



# **PROGRAMME**

# The First World Landslide Forum

Implementing the 2006 Tokyo Action Plan on the International Programme on Landslides (IPL)

-Strengthening Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within UN-ISDR as Regards "Landslides"-

Date: 18-21 November 2008, Venue: United Nations University, Tokyo, Japan

# **Organizers**

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 (UN/ISDR), United Nations University (UNU), United Nations Environment Programme (UNEP), World Bank (IBRD), United Nations Development Programme (UNDP), International Council for Science (ICSU), World Federation of Engineering Organizations (WFEO), Kyoto University (KU), Japan Landslide Society (JLS)

(\* Members are listed in the last page)

## Cosponsors

Cabinet Office of Japan (CAO), Ministry of Foreign Affairs, Japan (MOFA), Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT), Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF), Ministry of Land Infrastructure and Transport, Japan (MLIT), Japan Meteorological Agency (JMA), Science Council of Japan (SCJ), Japan International Cooperation Agency (JICA), Public Works Research Institute, Japan (PWRI), Asian Disaster Reduction Center, Japan (ADRC), Ministry for Research and University, Italy, Ministry of Foreign Affairs, Italy, Ministry of the Environment, Italy, Department of Civil Protection of the Presidency of the Council of Ministers, Italy, International Union of Geological Sciences (IUGS), International Union of Geodesy and Geophysics (IUGG), International Flood Initiative (IFI), International Year of Planet Earth (IYPE), Academy of Forest, Wood and Environment, Japan (AFWE)

### **International Organizing Committee**

## **Honorary Chairpersons**

Salvano BRICENO (Director of UN/ISDR) Michel JARRAUD (Secretary-General of WMO) Goverdhan MEHTA (President of ICSU)

Konrad OSTERWALDER (Rector of UNU)

## Chairperson

Kyoji SASSA (President of ICL, IPL World Centre)

### **Co-Chairpersons**

Paolo CANUTI (European Centre of ICL, Florence) Kazuhiro ISHIHARA (Director of DPRI-KU) Thomas ROSSWALL (Executive Director of ICSU) Jacques DIOUF (Director-General of FAO) Koïchiro MATSUURA(Director-Generalof UNESCO) Shuzo NISHIMURA (Vice President of KU)

Srikantha HERATH (Programme Officer of UNU) Peter LYTTLE (Coordinator, U.S. Geological Survey) Badaoui ROUHBAN (Section Director of UNESCO)

# **Local Organizing Committee**

Chairperson: Kaoru TAKARA (Executive Director of ICL, Prof. DPRI/KU)

Deputy Chairperson: Hirotaka OCHIAI (Forestry Agency of Japan)

### **Secretariat**

Hiroshi FUKUOKA (Secretary General, Treasurer of ICL, Assoc. Prof. DPRI/KU) Osamu NAGAI (Deputy Secretary General, Research Promotion Officer of ICL)

# **Background and Objectives**

The International Consortium on Landslides (ICL) was established as a non-profit scientific organization in January 2002. The ICL contributes to the implementation of the United Nations International Strategy for Disaster Reduction (ISDR). The First Session of Board of Representatives of ICL was organized at UNESCO, Paris, in November 2002. By the Statutes of ICL, the Regular Session of the Board of Representatives of ICL is organized every year, and one term of officers is 3 years. The **General Assembly of ICL** is organized every 3 years, in order to disseminate the activities and achievements of ICL and to promote international cooperation by inviting ICL members, ICL supporting members, all levels of organizations and individuals in the field of landslide risk mitigation.

The First General Assembly of ICL was organized in the National Academy of Sciences, Washington, D.C., U.S.A., in October 2005. The ICL and ICL supporting organizations gathered in Round Table Discussion "Strengthening Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within UN-ISDR as Regards Landslides"-towards a dynamic global network of the International Programme on Landslides (IPL) at the United Nations University, Tokyo in January 2006. As a summary of the meeting, the 2006 Tokyo Action Plan on Strengthening Research and Learning on Landslides and Related Earth System Disasters for Global Risk Preparedness was adopted. Capitalizing on the competence, international experience and established organizational network of ICL-IPL, the Tokyo Action Plan proposed to create a global information platform for future joint activities of the world-wide landslide community, named the 'World Landslide Forum'. It includes a function of the General Assembly of ICL and shall be convened every 3 years.

The **First World Landslide Forum** was decided, following the 2006 Tokyo Action Plan, to be organized in Tokyo in November 2008 as a global cross-cutting information and cooperation platform for all types of organizations from academia, United Nations, governments, private sectors, and individuals that are contributing to landslide research and education and are willing to strengthen landslide and other related earth system risk reduction. This forum is organized within the scope of the Hyogo Framework for Action 2005-2015, "Building the Resilience of Nations and Communities to Disasters", adopted at the United Nations World Conference on Disaster Reduction held in Kobe, Hyogo, Japan in 2005. It is expected that the outcome of the First Landslide Forum will feed into the ISDR Global Platform for Disaster Risk Reduction.

**Sponsorship**: The organization of the World Landslide Forum is supported by the following organizations and funds.

The Ministry of Foreign Affairs, Japan (MOFA)

The United Nations Secretariat of the International Strategy for Disaster Reduction (UN/ISDR)

The United Nations University (UNU)

The United Nations Educational, Scientific and Cultural Organization (UNESCO)

The Grant-in-Aid for Publication of Scientific Research Results (No.2063001) of the Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT)

90° 90° EXPO70

The Commemorative Organization for the Japan World Exposition ('70)

The Association for Disaster Prevention Research, Kyoto, Japan

**Exhibitors:** Landslide technologies and activities are exhibited by the following organizations in booths in front of U-Thant Hall on 3rd Floor.

- C.S.G. S.r.l. Centro Servizi di Geoingegneria
- Japan International Cooperation Agency
- Research Group for Remote Monitoring Technology
- Society for Study of Optical Fiber Sensors
- IDS Ingegneria Dei Sistemi SpA
- ImageONE Co., Ltd
- OSASI Technos, Inc.
- SAKATA DENKI Co., Ltd.

# **General Schedule of the First World Landslide Forum**

| Date             | Time                       | Room                                 | Events and Programme  |
|------------------|----------------------------|--------------------------------------|---|
| 11-12<br>Nov.    | 9:10-17:40                 | Tohoku-Gakuin<br>University, Sendai  | Satellite Conference "Management of landslide hazard in Asian Pacific Region.   |
| 12-15<br>Nov.    | From PM 12<br>to PM 15     | From Sendai to<br>Nagaoka,           | Field Trip on large-scale landslides and earthquake induced landslides, Mountain collapse   |
| 16 Nov<br>(Sun)  | 15:00-19:00                | Room Matsu (2F)<br>Floracion Aoyama  | Steering Committee meeting of ICL   |
|                  | 9:00-12:00                 | Rose Hall                            | 7 <sup>th</sup> Session of Board of Representatives of ICL  |
| 17 Nov           | 14:00-17:00                | (5F of UNU)                          | The Third IPL Global Promotion Committee  |
| (Mon)            | 13:00-17:00                | U-Thant Hall<br>(3F of UNU)          | Symposium "Risk Management of World Heritage in Seismic zone" in Japanese UNESCO, Ritsumeikan University, UNU, ICL  |
|                  | 9:00-10:15                 |                                      | Opening Address from Organizers and Cosponsors  |
|                  | 10:45-12:00                | U-Thant Hall<br>(3F of UNU)          | Open Forum "Progress of IPL Activities"   |
| 18 Nov<br>(Tues) | 12:00-12:30                | (31 01 01(0)                         | Conferment of WCoE and Joint Photos of participants   |
| (1000)           | 14:00-17:30                | U-Thant Hall                         | Plenary Symposium "Global Landslide Risk Reduction"   |
|                  | 18:30-21:00                | Ivy Hall, Aoyama<br>Gakuin Univ      | Welcome Reception   |
|                  | 9:00-10:30                 | U-Thant Hall                         | Keynote lectures  |
|                  | 11:00-12:30<br>14:00-17:30 | 6 Rooms                              | Parallel Sessions in UNU and National Children Castle (NCC: next building)  |
| 19 Nov           | 14:00-17:30                | U-Thant Hall                         | Public Forum "Protection of Society and Cultural and Natural Heritage" and "Landslides for Children"  |
|                  | 18:30-21:30                | Room Kujaku (2F)<br>Floracion Aoyama | Satellite Meeting of Early Warning Group  |
|                  | 9:00-10:30                 | U-Thant Hall                         | Keynote lectures  |
| 20 Nov           | 11:00-12:30<br>14:00-17:30 | 6 Rooms                              | Parallel Sessions in UNU and National Children Castle (NCC)   |
|                  | 9:00-10:00                 | U-Thant Hall                         | Keynote Speeches, The Review of Meetings, keynote lecture "Effects of global Change"  |
| 21 Nov           | 10:45-12:30                | U-Thant Hall                         | High Level Panel Discussion "Landslides in Global Change – How to Mitigate Risk " -Toward the Second World Landslide Forum in 2011-                               |
| (Fri)            | 14:00-16:00                | U-Thant Hall                         | Closing Session: Adoption of 2008 Tokyo Declaration,<br>New IPL Projects, ICL Awards (Varnes Medal, Best<br>Paper Award), Welcome to the 2 <sup>nd</sup> WLF 2011 |
|                  | 16:30-17:30                | Rose Hall, UNU                       | Press meeting   |
|                  | 18:30-21:00                | Hall Fuji (1F)<br>Floracion Aoyama   | Post-Conference Dinner  |

# **Room and Time Allocation for Parallel Sessions**

| Room (Ps:Floor)       | 19-1 (11:00-12:30)                 | Lunch           | 19-2 (14:00-15:30)                 | 19-3(16:00-17:30)               | 20-1(11:00-12:30)                   | Lunch              | 20-2(14:00-15:30)               | 20-3(16:00-17:30)  |
|-----------------------|------------------------------------|-----------------|------------------------------------|---------------------------------|-------------------------------------|--------------------|---------------------------------|--------------------|
| U-Thant H. (300:3F)   | Rehearsal                          | Poster<br>Booth | P2: Public For                     | um (Children)                   | Session 17 Eng.<br>Meas.(9)         | Poster<br>Booth    | Session 10 Lands (1             |                    |
| E.Rose H.<br>(100:5F) | Session13-1 Early<br>Warning (7)   |                 | Session 12 N                       | Mapping (10)                    | Session13-2<br>Early Warning(7)     |                    | Session 15<br>Debris flows (9)  | Open               |
| Recep.H<br>(100:2F)   | Session 2 -1<br>Case studies(8)    |                 | Session 2 -2 Case<br>studies (8)   | Open                            | Session 18 Forest<br>Management (5) |                    | Session 3 Catast                | rophic slides (13) |
| Com.R 2. (60:5F)      | Session 7<br>Education (8)         |                 | Session 8 Env.<br>Impact (7)       | P4:Int. Initiatives<br>Dialogue | P3: Country<br>Dialogue             | Call<br>for<br>ICL | IPL-GPC (Secre                  | etarial meeting)   |
| NCC 902<br>(60:9F)    | Oral explanation of posters        |                 | Session 1 A look<br>from Space (9) | Open                            | Session 4 Climate<br>Change (8)     |                    | Session 5 Cult.<br>Heritage (8) | Open               |
| NCC 903<br>(100:9F)   | Session 6 E.&<br>Social Impact (6) |                 | Session 14 Policy                  | & Framework (10)                | Session 19 Dam<br>reservoirs (10)   |                    | Session 11 Mul                  | ti-hazards (13)    |
| Com.R1.<br>(30:5F)    | Room for speakers and free talks   |                 |                                    |                                 |                                     |                    |                                 |                    |

- 1. U-Thant Hall: Theater style. Elizabeth Rose Hall: Round + School style. Committee Rooms (R1 and R2): Round table style. Reception Hall and NCC (National Children Castle) rooms (902, 903): School style.
- 2. When necessary, each session can extend 30 minutes for break or lunch after the session.
- 3. Posters and booths are located in the front and sides of U-Thant Hall.
- 4. Secretariat room of WLF is located in the back side of U-Thant Hall on 3rd Floor.
- 5. Call for ICL members and Questions will be held during lunch time on 20 November in the Round Table style of Committee Room 2. Those who are interested in joining ICL and IPL global Promotion Committee are appreciated to inform participation to the WLF secretary (wlf@iclhq.org) or the Secretariat room on 3<sup>rd</sup> floor on/before the lunch time of 19 November 2008.

# **Plenary sessions**

# 18 November 2008 (Tuesday) at U-Thant Hall

# 1. Opening Session (9:00-10:15)

Facilitator: Kaoru Takara

# 1) Opening and Welcome Addresses (9:00-9:30)

Opening of World Landslide Forum and Aim

By Kyoji Sassa (Chairperson of 1<sup>st</sup> WLF)

Hyogo Framework of Action and thematic area on Landslides

By Salvano Briceno (Director, UN-ISDR)

Welcome address

By Government of Japan

By Konrad Osterwalder (Rector, UNU)

# 2) Greetings from United Nations Organizations and NPO (9:30-10:00)

By Badaoui Rouhban (Director for Disaster Reduction, UNESCO)

By Jose-Antonio Prado (Director, Forest Management Division, FAO)

By Saroj Kumar Jha (Global Facility for Disaster Reduction and Recovery, World Bank)

By Thomas Roswall (Executive Director, ICSU)

By Peter Bobrowsky (Secretary General, IUGS)

### 3) Short Play "The 2006 Levte landslide Disaster" By Orphans and Mayer (10:00-10:15)

### 2. Open Forum "Progress of IPL Activities" (10:45-12:00)

Chairpersons: Peter Lyttle (US Geological Survey) and Paolo Canuti (European Centre of ICL)

(1) Progress of the International Programme on Landslides

Objectives of IPL and WLF

Kyoji Sassa (President of ICL)

(2) Reports of IPL Projects

Assessment of global high-risk landslide disaster hotspots.

Farrokh Nadim (International Centre for Geohazards at NGI)

International summer school on rockslides and related phenomena in the Kokomeren river valley,

Tien Shan, Kyrgyzstan

Alexander Strom (Institute of Geosheres Dynamics, Russia)

Landslide investigation and capacity building in Machu Picchu – Aguas Calientes Area

Kyoji Sassa (IPL World Centre)

(3) Open Discussion on IPL

Management of IPL (including the list of ongoing IPL projects)

Nicola Casagli (IPL Management Committee)

# 3. Conferment of World Centre of Excellence and Joint photos of participants before lunch (12:00-12:30)

## 4. Plenary Symposium "Global Landslide Risk Reduction" (14:00-17:30)

Chairpersons: Peter Bobrowsky (Geological Survey of Canada) and Ikuo Towhata (University of Tokyo)

Special Report Landslides triggered by the 2008 Sichuan earthquake and their impact

Yueping Yin (China Geological Survey)

Landslide risk assessment and mitigation strategy

Suzanne Lacasse & Farrokh Nadim (International Centre for Geohazards/NGI)

Understanding to predict

Luciano Picarelli (Second Napoli University, Italy)

Research toward the mitigation of debris flow disasters

Tamotsu Takahashi (Assoc. for Disaster Prevention Research, Japan)

A review of submarine mass movements and their consequences

Jacques Locat (Laval University, Canada) & Homa Lee (USGS)

<Discussion for Global Landslide Risk Reduction>

## **5. Welcome Reception** (18:30-21:00) Ivy Hall, at Aoyama-Gakuin University.

#### 19 November (Wednesday) at U-Thant Hall

# **Keynote lectures (9:00-10:30)**

Satellite remote sensing applications for landslide detection and monitoring

Vern Singroy (Canada Centre for Remote Sensing)

Huge landslides caused by massive earthquakes and Long-lasting geotechnical risks

Kazuo Konagai (University of Tokyo)

(Public Form "Protection of Society and Cultural and Natural Heritage" and "Landslides for Children" as one of parallel sessions at 14:00-17:30)

# 20 November (Thursday) at U-Thant Hall

## **Keynote lectures (9:00-10:30)**

Incorporating spatial, temporal, and climate variability into tools for assessing post wildfire debris-flow hazards

Susan Canon (U.S. Geological Survey) and Jerome De Graff (USDA Forest Service) Recovery of the Buddha's niches and cliff in Bamiyan (Central Afghanistan) after the destruction of 2001 Claudio Margottini (APAT)

#### 21 November (Friday) at U-Thant Hall

### **Keynote speech and Review (9:00-10:00)**

### **Keynote speeches**

By Shuzo Nishimura (Vice President, Kyoto University)

By Hideaki Marui (President, Japan Landslide Society)

By Kuniyoshi Takeuchi (President, GeoRisk Commission of IUGG)

By Pedro Pinto (President, International Society for Soil Mechanics and Geotechnical Engineering)

**Review of Sessions :** Wolfgang Eder (Technical Advisor of ICL)

**Keynote lecture:** Effects of global change on landslide risk

Bjørn Kalsnes (International Centre for Geohazards/NGI)

### 6. High Level Panel Discussion (10:30-12:30)

Landslides in Global Change- How to Mitigate Risk?" -Toward the Second World Landslide Forum in 2011"

Chairperson: Hans van Ginkel (Former Under-Secretary General of the United Nations,)

**Moderator**: Badaoui Rouhban (Director for Disaster Reduction of UNESCO)

# **Panelists**

- 1. Thomas Rosswall (Executive Director of ICSU)
- 2. Peter Lyttle (Coordinator of Landslide Hazard Programme of USGS)
- 3. Pedro Pinto (President of International Society for Soil Mechanics and Geotechnical Engineering)
- 4. Jamilah Mahmood (Director, NPO:Mercy Malaysia)
- 5. Kyoji Sassa (IPL World Centre of ICL)

# 7. Closing Sessions (14:00-16:00)

Speech: Paolo Canuti: New President of ICL

Adoption of 2008 Tokyo Declaration

Nomination of WCoE

Presentation of New IPL projects

Conferment of Awards: 2008 Varnes Medal, 2007 Best Paper Award,

Welcome to the 2<sup>nd</sup> WLF 2011

(Press meeting 16:30-17:30)

### 8. Post Conference Dinner (18:30-21:00) at Hall Fuji (1F) in Floracion Aoyama

# Parallel Sessions

# 1. A look from Space

|   | Chairpersons         | Nicola Casagli and Robert Adler   |
|---|----------------------|---|
| 1 | Suzuki,Takashi       | High resolution SAR images of landslides occurred by Sichuan and Iwate-Miyagi earthquakes                           |
| 2 | Hong, Yang           | Satellite Remote Sensing for Landslide Susceptibility Mapping and Landslide Occurrence Prediction on a Global Basis |
| 3 | Notti, Davide        | PS interferometry-based studies of landslides at regional scale   |
| 4 | Wasowski J.          | PSInSAR for the investigating of unstable slopes and landslides   |
| 5 | Guzzetti,Fausto      | Exploiting Earth Observation Technology to Map, Monitor and Forecast Landslides: the ASI MORFEO project             |
| 6 | Righini, Gaia        | Spaceborne SAR analysis for landslides mapping in the framework of the PREVIEW project                              |
| 7 | Tong, Liqiang        | Remote sensing based investigation of landslides in Himalaya mountains  |
| 8 | Ferretti, Alessandro | Exploitation of historical satellite SAR archives for mapping and monitoring landslides at regional and local scale |
| 9 | Moriyama, Takashi    | JAXA Activities on Space Utilization and Information Sharing for Disaster/Crisis Management                         |

# 2. Case Studies and National Experiences

|    | Chairperson         | Srikantha Herath   |
|----|---------------------|--|
| 1  | Tongkul, Felix      | Landslide Disasters in Sabah, Malaysia: Issues and Challenges  |
| 2  | Abidin, Roslan      | Creation of Rainfall Soil Cahrt For Forecasting Landslide  |
| 3  | Dahal, Ranjan       | Role of monsoon rainfall for landsliding in the Nepal Himalaya   |
| 4  | Osuchowski, M.      | Connecting disparate landslide inventories in real time for improved landslide mitigation in Australia                                 |
| 5  | Casagli, Nicola     | Case study on local landslide risk management during crisis by means of remote sensing data  |
| 6  | YIN, Yueping        | Landslide mitigation strategy and implementation in China  |
| 7  | Longoni, Laura      | Rock slope failure in weak rocks: two case studies   |
| 8  | Colangelo, Gerardo  | A Civil Protection Operative Tool for Emergency Management of Landslide  |
| 9  | Borgatti, Lisa      | Large slow-moving rock slide- earth flows: the case study of Ca' Lita (northern Apennines, Italy)                                      |
| 10 | Paudel, Prem Prasad | Environmental Consequences, Emerging Issues and Management Options Associated with Landslide Disaster: Experiences from Nepal Himalaya |
| 11 | Miner, Yojana       | Managing Landslides in Guatemala, critical issues  |
| 12 | Vlcko,Jan           | Landslide hazard strategies in Slovakia  |
| 13 | Lyttle, Peter       | Landslide hazard activities in USA   |
| 14 | Catane, Sandra G.   | Landslide-risk Reduction Strategies and Practices in the Philippines   |
| 15 | Rupasinghe N.       | Towards Landslides mitigation in Sri Lanka   |
| 16 | Massey, Cris        | Landslide monitoring data and its application to risk management, an example from New Zealand  |

# 3. Catastrophic slides and avalanches

|   | Chairpersons    | Alexsander Strom and Kenneth HEWITT   |
|---|-----------------|---|
| 1 | Hewitt, Kenneth | Catastrophic landslides in context and as controls: late Quaternary developments in the Indus gorges, |

|    |                     | Nanga Parbat-Haramosh massif, Northern Pakistan   |
|----|---------------------|---|
| 2  | Hasegawa, Shuichi   | Matsushima Bay as a Early Holocene coastal megalandslide, Northeast Japan   |
| 3  | Dunning, Stuart     | Catastrophic landslides – quantifying the link to landscape evolution   |
| 4  | Hermanns, Reginald  | Overview of megalandslides in the Andes   |
| 5  | Pánek, Tomáš        | Giant low-gradient landslides in the northern periphery of the Crimean Mountains (Ukraine): predisposition, structure, chronology and links to adjacent regions |
| 6  | Ntasin, Edwin       | The 20 July 2003 Landslide Swarms within the Bambouto Caldera and Their Effects Edwin Ntasin, Ayonghe Samuel, Suh Emmanuel                                      |
| 7  | Chiliza, S.G.       | Landslide incedence in the Limpopo Province, South Africa.  |
| 8  | Poschinger, Andreas | The Flims Rock Slide Theatre, a Drama in Several Stages   |
| 9  | Vilimek, Vit        | Delimitation of Prehistoric Rock Fall from Huascaran Mt., Peru  |
| 10 | Wassmer, Patrick    | The Güímar flank collapse on Tenerife Island and evidences for related tsunami on the west coast of Gran Canaria, (Canaria Islands, Spain)                      |
| 11 | Fasani, Gianluca    | Rock slope failures in the Italian Apennines: from retrodiction to prediction   |
| 12 | Massey, Christopher | Description of the Dam Breach Sequence that Initiated the 18th March 2007 Ruapehu Crater Lake Lahar, New Zealand  |
| 13 | Alcántara-Ayala, I. | The San Juan de Grijalva catastrophic landslide, Chiapas, Mexico: lessons learnt  |

# 4 Climate change and slope instability

|   | Chairperson       | John Clague  |
|---|-------------------|--|
| 1 | Geertsema, Marten | Natural Dams, Temporary Lakes, and Outburst Floods in Western Canada   |
| 2 | Osti, Rabindra    | Threat of Glacial Lake Outburst Floods in Mountain Communities: A Hidden Scientific Truth                      |
| 3 | Borgatti, Lisa    | Landslides as proxies of climate change: evidence from past activity records in the Dolomites (Northern Italy) |
| 4 | Hutchinson,Jean   | Recent, rapid development of large landslides in discontinuous permafrost, Little Salmon Lake, Canada          |
| 5 | Winter, Mike      | Climate Change Impacts on Debris Flow in Scotland  |
| 6 | Mahabub           | Landslide Tragedy of Bangladesh  |
| 7 | Shan, Wei         | Cause analysis on the shallow landslide of highway soil cunnting slopes in seasonally frozen ground.           |
| 8 | Dixon, Neil       | Climate change and slope stability forecasting in the UK - an overview of research needs                       |

# 5. Cultural Heritage and Landslides

|   | Chairpersons       | Paolo Canuti and Claudio Margottini   |
|---|--------------------|---|
| 1 | Delmonaco, G.      | Geomorphology and landslide potential of the Bamiyan Valley (Afghanistan)   |
| 2 | Vlcko, Jan         | Environmental hazards - the result of engineering geological failures on cultural heritage  |
| 3 | Bhandary,Netra     | Landslide Hazard in Chanunarayan Hill of Nepal -Need of Geothechnical Investigation and Preventive Plan for the Protection of World Cultural Heritage Site- |
| 4 | Svalova, Valentina | Landslide process activization on sites of cultural heritage in Moscow, Russia.   |
| 5 | Martini, Endro     | Risk mitigation from landslides for cultural heritage in Umbria region: some applications   |
| 6 | Greif, Vladimir    | Earthquake response analysis of the Catarata 2 rock block at Machu Picchu - Peru  |
| 7 | Canuti, Paolo      | Rockfalls in the cliff of Pitigliano (Central Italy): integrated techniques for landslide hazard assessment   |
| 8 | Canuti, Paolo      | Effects of landslides on Machu Picchu Cultural Heritage   |
|   |                    |   |

#### 6. Economic and Social Impact of Landslides

Chairpersons Oddvar Kjekstad and Lynn Highland

Winter,Mike Societal Willingness to Accept Landslide Risk

2 Chan, Y. C. Debris flows in Urban Hongkong

3 Oven, Katie Landslides, livelihoods and risk: vulnerability and decision-making in central Nepal

4 Schwab, James W. Landslides, Forest Resources and Infrastructure in west central British Columbia Canada

5 Arambepola, N. Effective land use planning solutions for Landslide risk management in Urban areas in Asia.

6 Sugathapala, Kishan Impact on Livelihoods of Landslides Affected Families due to Resettlements Programmes

#### 7. Education, Capacity Building and Public Awareness for Disaster Reduction

Chairpersons Badaoui Rouhban and Rajib Shaw Shaw, Rajib Sustainable Community Disaster Education in Saijo City and its Effectiveness in Landslide Risk Reduction 2 Takeuchi, Yukiko The education of sediment disaster generation process including sediment transport to resident's action in Hiroshima City 3 Fujita, Kumiko Effective forest management to reduce landslide risk in Reihoku Area in Shikoku: A social perspective 4 Karnawati, D. Strategy for promoting education for natural disaster reduction in Indonesia and ASEAN regions. 5 Parkash, Surya A Methodology for Community Based Disaster Risk Management Tsunozaki, Etsuko Capacity Building and Awareness Raising for Disaster Reduction through Formal Education -- Lessons learned from the Indian Ocean Tsunami --7 Highland, Lynn An Illustrated Landslide Handbook for Developing Nations 8 Shiwaku, Koichi Capacity building of local NGO as community leader in the affected area of Pakistan Earthquake of

# 8. Environmental Impact of Landslides

Chairpersons Marten Geertsema and Lynn Highland 1 Khomutov, Artem Interrelation of Landscapes and Landsliding on Yugorsky and Yamal Peninsular, Russia 2 Restrepo, Carla Landslides, natural proteced areas, and the long-term management of mountainscapes: Emerging challenges from the study of the El Triunfo Biosphere Reserve, Chiapas, Mexico 3 Hradecky, Jan Geoecological Effects of Mass-movements on Habitats - the Case Studies from the Western Carpathians (Czech Republic) 4 Torgoev, Isakbek Environmental effects of possible landslide catastrophes in the areas of radioactive waste warehousing in Kyrgyzstan (Central Asia) 5 Claessens, Lieven The Importance of Shallow Landsliding for the Spatial Distribution and Ecology of Kauri 6 Kugaenko, Yulia Beauty of the Valley of the Geysers: Before and After Landslide on June 3, 2007 (Kamchatka, Russia) The 3 June 2007 Landslide in the Valley of Geysers, Kamchatka Droznin, V.A

#### 10. Landslides in General

Chairpersons Hiromitsu Yamagishi, Villagran de Leon and Netra Prakash Bhandary

Nishii, Ryoko Monitoring rock slope deformation following an alpine rock slide in the southern Japanese Alps

Tan, Ah Cheng Intelligence Explanation System on Landslide Dissemination: A Case Study in Malaysia

Igwe, Ogbonnaya Field and Laboratory investigation of soils affected by the 2007 Chuetsuoki earthquake

| 4  | Maeda, Hiroyuki    | What is a Hydrothermal Alteration Zone Landslide? The Relationship Between Ancient Landslides and Point Load Strength of Hydrothermal Alteration Zone Rocks in Japan |
|----|--------------------|--|
| 5  | Lateh, Habibah Hj. | CHASM – The Model to Predict Stability of Gully Walls Along the East-West Highway in Malaysia: A Case Study  |
| 6  | Bhandary, Netra    | Characterristic features of landslides in the Vicinity of Major Road Network in Central Nepal  |
| 7  | Yamagishi, H.      | GIS using landslide mapping in Niigata, Japan  |
| 8  | Longoni, Laura     | The first emergency management for landslides in urbanized areas   |
| 9  | Westen, Cees van   | RiskCity: a training package on the use of GIS for urban multi-hazard risk assessment.   |
| 10 | Ma, Zongyuan       | Analysis for Stability of Loess Slope under Structural Loads   |
| 11 | Kamai,Toshitaka    | Earthquake risk assessment of artificial fill slope in urban residential region  |
| 12 | Surjan, Akhilesh   | Risk management strategies in megacities : Delhi Experience  |
| 13 | Rim, Kwon-Muk      | Distribution and classification of landslides in Korean Peninsula (DPRK)   |
| 14 | Petrov, Nikolay    | Does the science about landslides need for unified classifications of its object?  |

# 11. Landslides and multi-hazards

|    | Chairpersons      | Hideaki Marui and Farrokh Nadim  |
|----|-------------------|--|
| 1  | Nadim, Farrokh    | Coherentia alida and their concessions   |
|    | •                 | Submarine slides and their consequences  |
| 2  | Bourdeau, Céline  | Numerical modeling of the triggering of a loess slide considering seismic and hydrogeologic factors  |
| 3  | Casagli, Nicola   | Ground-based InSAR monitoring of an active volcano and related landslides  |
| 4  | Kugaenko, Yulia   | Geodynamic processes as the risk factor of June 3, 2007 landslide in the Valley of the Geysers (Kamchatka, Russia)                                   |
| 5  | Legono, Djoko     | Development of Community-based Early Warning System against Debris Flow at Mt. Merapi, Indonesia   |
| 6  | Godt, Jonathan    | Rapid, global assessment of the societal impacts of earthquake induced landsliding   |
| 7  | Marui, Hideaki    | Emergency measures and risk management after landslide disasters caused by the 2004 Mid-niigata Prefecture earthquake in Japan                       |
| 8  | Nepop, Roman      | New approach to estimating the paleoseismicity and topography changes on the basis of landslide study  |
| 9  | Liu, Chuanzheng   | Research on the Geohazards Induced by "5.12" Wenchuan Earthquake in China Earthquakes and Safety of Geological Environments, Sichuan Province, China |
| 10 | Gratchev, Ivan    | Analysis of a slope failure triggered by the 2007 Chuetsu Oki Earthquake   |
| 11 | Chigira, Masahiro | Landslides induced by the 2008 Wengchan earthquake in Sichuan, China   |
| 12 | Wang, Gonghui     | Some catastrophic landslides triggered by the May 12, 2008 Sichuan earthquake  |
| 13 | Cui, Peng         | The Distribution and Risk Assessment of Landslide Lakes in Wenchuan Earthquake Area  |

# 12. Mapping: Inventories, Susceptibility, Hazard and Risk

|   | Chairpersons             | Javier Hervas and Peter Bobrowsky  |
|---|--------------------------|--|
| 1 | Danneels, Gaelle         | Landslide detection methods, inventory analysis and susceptibility mapping applied to the Tien Shan, Kyrgyz Republic |
| 2 | Ardizzone,<br>Francecsca | Landslide hazard assessment, vulnerability estimation, and risk evaluation at the basin scale                        |
| 3 | Tofani, Veronica         | Quantitative landslide risk assessment at the river basin scale  |
| 4 | Ahmad, Fauziah           | Landslide Susceptibility Study of Batu Feringgi and Paya Terubong Areas of Penang Island Malaysia                    |

|   |                     | Using Soil characterization   |
|---|---------------------|---|
| 5 | Kirschbaum, Dalia   | Evaluation of a satellite-based landslide algorithm using global and regional landslide inventories                 |
| 6 | Günther, Andreas    | Approaches for delineating areas susceptible to landslides in the framework of the European Soil Themeatic Strategy |
| 7 | Trigila, Alessandro | IFFI Project (Italian Landslide Inventory) and risk assessment  |
| 8 | Foster, Claire      | The new National Landslide Database and Landslide Hazard Assessment of Great Britain                                |
| 9 | Westen, Cees van    | Multi-scale landslide risk assessment; a contribution to the national system of multi-hazard risk in Cuba           |

Landslide Hazard Zonation of Babolrood Watershed, Iran

# 13. Monitoring, prediction and early warning

10

Uromeihy, Ali

|    | Chairpersons          | Kyoji Sassa, Luciano Picarelli and Yin Yueping  |
|----|-----------------------|---|
| 1  | Fathani, Teuku Faisal | Development of Landslide Monitoring and Early Warning System in Indonesia   |
| 2  | Hattori, Katsumi      | Early Warning of Landslides Based on Landslide Indoor Experiments   |
| 3  | Uchimura, Taro        | Simple and Low-Cost Wireless Monitoring Units for Slope Failure   |
| 4  | Takara, Kaoru         | Study on Early Warning System for Debris Flow and Landslide in the Citarum River Basin, Indonesia   |
| 5  | Zvelebil, Jiří        | New Challenges of Safety Monitoring of Rock Slopes: The Third Wave  |
| 6  | Bednarczyk, Z.        | Landslide geotechnical monitoring network for mitigation measures in chosen locations inside the SOPO Landslide Counteraction Framework Project, the Carpathian Mountains, Poland |
| 7  | Schiano,Pasquale      | Short-term weather forecasting for early warning  |
| 8  | Versace, Pasquale     | Empirical hydrological models for eaqrly warning of landslides induced by rainfall  |
| 9  | Kubota, Tetsuya       | The warning rain analysis of sediment runoff and shallow landslides along the mountainous torrent   |
| 10 | Park, Dugkeun         | Preliminary Approach for a Nation-wide Regional Landslide Early Warning System in South Korea   |
| 11 | Chae, Byung-Gon       | Development of a ubiquitous-based monitoring system for debris flows in Korea   |
| 12 | Karnawati, D.         | Development Community-based Landslide Early Warning System in Indonesia   |
| 13 | Cardellini, Stefano   | Living with landslide: the ancona case history and early warning system   |
| 14 | Zeni, Luigi           | Distributed optical fiber sensors for precocious alerting of rainfall-induced flowslides  |

# 14. Policy and Institutional framework for Disaster Reduction

|   | v                    |  |
|---|----------------------|--|
|   | Chairpersons         | Gue See Saw and Dwikorita Karnawati  |
| 1 | Chan, Raymond        | Slope Safety System and Landslide Risk Management in Hong Kong   |
| 2 | Anderson, Malcolm    | A New Sustainable Landslide Risk Reduction Methodology for Communities in Lower Income Countries                                 |
| 3 | Abdullah, C.Hassandi | Model of Slope Master Plan   |
| 4 | Gibson, A.D          | Landslide Management in the UK – Is It Working?  |
| 5 | Gori, Paula          | Reducing Landslide Hazards through Federal, State, and Local Government Cooperation: The Seattle, Washington, Experience Project |
| 6 | Lee, Su-Gon          | Landslide Mitigation and Risk Reduction Practice in Korea  |
| 7 | Andayani, Budi       | Institutional Frame Work for Community Empowerment towards Landslide Mitigation and Risk Reduction in Indonesia                  |
| 8 | Adikari, Yoganath    | The importance of an indexing method for holistic landslide disaster management  |

9 Margottini, Claudio Prevention Policies for the Protection Against Hydrogeological Disasters in Italy

10 Pujiono, Puji Indonesia Disaster Management Lawfor Implementation

#### 15. Rainfall, Debris flows and Wildfires

Chairpersons Jerome V. DeGraff and Hirotaka Ochiai

1 MacDonald, Lee Sediment Production and Delivery from Wildfires: Processes and Mitigation

2 Parise, Mario The effects of wildfires on erosion and debris flows in Mediterranean climatic areas: a first database

3 Winter, Mike Rainfall conditions leading to debris flow in Scotland

4 Lu, Ning Role of Hydro-mechanical coupling in Infiltration-induced shallow landslides

5 Tofani, Veronica Instability conditions of the landslides triggered by the 2006 rainfall event in Ischia Island, Italy

6 Mikos, Matjaz Causes and Mitigation of Large Rainfall-triggered Landslides and Debris Flows in Last years in

Slovenia

7 Reid, Mark E. Deciphering Landslide Behavior Using Large-scale Flume Experiments

8 Okada, Yasuhiko Landslide and Debris Flow Experiments on Artificial and Natural Slopes.

9 Šilhán, Karel Geomorphic evidences of debris

flows in culmination parts of czech part of the flysh Carpathians

#### 17. Landslide Disaster Mitigation Engineering Measures

Chairpersons Mihail Popescu and Katsuo Sasahara

1 Hencher, Steve Back analysis of landslides to allow the design of cost-effective mitigation measures

2 Ishi, Yasuo Optimum Design of Landslide Stabilizing Piles by Centrifugal Loading Experiments and FEM

3 Schaefer, Vernon R. The Forest City Landslide, South Dakota, USA

4 Kato, Nobuaki A Method for Evaluating Landslide-prevention Works at the Yuzurihara Landslide

5 Bugnion, Louis Full-scale experiments on shallow landslides in combination with flexible protection barriers

6 Cantarelli, G. Modeling rockfall protection fences

7 Suhendra, Andryan Composite Geotextile Reinforced Gabion Structure for Rover Side Slope of a Factory in Bali -

Indonesia

8 Shakya, Naresh Man Integration of Bio-engineering Techniques in Slope Stabilization Works: a Cost Effective Approach for

**Developing Countries** 

9 Watanabe, Masayuki "Debrisflow dehydration brake": An efficient tool to control upstream debrisflow securing road

transportation and community safety

## 18. Watershed and Forest Management for Risk Reduction

Chairpersons Thomas Hoffer and Libor Jansky

1 Wilford, David Forest Management for Landslide Risk Reduction on Alluvial Fans

2 MacDonald, Lee Road sediment production and delibery: Process and management

3 Kiersch, Benjamin Potential of payment for ecosystem services schemes for landslide risk reduction

4 Shoaei, Zieaoddin The role of forest and trees in landslide risk mitigation

5 Cherrett, Ian An Experience of Agricultural Practices to Ensure Sustainable Livelihoods and Landslide Risk

Reduction: Case Study from Honduras and Central AmericaReduction

#### 19. Landslides in Dam Reservoirs

|   | Chairpersons     | Wang Fawu and Patrick Wassmer   |
|---|------------------|---|
| 1 | Miyagi, Toyohiko | Huge Landslide Triggered by Earthquake at the Aratozawa Dam Area, Tohoku, Japan   |
| 2 | Luo, Xian-qi     | A Study of Landslide Mechanism in the Three Gorges Reservoir Area   |
| 3 | Zhang, Zhenhua   | Test Model Study of the Possible Failure Mode and Mechanism of the Xietan Landslide when Exposed to Water Level Fluctuation |
| 4 | Peng, ,Xuanming  | Distribution of Dangerous Rockmsss and high steep slope in Three Gorges River Valley  |
| 5 | Jian, Wenxing    | The Anlesi Landslide in Whanzou, China - Characteristics and Mechanism of a gentle dip landslide                            |
| 6 | Li, Shaojun      | Centrifuge modeling of a reservoir landslide of Three Gorges in Wanzhou city, China   |
| 7 | Wang, Fawu       | Displacement monitoring of Shuping landslide after the first impoundment of the Three Gorges Dam Reservoir                  |
| 8 | Highland, Lynn   | Geographical Overview of the Three Gorges Dam and Reservoir, China—Geologic Hazards and Environmental Impacts               |
|   |                  |   |

# Dialogue: International Initiative

| 1 | Uppreti, Baishal | Landslide hazard in the Himalayan region and need for a regional scientific society on landslides and environment |
|---|------------------|---|
| 2 | Surjan, Akhilesh | Role of theme based Regional Task Forces in enhancing international cooperation and reducing 306 disaster risk    |

# **Poster Session** (Posters may be orally explained in the morning of 19 November (Wednesday)

| POS | ter Session (Posters ma | ay be orany explained in the morning of 19 November (wednesday)  |
|-----|-------------------------|--|
|     | Chairperson             | Osamu Nagai  |
| 1   | Apip, Agung             | Study on Early Warning System for Debris Flow and Landslide in the Citarum River Basin, Indonesia  |
| 2   | Ardizzone, F.           | Forecasting Landslides and the Associated Risk to the Population of Italy  |
| 3   | Baator, Has             | A Simple Risk Evaluation Method for Earthquake-induced Landslide Based on<br>Geomorphological and Geological Factors-Case of Mid-Niigata Prefecture Earthquake in<br>2004, Japan |
| 4   | Bautista, C. J. B.      | Influence of rainfall in the behavior of residual soil   |
| 5   | Chiliza S. G.           | Landslide incedence in the Limpopo Province, South Africa  |
| 6   | Cho, Yong-Chan          | Characteristics of landslides and landslide prediction maps by a probabilistic prediction method in Korea  |
| 7   | Claessens, Lieven       | Modelling landslide hazard, soil redistribution and sediment yield of landslides on the Ugandan footslopes of Mount Elgon  |
| 8   | Dzharsky, K. S.         | Mitigation of Geohazards on the Onshore Pipeline Route through the Makarov Mountains Sakhalin II Project   |
| 9   | Geertsema, M.           | Influence of landslides on diversity   |
| 10  | Georgieva, E.           | Experimental study on pre-failure creep in soils induced by the generation of pore water pressure by means of ring shear test  |
| 11  | Gurung, Narayan         | Living Under the Impending Catastrophe: Case studies of Laprak Landslide in Gorkha, Lesser Himalaya, Central Nepal and Aula Rockfall in Myagdi, Lesser Himalaya, West Nepal      |
| 12  | Gurung, Narayan         | Landslide issues in the Infrastructure Development: A discussion in Lesser Himalaya Nepal scenario   |
| 13  | Hatomoto, T.            | Mechanism and application of new steel check dam in debris flow prevention   |
| 14  | Ito, Yoichi             | Selection method and examples of emergency measures for snow avalanche in Japan  |
| 15  | Iwasa, Naoto            | Green Slope, a new approach of natural slope stabilization in urban areas  |
| 16  | Jang, Bo-An             | analysis of slope stability using grid net   |
| 17  | Kasai, Mio              | Morphometric analysis of landslide prone areas in Japan using LiDAR-derived DEMs   |
| 18  | Koay, Swee Peng,        | The Preliminary Study on Landslide Prediction Model in Malaysia  |
| 19  | Marinos, Paul           | Rockfall hazard and risk for a high promontory: Monemvasia historical site, Greece   |
|     |                         |  |

| 20 | Nghiem, M. Q.     | A new soil nail technology for protecting heritage sites against landslide  |
|----|-------------------|---|
| 21 | Niyazov, Rustam   | Tendency of Growth of Landslides Amount in the Boundary of XXI Cen-tury and System of Geoindicators for the Stage-by-stage Landslide Hazard Warning System in Republic Uzbekistan, Central Asia |
| 22 | Ohara, Joko       | Case study of estimation of financial loss by landslide disaster  |
| 23 | O-Il, Kwon        | An Efficiency Test for Ground Behavior Sensing of Optic Fiber Sensor by a Scale Model Test  |
| 24 | Pancioli, Valeria | Terrafirma landslide services for Europe based on space-borne InSAR data  |
| 25 | Perera, H. L.     | The relationship between landslides and the development of stream network.  |
| 26 | Prakash, Poudyal, | Landslide hazard mapping around Phidim Bazaar; eastern Nepal  |
| 27 | Prachansri, S.    | Landslide Susceptibility Mapping in the Namta-Namlee sub-catchments, Uttaradit Province, Thailand   |
| 28 | Qi, Shengwen      | Instability of cut slopes comprising deep weathered argillaceous limestone in new Fengjie County on Three Gorges Reservoir in Central China   |
| 29 | Shimomura, H.     | Two-dimensional motion analysis of landslides using Particle Image Velocimetry method   |
| 30 | Suzuki, Souki     | The tracing ground water flow in landslide with high density oxygen as a tracer   |
| 31 | Tsutsui, Ken      | Mapping and assessment of pre- and post-landslide using high-resolution 3D satellite remote sensing   |
| 32 | Une, Hiroshi      | Analysis of Surface Deformation Induced by the Noto Hanto and the Chuetsu-oki Earthquakes in 2007 using Synthetic Aperture Radar Interferograms   |
| 33 | Xu, Xiangning     | Geomechanical Modeling Test on Deformation Fracture Mechanism of Mountain body Caused by Earthquake   |
| 34 | Zerka, Oleg       | Paleolandslides a Central Part of East European Plain (Russia)  |

# Other Parallel Activities (PA)

# P1. Exhibition of Landslides and Risk Mitigation of the World (4 -28 November 2008) at the Exhibition Hall of UNU (2<sup>nd</sup> Floor)

The exhibition of landslides and risk mitigation of the world is displayed at the Exhibition Hall on the second floor of the United Nations University.

# **P2.** Public Forum "Protection of Society and Cultural and Natural Heritage from Landslides" with E English-Japanese simultaneous interpretation. (U-Thant Hall in 14:00-17:30 on 19 November)

# I. Protection of society and cultural and natural heritages

- International Cooperation for Disaster Risk Reduction: UN-ISDR system and HFA Salvano Briceno, Director of UN/ISDR
- 2) Role of UNESCO in Disaster Education

Badaoui Rouhban, Chief for Disaster Reduction in UNESCO

- 3) What is Landslides? Significance of Landslide Research
  - Hideaki Marui, President of Japan Landslide Society
- 4) Landslides and Cultural Heritage

Inca's World Heritage Machu Picchu by Kyoji Sassa, President of ICL

Budda's Niches in Bamyan, Afganistan, by Claudio Margottini, Italian Ministry of Environment

#### II. Landslide for Children

- 1) Landslide Investigation by Children from the landslide disaster areas
  - Children from Guinsaogon, Leyte, Philippine.
  - Children from Saijyo-city, Ehime Prefecture, Japan
  - Children from Yamakoshi-village, Niigata Prefecture, Japan
- 2) Let's talk for landslide disaster reduction

Children, Mayors of three cities and village, Disaster reduction coordinators and experts.

# P3. Dialogues on country landslide issues (Committee Room 2 in 11:00-12:30 on 20 November) This dialogue aims to summarize best practices of landslide management.

# **P4.** Dialogues on International Initiatives (Committee Room 2 in 16:00-17:30 on 19 November) This dialogue aims to present international initiatives and programmes.



# **International Consortium on Landslides**

An international non-government and non-profit scientific organization promoting landslide research and capacity building for the benefit of society and the environment

President: Kyoji Sassa (Prof. Emeritus, Kyoto University)

Vice Presidents: Peter Bobrowsky (Geological Survey of Canada) / Paolo Canuti (University of Firenze, Italy) Oddvar Kjekstad (International Centre for Geohazards, Norway) / Peter Lyttle (U. S. Geological Survey, USA)

#### **ICL Supporting Organizations:**

The United Nations Educational, Scientific and Cultural Organization (UNESCO) / The World Meteorological Organization (WMO) / The Food and Agriculture Organization of the United Nations (FAO) / The United Nations International Strategy for Disaster Reduction Secretariat (UN/ISDR) / The United Nations University (UNU) / International Council for Science (ICSU) / World Federation of Engineering Organizations (WFEO) / International Union of Geological Sciences (IUGS) / Governments of Japan, USA, Italy, Canada, Norway, Korea, Czech Republic, and Slovakia.

#### **ICL Members:**

Geological Survey of Canada / Chinese Academy of Sciences, Chengdu Institute of Mountain Hazards and Environment / Xian Municipal Government, Lishan Landslide Prevention and Control Office, China / Northeast Forestry University, China / Xi'an Jiaotong University, Department of Civil Engineering, China / China Three Gorges University, Institute of Geological Hazard Mitigation / China Geological Survey / Universidad Nacional de Columbia, Columbia / Charles University, Faculty of Science, Czech Republic / Technische Universitat Darmstadt, Institute and Laboratory of Geotechnics, Germany / Building & Housing Research Center, Iran / International Institute of Earthquake Engineering and Seismology (IIEES), Iran / Agricultural Research and Educational Organization (AREO), Iran / European Commission's Joint Research Centre, IPSC/HSU, Italy / University of Firenze, Earth Sciences Department, Italy / Center of Geological Environment, Geological Agency of Indonesia/ University of Gadjah Mada, Indonesia/Ehime University, Faculty of Engineering, Japan / Forestry and Forest Product Research Institute, Japan / Japan Landslide Society / Kyoto University, Disaster Prevention Research Institute, Research Section for Innovative Disaster Prevention Technology and Policy, Japan / Kyoto University, Disaster Prevention Research Institute, Research Centre on Landslides, Japan / Niigata University, Research Center for Natural Hazards and Disaster Recovery, Japan / University of Tokyo (Institute of Industrial Science and Department of Civil Engineering, Geotechnical Engineering Group), Japan /Korea Institute of Geoscience and Mineral Resources (KIGAM) / Mara University of Technology, Malaysia / Slope Engineering Branch, Public Works Department of Malaysia / National Autonomous University of MEXICO (UNAM) /International Centre for Integrated Mountain Development (ICIMOD), Nepal / International Centre for Geohazards (ICG) in Oslo, Norway / Grudec Ayar, Peru / Proexrom S.R.L. Technical University, Civil Engineering Faculty, Romania / Federal State Unitary Geological Enterprise Scientific Centre HydGeo, Russia / Russian Academy of Sciences, Institute of Environmental Geoscience (IEG RAS) / Russian Academy of Sciences, Institute of the Geospheres Dynamics / Unified Energy System of Russia, Open Joint-Stock Company Engineering Centre / Engprotection, Russia / Comenius University, Faculty of Natural Sciences, Department of Engineering Geology, Slovakia / University of Ljubljana, Faculty of Civil and Geodetic Engineering (UL FGG), Slovenia / Engineering Geoscience Unit, Council for Geoscience, South Africa / Central Engineering Consultancy Bureau, Sri Lanka/Swiss Federal Institute for Snow and Avalanche Research (SLF) / Ministry of Agriculture and Cooperatives, Land Development Department, Thailand / Asian Disaster Preparedness Center, Thailand / U.S. Geological Survey, USA / National Aeronautics and Space Administration (NASA), Goddard Space Flight Center, Laboratory for Atmospheres, USA / Institute Hydroingeo, State Committee of Geology of Uzbekistan

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