

Putting science into practice: the Second World Landslide Forum, Rome, 3–9 October, 2011

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Abstract

The World Landslide Forum (WLF) is a triennial mainstream conference aimed at gathering scientists, stakeholders, policy makers and industry members dealing with the management of landslide risk. The First World Landslide Forum, organized by the International Consortium of Landslides (ICL), UNESCO, WMO, FAO, UNISDR, UNU, UNEP, IBRD, UNDP, ICSU, WFEO, KU and the Japan Landslide Society, was held in 2008 at the United Nations University, Tokyo. The 1st WLF adopted the 2008 Tokyo Declaration “Strengthening the International Programme on Landslides with UNISDR”.

The numerous recent disasters due to landslides show that there is an urgent need to translate science into practical applications to assist communities, governments and disaster-relief organizations avert and mitigate future landslide disasters. For this reason, the explicit theme of the Second World Landslide Forum, being organised for Rome, Italy for 3-9 October 2011, is to connect landslide scientists with landslide stakeholders in a special landslide forum to align future innovations in landslide science and technology with the future needs of humanity and the environment.

Keywords:

World Landslide Forum, technology marketplace, field trip, science, stakeholders, decision makers.

Background

Along with earthquakes and floods, landslides constitute one of the more important natural hazards, and in some countries, such as Japan, they are a major cause of natural-hazard deaths. Landslides are perceptible gravitational movements of masses of rock, earth and debris down slopes. Their dynamics depend on the style of movement (mainly falls, slides and flows and, secondarily, topples and spreads) and the materials involved (Cruden & Varnes, 1996). Rapid and slow landslides can be identified, and speed is clearly a major source of danger. Landslide occurrence and reactivation is conditioned by a number of terrain and geo-environmental

factors such as rock and soil properties, weathering, jointing and structure, slope morphology, land cover/use, and water flow. Landslides can be triggered by many natural phenomena such as heavy or prolonged rainfall, earthquakes, volcanic eruptions, snow melt and erosion of the base of slopes by rivers or sea waves. They can also be triggered by human activities such as slope excavation and loading, land-use change, blasting vibrations, and water leakage from utilities, or by many combinations of activities and processes.

The Forum will discuss major impacts of landslides on the environment, including effects on people, their homes and possessions, farms and livestock, industrial establishments and other structures, and lifelines, including submarine ones. In addition, the Forum will encourage discussion of the effects of landslides on the natural environment, i.e., on (1) the morphology of the Earth's surface, particularly that of mountain and valley systems, both on continents and beneath oceans; (2) the forests and grasslands that cover much of the continents, and (3) the native wildlife on the Earth's surface and in its rivers, lakes, and seas. Also, landslides are a major destroyer of humanity's cultural heritage, such as at Orongo (Easter Island), Petra (Jordan), Cappadocia (Turkey) and many sites in Italy.

The collection of basic landslide data entails detailed field investigations and comprehensive understanding of associated natural processes. In many countries, inventories of landslide data and their derivative hazard or risk maps are not yet available. Very often simplified susceptibility models and maps of areas predisposed to landslide hazard have been prepared, showing where landslides may be expected to occur, but containing no information on how often they may be expected. These incomplete materials are frequently the only scientific data available to decision makers, whose only hazard role is to manage risk, and who have power to manage people but not hazards. and the mismatch demonstrates a strong need to develop the cultural as well as the scientific aspects of the sector, to ensure that science delivers products that are of practical use to societies. Also, in order to reduce the landslide danger and associated damage and costs, an integrated risk management based on long-term recognition and preparedness activities (e.g. land-use planning and mitigation strategies) and short-term response and recovery activities (e.g. emergency response, repair and recovery) is highly recommended.

The tasks needed to accomplish the above are complex, and must be done by people with appropriate specialist training and expertise. These people are not usually those directly affected by the hazards, and so have little at stake. Unlike floods and earthquakes, landslides are generally of limited spatial extent, leading stakeholders and decision makers to underestimate the importance of landslides as a hazard. However, even though most individual landslides damage only a local area, and so the individual damage cost is limited, landslides are far more abundant than earthquakes and floods and they have a huge cumulative impact in terms of physical damage and socio-economic loss. In addition, major losses in many earthquakes and floods arise from the landslides they have triggered.

As a consequence, there is a strong need for a special forum where scientists meet concerned citizens, where the specialist knowledge and methods of both scientists and decision makers can be displayed for both to see,

and where science innovation can be directed towards the needs of land-use planning and management, and land-use planning and risk management can be aligned to achievable goals.

Recognizing that such a forum has hitherto been missing, the International Consortium on Landslides and partners of the International Programme on Landslides (UNESCO, ICSU, WFEO, WMO, FAO, UNISDR, UNU) are promoting the Second World Landslide Forum in Rome on 3-9 October 2011, to bridge gaps in understanding between scientific researchers, industry, professionals and stakeholders.

Italy is an ideal place for organising the WLF2, since it has many sites that illustrate millennia of humanity's engineering struggles against landslides. Also, in the last few months, southern Italy has been affected by many landslides killing tens of victims and leaving an impressive amount of damage. Certainly, there is much awareness of the landslide problem and the conference will be an important venue for international exchange of ideas and experiences.

The Second World Landslide Forum, in support of the ISDR Hyogo framework for action, aims to further develop the outcomes of the First Forum in Tokyo 2008 by providing a global cross-cutting information and cooperation platform for all types of organizations representing academia, United Nations organisations, governments, private enterprises and individuals that contribute to landslide research, practice, education and decision making and who are willing to strengthen landslide and other related Earth-system risk reduction strategies. The emphasis of this forum will be "Putting science into practice", with special attention given to implementation of technology and research in policy, applications and procedures through the direct involvement of researchers, engineers, private enterprises, and stakeholders, as well as policy and decision makers.

The Forum will thus consider implementing some key aspects.

- There will be a large participation of exhibitors, fostering interaction between industry and end-users.
- There will be a reduced number of parallel sessions to maximize attendance and interchange between participants.
- There will be cross-cutting topical sessions, in some cases devoted to specific themes (e.g. interaction of landslides, land-use systems and food security) and encompassing the entire set of operational and scientific issues from risk assessment to risk management.
- Short courses will be organized for the benefit of professionals and consultants, and also by exhibitors (date, location and content still to be defined).

Forum format and topics

The Forum will host, for five full days, a series of Plenary and Parallel Sessions devoted to high-level interaction and discussion among key world players in landslide risk reduction, including stakeholders and end-users, together with researchers, engineers and industry.

To stimulate knowledge sharing, the Forum will also promote a large interactive exhibition of technologies and services for landslide risk mitigation (technology marketplace).

Preliminary topical and thematic sessions envisaged are in the following table.

General themes	Potential sessions
Landslide and global change	Landslide scenarios accounting for the climatic, geomorphological and geotechnical context
	Landslides, land-use systems and food security
	Wild fires and slope instability
Advances in landslide mapping and hazard assessment	Landslide inventory and mapping
	Historical landslides
	Landslides and extreme weather
Emerging Technologies in landslide research and practice	Landslide monitoring
	GIS applications
	Advances in slope modelling
Impact of landslides	Landslides and socio-economic impact
	Landslides, transportation network and lifelines
	Landslides and reservoirs
	Methods and applications of landslide loss modelling
Landslide risk assessment and management	Landslides and land-use planning
	Landslides and urban risk reduction
	Instrumentation, warnings and emergency plans
	Advanced technologies for landslide stabilisation
	Prevention policies vs. disaster recovery: cost benefit analysis
	Landslides (and legislation), policies and decision makers
	Integrated approach to landslide risk mitigation
Landslide awareness	Landslide education and capacity development
Other general themes	Submarine landslides and tsunami
	Landslides in coastal areas

	Landslides and cultural heritage
	Landslides and earthquakes (managing landslides in earthquake-prone areas)
	Landslides in cold regions
	Mega-landslides
<i>Special conferences</i>	Climate change
	Catastrophic events, social impact and mass media

Following is the structure of the WLF2.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
morning	Open ceremony	Parallel sessions	Marketplace/ Technical visit	Parallel sessions	Parallel sessions	Field trip	Field trip
	MARKETPLACE		MARKETPLACE				
	LUNCH TIME						
	MARKETPLACE		MARKETPLACE				
afternoon	High level panel discussion	Parallel sessions	Marketplace/ Technical visit	Parallel sessions	Closing ceremony		

Technology marketplace

A technology marketplace will be organised within the Forum, with an open and dynamic Technical Exhibition of the most recent technologies, systems and solutions to fight landslide risks at every scale and in every environmental and social context. The Exhibition will be located in a large area at the very centre of the Forum and will be integrated with the Poster and the Coffee Break area, so as to maximise attendance and to create a marketplace space open to every participant. Exhibitor profiles include private companies, research institutes and governmental agencies dealing with emerging technologies in landslide investigation, landslide risk management, GIS, remote sensing, monitoring systems, and technologies for reduction of landslide risk.

Venue

The Second World Landslide Forum will be hosted by the Food and Agriculture Organization (FAO) of the United Nations in the Headquarters building in Rome. After Tokyo 2008, Rome is another exciting venue for the Forum, offering physical evidence of some millennia of interaction between human development and natural environment at the very centre of a country which continues to be highly affected by landslides.

Field trips

A mid-forum, half-day technical visit to the Roman Aqueducts and underground archaeological sites will be held on Wednesday, and two-day post-forum field trips are also to be organized (Saturday and Sunday).

The first proposed field trip (East) will visit classical sites where man has fought a losing battle with landslides for up to 2500 years at Civita Bagnoregio, Orvieto and Ancona.

The second field trip (South) will highlight the major problems that occurred during the Sarno mudslide, south of Naples, and the related mitigation works. The field trip is completed with inspection of the cliffed coastal resort area of the Costiera Amalfitana and its associated slope-stability problems.

The third proposed field trip (North) will visit the Carrara marble quarry, worked since classical Roman times, and its related instability problems. The field trip is integrated with a visit to the UNESCO World Environmental and Cultural Heritage Cinque Terre National Park and its traditional terraces for reducing soil erosion and coastal landslides.

Proceedings

To enhance cooperation between science organisations and stakeholders, conference information and proceedings will be available in a variety of forms. In particular, the following will be available to all participants:

- A complete set of conference proceedings, containing all accepted papers, available on a web site, on a memory stick and, possibly, as a paper copy;
- A full-color book of keynote and invited speakers' papers and reports by World Centres of Excellence on Landslide Risk Reduction (WCoEs) and IPL projects;
- An exhibitor's book, including descriptions of all presented technologies, software, mitigation techniques and case studies;
- A leaflet with key messages for targeted stakeholders.

Who should attend

Many relevant stakeholders are expected to attend from a wide range of backgrounds and geographic regions:

- International institutions and permanent representations (such as UN)
- Intergovernmental institutions and agencies (such as EU)
- National governments and local administrations
- Civil protection agencies

- Leading industries in new technologies for monitoring, warning, protection, soil/ rock stabilisation and restoration
- Research and academic institutions
- Natural-disaster and environmental NGOs and consumer groups
- Consultancies and professionals
- Insurance and reinsurance companies for natural hazards
- Interested members of the public

Deadlines

- Pre-Registration: 20 December 2010
- Submission of Abstracts: 20 December 2010
- Abstract review and invitation for full paper submission: 31 January 2011
- Submission of draft manuscripts for review (max 6 pages Landslides Journal format): 30 April 2011
- Notification of acceptance of manuscript: 30 June 2011
- Full paper submission and contact author registration: 30 July 2011
- Field trip registration: 15 July 2011

Organisers

The 2nd World Landslide Forum is organized by the Global Promotion Committee of the International Programme on Landslides (IPL). IPL is a thematic platform on Landslides with UNISDR, promoting landslide research and capacity building for the benefit of society and the environment and including ICL, UNESCO, FAO, UNISDR, WMO, UNU, ICSU, WFEO, IUGS and many research and land management institutions.

1. Involved Institutions

a) Organizers

IPL Global Promotion Committee including:

- International Consortium on Landslides (ICL)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- World Meteorological Organization (WMO)
- Food and Agriculture Organization of the United Nations (FAO)
- United Nations International Strategy for Disaster Risk Reduction (UNISDR)
- United Nations University (UNU)
- International Council for Science (ICSU)
- World Federation of Engineering Organizations (WFEO)
- and the Italian Institute for Environmental Protection and Research (ISPRA)

b) Co-sponsors

- International Union of Geological Sciences (IUGS)
- International Union of Geodesy and Geophysics (IUGG)
- International Geographical Union (IGU)
- International Flood Initiative (IFI) (tbc)

c) Under the auspices of

- International Association for Engineering Geology and the Environment, Italian Section (IAEG)
- Italian Association of Engineering Geologist (AIGA)
- Italian Association of Geotechnique (AGI)
- Italian Association for Mining Engineers, Environment and Territory (ANIM)

2. International Organizing Board

a) Honorary chairpersons (alphabetical order)

- Irina Bokova (UNESCO Director-General)
- Catherine Brechignac (ICSU President) (tbc)
- Salvano Briceno (UN/ISDR Director)
- Jacques Diouf (FAO Director-General) (tbc)
- Michel Jarraud (WMO Secretary-General)
- Konrad Osterwalder (UNU Rector) (tbc)
- Maria P. Laffargue (WFEO President) (tbc)
- ISPRA President

b) Chairpersons

- Claudio MARGOTTINI (ISPRA, Forum Chair)
- Paolo CANUTI (ICL President)
- Kyoji SASSA (ICL Executive-Director)

c) Deputy chairpersons

- Badaoui Rouhban (Director of UNESCO's Section for Disaster Reduction)
- Deliang Chen (ICSU Executive Director) (tbc)
- Peter Lyttle (ICL Vice President, US Geological Survey)
- Yueping Yin (ICL Vice President, China Geological Survey)
- Peter Bobrowsky (IUGS Secretary General)
- A representative from FAO (WLF2 host organization)

d) Scientific Advisory Board

- In preparation

3. Local Organizing Board (as of 30 June 2010)

Specific committees will deal with Logistics, Scientific Programme, Editorial, Communication, Field Trips, Finance and Fund Raising. Members of the local organizing board are (in alphabetical order): P. Canuti, G. Delmonaco, J. Ervas, P. Farina, F. Guzzetti, T. Hofer, G. Lollino, C. Margottini (Chairman), L. Picarelli, P. Tommasi, I. Rischia, G. Scarascia Mugnozza, A. Trigila.

Secretariat

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References

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Figure captions

Figure 1 Information of Field Trips

- a) Visiting places (East itinerary to Civita di Bagnoregio, Orvieto and Ancona; South itinerary to Sarno and Costiera Amalfitana, North itinerary to Carrara and Parco Nazionale delle Cinque Terre)
- b) Civita di Bagnoregio (Field trip East),
- c) Sarno - Episcopio and the earth flow of 1998 (Field trip South).
- d) Carrara marble quarry (Field trip North).

figure
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Fig.1a



Fig.1b



Fig.1c

Figure
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Fig.1d

