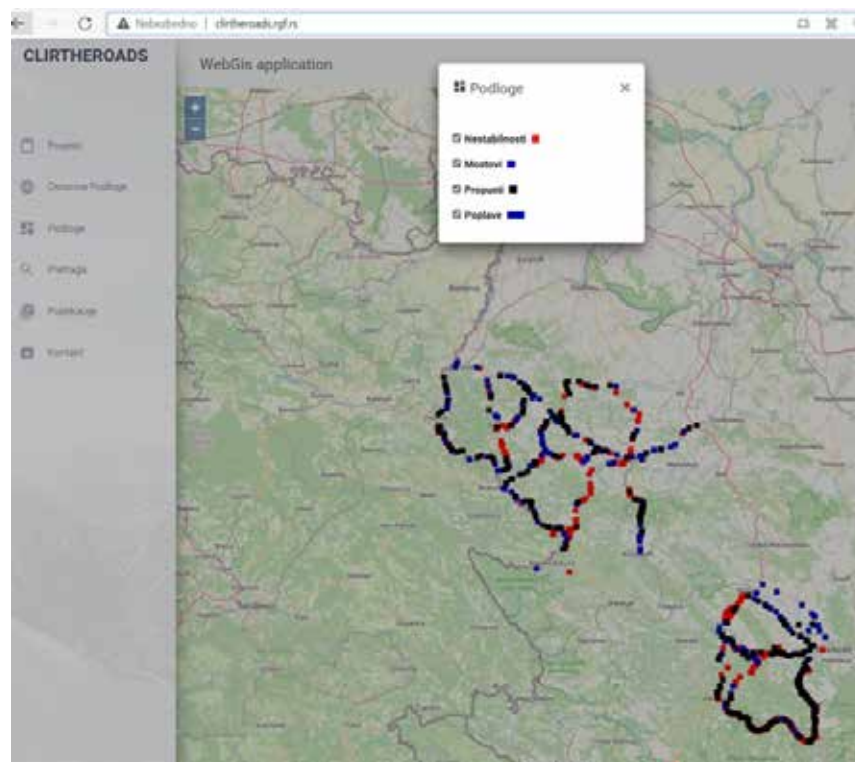

Fig. 1: Screen shot of publicly available web GIS with field tours on the two test areas (in Serbia).

In order to store and process the data collected during field visits and surveys, the data base developed in project first phase (Valjevo test area), was modified to include new datasets and to store new datatypes (as floods), and new modules (as activity cost) for Kraljevo test area. Both test areas have been chosen due theirs diversified characteristics, many climate related hazards, and the fact they suffered greatly from disasters recently (Abolmasov et al. 2017, Abolmasov et al. 2021). The database was upgraded to new model aimed for maintaining legacy data from both test areas, but also for future infrastructure resilience projects based on same approach, to enable that all data will be stored and mapped in a unified manner. The data model include 1) main concepts (entity types) for the instabilities, with detailed data comprising common and specific attributes, 2) storage of multimedia (mainly photo from field work, but possible video as well), 3) knowledge base with cost of activities, including catalogue per each entity type with job type and description, unit and total price, maintenance type (regular maintenance, rehabilitation, urgent maintenance), including recommending activities (system allow user to add specific activities, description and cost that is further calculated and aggregated with other data); 4) secondary data from other sources (other projects, legacy data and external resources), or from interpreted data. The data was stored in the PostgreSQL Database, a web application was developed (using PHP) to facilitate data input, maintain knowledge database and calculate cost of recommended activities. There is a total of 461 records with fully described instabilities (slides, falls, topples, flows), documented by large number of photographs from the field. Additionally, every record is supplemented by engineering solution to support field engineers or decision makers for better road management in climate changing conditions.

References
1. Abolmasov B, Damjanović D, Marjanović M, Stanković R, Nikolić V, Nedeljković S, Petrović Ž. Project BEWARE - Landslides Post-disaster Relief Activities for Local Communities in Serbia. In: Mikoš et al. (eds.), Advancing Culture of Living with Landslides, Proceedings of 4th World Landslide Forum, Ljubljana 29 May-02 June 2017; Vol 3: 413-422. Springer International Publishing. DOI 10.1007/978-3-319-53487-9_48.
2. Abolmasov B, Marjanović M, Đurić U, Krušić J. From post-disaster landslides inventory to open landslides data. Proceedings of 3rd European Regional Conference of IAEG, Athens, Greece, 6-10 October 2021. Book of abstracts, 2021; 263-264.