

# ***ICL Newsletter***

**Issue No.9, 10 October 2006**


## Contents

- 1. Approval of “2006 Tokyo Action Plan” by BOR Members through Electronic Voting**
- 2. Report of Visiting Mr. Koïchiro Matsuura, the Director-General of UNESCO, 26 June 2006**
- 3. Report of Second STC of 2006 in Springer, Heidelberg, Germany, 28-29 June 2006**
- 4. MoU between the University of Florence and ICL for the European Centre of ICL**
- 5. DAVOS APPEAL: Integrated Strategy for Landslide Risk Reduction**
- 6. MoUs between ICL and Global Stakeholders to Promote the 2006 Tokyo Action Plan**
  - 6.1 MoU between WMO and ICL**
  - 6.2 MoU between WFEO and ICL**
  - 6.3 MoU between UNESCO and ICL**
- 7. Varnes Medal for 2006**
- 8. The “Best Paper Award” in Vol.2 of “Landslides”**
- 9. Plan of the First World Landslide Forum**
- 10. List of ICL members (as of 3 October 2006)**
- 11. Investigation on the Leyte Landslide in Philippines**
- 12. Information of the Meetings of Steering Committee, Board of Representatives, IPL Global Promotion Committee and Symposium**
- 13. Information of the Symposia and Meetings on Landslides**
- 14. Recent Landslide Occurrence News**

# 1. Approval of “2006 Tokyo Action Plan” by BOR Members through Electronic Voting

“2006 Tokyo Action Plan” -Strengthening Research and Learning on Landslides and Related Earth System Disasters for Global Risk Preparedness- , the most important output of 2006 Tokyo 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) was approved by BOR members through electronic voting. The following shows the “2006 Tokyo Action Plan” document.

**“2006 Tokyo Action Plan”**  
**Strengthening Research and Learning on Landslides and Related Earth System Disasters for Global Risk Preparedness**



(A joint photo of the participants to the Round Table Discussion)

Adopted in the  
**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 International Programme on Landslides (IPL) -  
on 18-20 January 2006 at United Nations University, Tokyo, Japan

*Organized by*  
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 Environment Programme (UNEP), United Nations University (UNU), Kyoto University (KU)

*Cosponsored by*  
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), Ministry of Foreign Affairs, Italy, Italian Civil Protection Department (Presidency of the Council of Ministers), Ministry of Environment of the Slovak Republic, Ministry of Environment of the Czech Republic, National Emergency Management Agency of Korea, Embassy of Switzerland In Japan, Science Council of Japan (SCJ), Japan International Cooperation Agency (JICA), International Union of Geological Sciences (IUGS), Academy of Forest, Wood and Environment, Japan (AFWE), Japan Landslide Society (JLS)

Web: <http://icl.dpri.kyoto-u.ac.jp>

**“2006 Tokyo Action Plan”**  
**Strengthening Research and Learning on**  
**Landslides and Related Earth System Disasters for Global Risk**  
**Preparedness**

**Adopted in the Round Table Discussion on 20 January 2006**  
**in Elizabeth Rose Hall of the United Nations University, Tokyo**

The 2006 Tokyo 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) was held at the United Nations University, Tokyo, from 18<sup>th</sup> to 20<sup>th</sup> January, 2006 to formulate a framework for cooperation and to identify focus areas to reduce landslide risk worldwide. The following action plan was adopted as a summary of the meeting, to be implemented within the scope of the Hyogo Framework for Action 2005-2015, “Building the Resilience of Nations and Communities to Disasters”, declared at the United Nations World Conference on Disaster Reduction held in Kobe, Japan in 2005.

**Preamble**

Large and small landslides occur almost every year in nearly all regions of the world. Figure 1 shows the example for casualties in Japan for 1967-2004. Landslide disasters in Japan have occurred every year; the total number of deaths due to landslides is about one half of those caused by earthquakes, including the catastrophic 1995 Kobe earthquake.

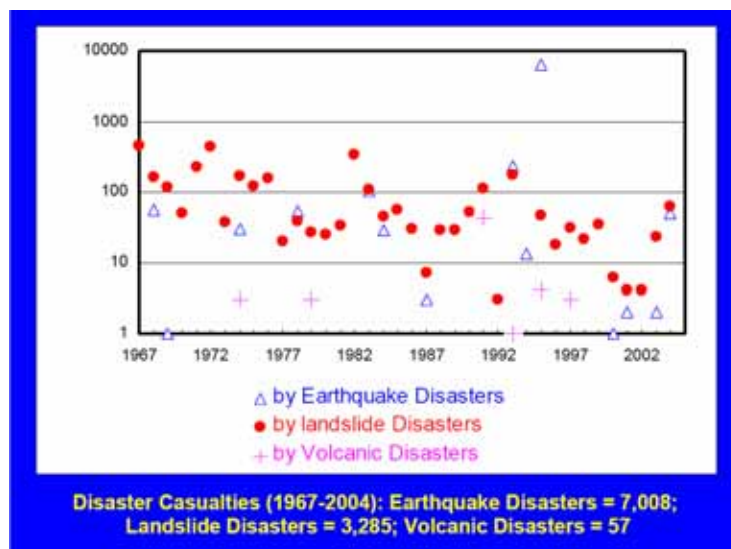


Figure 1 Comparison of the numbers of victims in Japan from 1967-2004 due to landslide disasters, earthquake disasters including deaths by earthquake-induced-landslides, and volcanic disasters including deaths due to volcanic gas (The statistic of victims by landslide disasters since 1967 was published by the Sabo Technical Center).

“Landslides” are a complex-disaster phenomenon that can be caused by earthquakes, volcanic eruptions, heavy rainfall (typhoons, hurricanes), sustained rainfall, heavy snowmelt, unregulated anthropogenic developments, mining, and others (Fig. 2a). Large-scale coastal or marine landslides are known to cause tsunami waves that kill many people; an example was the 1792 UNZEN-Mayuyama landslide, which caused a devastating tsunami that resulted in 16,000 fatalities from the landslides and the tsunami in Japan. Also large-scale landslides on volcanoes can dislocate the mountain tops and trigger volcanic eruptions; such was the case for the 1980 eruption of Mount St. Helens in the USA and presumably for Mt. Bandai in Japan. Landslides also may occur without earthquakes, heavy rains, volcanic eruptions, or human activities due to progress of natural weathering; therefore, they occur almost everywhere in the world. Landslides most commonly impact residents living on and around slopes.

Landslides are a natural phenomenon which can only be effectively studied in an integrated, multi-disciplinary fashion, including contribution from different natural and engineering sciences (earth and water sciences), and different social sciences. This is also the case because landslides are strongly related to cultural heritage and the environment (Fig. 2b). Landslides should be jointly managed by cooperation of different ministries and departments of government including some representing education, science and technology, construction and transportation, agriculture, forestry, and the environment, culture and vulnerable groups (the poor, aged, handicapped, or children). As landslides are highly localized phenomena it is crucial to seek the contribution of local governments or autonomous communities (Fig. 2c).

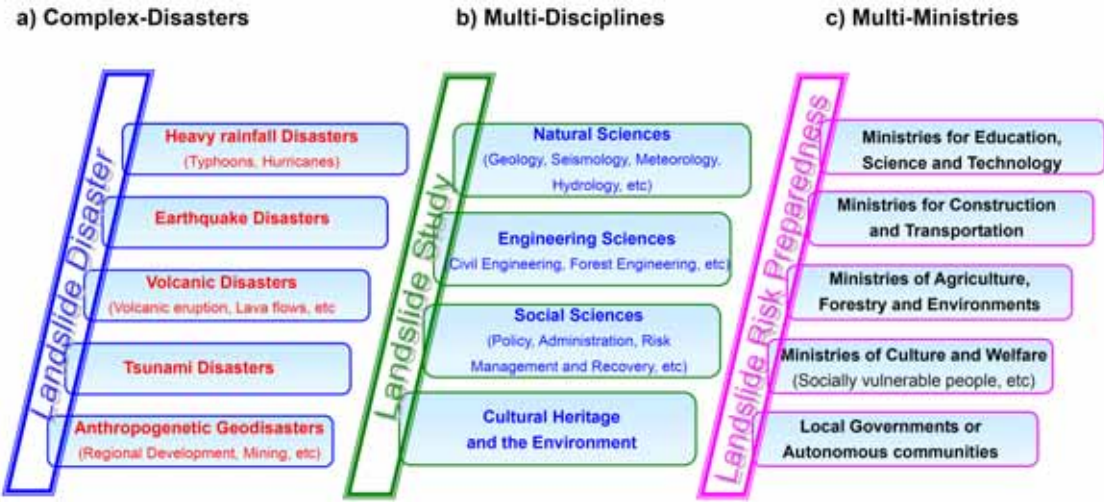


Figure 2 Characteristics of landslide disasters.

The disasters caused by landslides are of very complex nature wherever they occur around the world. Research on landslides should be integrated into a new multi-disciplinary science field of landslide study. Landslide risk preparedness is to be managed by multi-ministries.

## Action Plan

Global cooperation in landslide-risk reduction research and learning will be carried out encompassing related disasters affecting the earth-system, such as heavy rainfall, earthquakes, volcanic eruptions, tsunamis, and disasters of anthropogenic origin. Establishment of a ‘Dynamic Global Network of the International Programme on Landslides’ and its operation will effectively function for landslide and related risk reduction through the implementation of the following Action Items adopting a multi-hazard, multi-sectoral approach;

### Actions

#### 1. Establishment of the IPL Framework

##### 1) Establishment of the IPL Global Promotion Committee

The IPL Global Promotion Committee shall be established by ICL members and ICL supporting organizations, as illustrated in Figure 3. The committee will meet annually, on the occasion of ICL Board of Representative meetings, or possibly at other occasions and locations. The committee will conceive a strategy to promote the 2006 Tokyo Action Plan, and will discuss the management of IPL global cooperation fields, and their possible modification, selection, and termination.

##### 2) Establishment of IPL World Centre



Figure 3 Structure of the IPL global-cooperation framework.

The IPL World Centre will be established to coordinate and support implementation of the global cooperating fields of the International Programme on Landslides (IPL), which works as the secretariat of the IPL Global Promotion Committee and the International Programme on Landslides (IPL). The Centre will be hosted by the Headquarters of the UNESCO-KU-ICL UNITWIN Cooperation Programme “Landslide Risk Mitigation for Society and the Environment” in the Research Centre on Landslides, Disaster Prevention Research Institute, Kyoto University, Kyoto, Japan, where the secretariat of the International Programme on Landslides has been located since its foundation in 2002.

## **2. Promotion of the Global Cooperating Fields of the International Programme on Landslides (IPL)**

The global cooperating fields of IPL are identified as follows for the initial phase:

### **(1) Technology Development**

#### **A. Monitoring and Early Warning**

- Use of various on-site, in-situ technologies, as well as satellite observations in monitoring landslide effects and contributing factors for early-warning purposes
- Development of automated monitoring methods covering large spatial extent and real-time data communication, as well as low-cost monitoring devices
- Development of early-warning methodologies, in particular for rain-induced landslides
- Applications linking meteorological, hydrological and landslide models

#### **B. Hazard Mapping, Vulnerability and Risk Assessment**

- Hazard Mapping at local and global scales
- Vulnerability assessment, considering human life, land resources, structures, infrastructure, and cultural heritage
- Risk assessment and communicating risk in an easily understood manner

### **(2) Targeted Landslides: Mechanisms and Impacts**

#### **A. Catastrophic Landslides**

- Catastrophic landslides induced by natural and anthropogenic factors such as rainfall, earthquakes, volcanic activity, river erosion, and human activities, and their combinations
- Landslides threatening human lives and high societal values
- Gigantic coastal landslides and marine landslides causing tsunamis

## B. Landslides Threatening Heritage Sites

- Studies for protection of cultural heritage, cultural landscape, and the natural heritage from landslides using non-invasive technologies and appropriate mitigation strategies (e.g. Machu Picchu, Bamiyan, Lishan, Cordillera Blanca)

### (3) Capacity Building

#### **A. Enhancing Human and Institutional Capacities**

- Building human capacities and expertise in landslide management
- Institution building at national and local levels through Centers of Excellence
- Enhancing implementation and action at local level

#### **B. Collating and Disseminating Information/ Knowledge**

- Developing a culture of awareness on landslide risks
- Developing model policy frameworks, standards, guidelines/checklists, and training modules.

### (4) Mitigation, Preparedness and Recovery

#### **A. Preparedness**

- Strengthening disaster preparedness of all stakeholders
- Strengthening capacities of communities and local institutions to cope with landslide hazards
- Forecasting and providing early warning of adverse conditions likely to lead to landslide activity
- Preparing contingency recovery plans, including pre-positioning of technical and material resources for likely landslide events

#### **B. Mitigation**

- Development of innovative, low-cost, and ecologically appropriate landslide mitigation techniques.
- Mountain conservation methods, including soil conservation, forest and watershed management, and appropriate land-use techniques
- Appropriate civil engineering works, including construction and urban and coastal development;
- Restricting inappropriate development in landslide prone areas
- Development of appropriate policy and planning mechanisms, such as land-use management (including zoning)
- Promotion and strengthening of monitoring and warning systems

#### **C. Recovery**

- Post-landslide recovery and rebuilding efforts should integrate landslide mitigation measures

- Prevention of secondary risks of landslides resulting from inappropriate re-building efforts in response to any disaster (for example, earthquakes, volcanic eruptions, extreme weather events, etc.)
- Implementation of landslide recovery efforts and programmes (including psycho-social and health aspects) with the participation of affected communities and local authorities
- Providing long-term support to ensure sustainable recovery

### **3. Promotional Activities**

#### **(a) World Landslides Forum**

Capitalizing on the competence, international experience and established organizational network of ICL-IPL, it is proposed to create a global information platform for future joint activities of the world-wide landslide community, named the ‘World Landslide Forum’ that shall be convened every 3 years.

The first World Landslides Forum – organized by the ICL – can be planned to take place in January 2009, bringing together academics, practitioners, politicians, et al. to a global, multidisciplinary, problem-focused platform. This forum will provide an opportunity for the first identification of a WCoE. Linkages to ISDR activities, as well as other global events, including the World Water Forum, the International Year of Planet Earth, etc., will be established.

#### **(b) Identification and Promotion of World Centres of Excellence on Landslide Risk Reduction**

The IPL Global Promotion Committee will identify and promote World Centres of Excellence (WCoE) every 3 years within eligible organizations, such as universities, institutes, NGOs, government ministries and local governments, contributing to “Risk Reduction for Landslides and Related Earth System Disasters”. Linkages to CoE at the national level will be used to promote cooperation with the ICL and dissemination of knowledge and information. An independent Panel of Experts, set up by the Global Promotion Committee of IPL, may be appointed to endorse the CoEs.

#### **(c) Contributions to Global Landslide Issues**

The IPL will mobilize global cooperation for strengthening research and learning on risk reduction for landslides and related earth system disasters at sites identified as of great concern to the global community, such as Macchu-Picchu, the Kashmir, Central Asia high mountainous area, and Bamiyan.

#### **(d) Partnerships**



Mutually beneficial partnerships with other global initiatives, such as the International Hydrological Program (IHP), the International Geoscience Program (IGCP), and The Mountain Partnership will be developed.

## **2. Report of Visiting Mr. Koïchiro Matsuura, the Director-General of UNESCO, 26 June 2006**

On 26 June 2006, Mr. Koïchiro Matsuura had a meeting with the ICL President, Prof. Kyoji Sassa at the UNESCO Headquarters. Prof. Kaoru Takara (ICL Executive Director), Dr. Hiroshi Fukuoka (Treasurer of ICL), Dr. Fawu Wang (Assistant to the ICL President), and Dr. Gonghui Wang (Assistant to the Editor-in-Chief of Landslides Journal) joined this meeting.

In this meeting, ICL President, Prof. Kyoji Sassa introduced the recent activity of ICL, especially the outcome of the Round Table Discussion meeting in Tokyo, the recent landslide disaster such as Guinsaugon landslide occurred in the Southern Leyte, Philippines, and investigation activity in Machu Picchu. Mr. Matsuura expressed his interests on landslide disaster mitigation, especially in cultural and natural heritage sites, and hopes that ICL could have more contribution in this field.

Prof. Sassa discussed with Mr. Matsuura on the exchange of the MoU between UNESCO and ICL concerning Strengthening Cooperation in Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within the Framework of the United Nations International Strategy For Disaster Reduction – as Regards “Landslides”. Mr. Matsuura agreed to organize the signing ceremony of the MoU which was arranged in Tokyo, Japan in August 2006.

At the end of the meeting, Prof. Sassa presented the ICL General Assembly Book, Landslides: Risk Analysis and Sustainable Disaster Management to Mr. Matsuura. Mr. Matsuura also presented a book of his speech collection to Prof. Sassa.

After the meeting, the ICL visitors had a joint photo with Mr. Matsuura in the Director-General Office of the UNESCO Headquarters.



Joint photo with the Director-General of UNESCO, Mr. Koïchiro Matsuura at the UNESCO Headquarters, on 26 June 2006.

### 3. Report of Second STC of 2006 in Springer, Heidelberg, Germany, 28-29 June 2006

On 28-29 June 2006, the second Steering Committee meeting of the International Consortium on Landslides (ICL) was held in Springer-Verlag, Heidelberg, Germany. Twelve ICL committee members, seven representatives from Springer-Verlag, and three Observers concerning “Landslides” Journal joined this meeting. The participants were: Peter Bobrowsky (Canada), Paolo Canuti (Italy), Nicola Casagli (Italy), Wolfgang Eder (Germany), Hiroshi Fukuoka (Japan), Oddvar Kjekstad (Norway), Cludio Margottini (Italy), Hideaki Marui (Japan), Kyoji Sassa (Japan), Kaoru Takara (Japan), Vit Vilimik (Czech Republic), Fawu Wang (Japan/China). Eddie Bromhead and Maia Ibsen (Kingston University, UK), Gonghui Wang (Kyoto University, Japan) attended it as observers. Dr. Witschel, Ms. Muskalla, Ms. Graiff, Mr. Haaf, Ms. Gramlich, Ms. Weisleder and Ms. Rachner from Springer-Verlag attended a part of session 1 discussing on the International Journal “Landslides”.



Joint photo of the second STC meeting of ICL in 2006 in Springer-Verlag, Heidelberg, Germany

The following is the agenda of the two-day meeting.

#### ***Session 1: 13:30-17:30 on 28 June***

- 1 Opening address of 2006 Second Steering Committee, by ICL President
- 2 Welcome address by Dr. Christian Witschel, Executive Editor Geosciences, Springer-Verlag
- 3 Introduction of ICL STC participants and the staffs of Springer-Verlag working for landslides Journal
- 4 Publication, distribution and evaluation of Landslides Journal by Springer-Verlag
- 5 Journal citation, Special issues, current status of contribution and publication, by the Journal Editorial Office
- 6 Landslides Journal management, by the Chairman of the Journal Management Committee
- 7 Journal Database and World Landslide Database, by the Coordinator of the Committee for ICL Library and Information Dissemination
- 8 Best Paper Awards in 2004 and 2005, by the Best paper Sub-Committee of ICL Award Committee

- 9 2006 Varnes Medal and Report of IPL Award of Success Sub-Committee
- 10 Activity Reports and Plan of ICL Committees, by Coordinators of Committees
- 11 MoU between University of Florence and ICL for the European Centre of ICL and the exchange of signing, by Nicola Casagli & Kyoji Sassa

***Session 2 8:30-12:00 on 29 June***

- 1 Minutes of 4th BOR-Washington DC and 2006 1st STC meeting in Tokyo
- 2 Report of RTD in Tokyo and the 2006 Tokyo Action Plan, by the President
- 3 Global IPL, IPL Global Promotion Committee and IPL World Centre
- 4 Plan of the first World Landslide Forum

***Session 3: 13:30-15:30 on 29 June***

- 5 ICL Activity Report in 2005 and 2006, and Activity Plan in 2006 and 2007, by ICL Secretariat
- 6 ICL Financial Statement in 2005, Financial Situation in 2006, Budget Plan for 2007, by ICL Treasurer
- 7 Date and venue for ICL meetings in 2006 and 2007
- 8 Other business and Closing of Steering Committee

## 4. MoU between the University of Florence and ICL for the European Centre of ICL

At the end of the 2006 Second STC meeting of ICL in Springer-Verlag, Heidelberg, Germany, the exchange of signing on the MoU between ICL and the University of Florence for the European Centre of ICL was carried out.

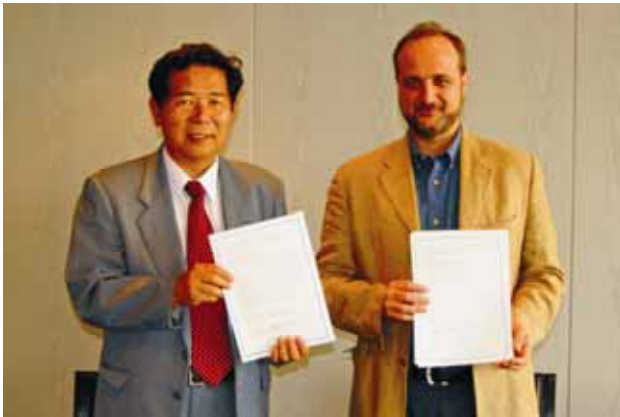


Fig.1 Exchange of the signing the MoU for the European Centre of ICL

The following is the contents of the MoU.

### **MEMORANDUM OF UNDERSTANDING BETWEEN INTERNATIONAL CONSORTIUM ON LANDSLIDES AND UNIVERSITY OF FLORENCE – EARTH SCIENCES DEPARTMENT**

The Earth Sciences Department of the University of Florence (hereinafter referred to as “UNIFI-ESD”) represented by its Director Prof. Nicola Casagli, domiciled in Via La Pira n.4 – 50121 Firenze, Italy

and

International Consortium on Landslides (hereinafter referred to as “ICL”), Kyoto, Japan, represented by its President Prof. Kyoji Sassa, domiciled in Kyoto, Japan,

Hereinafter referred as “the Parties”.

#### **Considering:**

- 1) the Statutes and Structure of the ICL (Appendix 1);
- 2) the Letter of Intent proposed by ICL and signed by the UN Organizations (UNESCO, WMO, FAO,

UN/ISDR, UNU) as well as international scientific organizations (ICSU, WFEO) concerning Strengthening Cooperation in Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within the Framework of the United Nations International Strategy for Disaster Reduction (ISDR) as regards ‘Landslides’ (Appendix 2);

- 3) the 2006 Tokyo Action Plan - Strengthening Research and Learning on Landslides and Related Earth System Disasters for Global Risk Preparedness, adopted on 20 January 2006 at the Round Table Discussion jointly organized by ICL, UNESCO, WMO, FAO, UN/ISDR, UNEP, UNU and Kyoto University (Appendix 3);
- 4) the Memorandum of Understanding for Academic Cooperation and Exchange between the UNIFI-ESD and Disaster Prevention Research Institute, Kyoto University (hereinafter referred to as “KU”) (Appendix 4);
- 5) the Executive Programme of Scientific and Technological Co-operation between the Government of Italy and the Government of Japan concerning the significant project “Landslide Risk Mitigation and Protection of Cultural and Natural Heritage Sites” (Appendix 5)

**have agreed as follows:**

**Article I:**

1. To establish the ‘European Centre’ of ICL (hereinafter referred to as “ECL”) as a non-permanent and non-legal entity within the UNIFI-ESD.
2. That the ECL:
  - a) may conduct fund raising activities from EU or other European funding agencies;
  - b) may use the raised fund for the management and the activities of the ECL, if this is compatible with the aims of the fund;
  - c) will contribute to the development of the ICL and the promotion of the International Programme on Landslide (IPL);
  - d) shall neither create its own regional members, nor collect regional membership fees;
  - e) may receive, directly or through ICL, donations from funding agencies and also call for “Supporters” which are defined in Statute of ICL (article VII);
  - f) may use the “Membership fees for Supporters” of ICL raised in the EU for the management and the activities of the European Centre.

**Article II: Implementation**

1. The responsible person for the implementation of this Memorandum of Understanding is nominated by the ICL President with the agreement of the Director of UNIFI-ESD.
2. The UNIFI-ESD will be responsible for the financial support, human and material resources, required to carry out specific activities within research projects on topics related to the ICL objectives; these activities are to be carried out after mutual consultation between the ECL and the ICL. Any expenses deriving from the implementation of this Memorandum of Understanding will

be paid by the UNIFI-ESD.

3. The European members of the ICL (Appendix 6) will automatically become members of the ECL.
4. The ICL Board of Representatives, as defined in the Statute (article VIII) of ICL, will have full power in the definition of ECL activity.
5. ECL, through the UNIFI-ESD, may apply for National and European funding for the implementation of the International Programme on Landslides (IPL).
6. Accounting and administration of the funds obtained by ECL will be carried out by UNIFI-ESD.

### **Article III: Entry into force and termination**

1. This general memorandum shall be effective upon signature by both parties and shall remain in force for a period of five years; within this period either party may terminate this memorandum, by giving six months notice in writing of such intent.
2. All disputes arising out of, or in connection with, the present memorandum or breach thereof, shall be settled primarily by mutual agreement. However if at the expiration of a six-month period starting from the date of the dispute arose, non amicable settlement has been made, this Memorandum shall be deemed to have terminated.
3. This memorandum is not intended to create for either party any obligation under international or domestic law.
4. The termination of this Memorandum shall not affect the validity or duration of projects that have been established under mutually approved terms of reference and initiated prior to such termination.
5. This memorandum is established in the Italian and English languages. In case of differences, the English version will be considered authentically.

## 5. DAVOS APPEAL: Integrated Strategy for Landslide Risk Reduction

The International Disaster Reduction Conference IDRC Davos 2006 was held on 27 August – 1 September 2006 at Davos, Switzerland. The Conference Chairman was Prof. Walter J. Ammann (Board Member of ICL, Swiss Federal Institute for Snow and Avalanche Research). In this conference, there were three sessions dealing landslides. They are: Landslide Risk Management Part 1, Landslide Risk Management Part 2, and Landslide risk reduction: integrated strategy for global action. The third session is an invited session chaired by European Centre of the International Consortium on Landslides (ECL). The main purpose of the invited session was to build a Pan-European integrated and coordinated strategy for the implementation of the 2006 Tokyo Action Plan, with the involvement of the European Commission and other European organizations. The following Davos Appeal was adopted as the outcome of this session.

### DAVOS APPEAL Integrated Strategy for Landslide Risk Reduction

Adopted at the Session on landslide risk reduction,  
International Disaster Reduction Conference, IDRC Davos, 30 August 2006

In the framework of the UN International Strategy for Disaster Reduction, the International Consortium on Landslides (ICL) supported by the main UN Organizations such as UNESCO, WMO, FAO, UN/ISDR, UNEP and UNU, launched the **2006 Tokyo Action Plan** to be implemented as a part of the Hyogo Framework for Action 2005-2015 "Building the Resilience of Nations and Communities to Disasters" declared at the United Nations World Conference on Disaster Reduction in Kobe 2005.

A Session on landslide risk reduction was held at the International Disaster Reduction Conference (IDRC) in Davos on 30 August 2006 for the implementation of the Action Plan in Europe, enhancing and promoting a common standard approach to landslide risk reduction and building upon existing European initiatives.

The participants of the Session recommend that global cooperation in landslide risk reduction is addressed through a global multidisciplinary **International Programme on Landslides (IPL)** and shall be implemented by the following actions.

- 1. Establishment of the IPL Framework:** The IPL Global Promotion Committee has been established by the ICL and its supporting organizations (such as UNESCO, WMO, FAO, UN/ISDR, United



Nations University). The IPL World Centre was also established in Kyoto Japan to coordinate and support implementation of the IPL and to work as secretariat of the Committee.

- 2. Promotion of the Global Cooperating Fields of the IPL:** Four major fields were identified; Technology Development (Monitoring and early warning, Hazard mapping, vulnerability and risk assessment); Mechanisms and impacts of catastrophic landslides and landslides threatening cultural and natural heritage sites; Capacity Building (Enhancing human and institutional capacities, Collating and disseminating information/knowledge); Mitigation, preparedness and recovery.
  
- 3. Promotional Activities:** The First World Landslide Forum will be organized on 18-21 November 2008 at the United Nations University in Tokyo; Identification and promotion of World Centers of Excellence (WCoE) on Landslide Risk Reduction; Contributions to Global landslide issues such as the 2006 Leyte landslide in Philippines, the Machu Picchu World Heritage and other sites at high risk in developing countries; the partnership with other global initiatives, such as the International Hydrological Programme (IHP), International Geoscience Programme (IGCP), Mountain Partnership, International Year of Planet Earth, Global Earth Observation System of Systems (GEOSS), International Global Observing Strategy (IGOS), Global Monitoring for Environment and Security (GMES) and 7<sup>th</sup> Framework Program of European Commission.

An European Centre of ICL has been established in Florence, Italy, in order to promote and to support IPL in Europe. Through the European Centre, ICL intends to participate to the major research and technological development programmes in Europe, contributing to the implementation of the 2006 Tokyo Action Plan.

Within this global framework, the European strategy will be focused on the harmonization of data collection and processing tools, research on landslide mechanisms, earth observation requirements, interoperability of information systems, enhancement of monitoring and early warning capability, improvement of risk assessment methods and procedures, and support to disaster reduction policies.

The promotion of other regional centres and strategies will be furthered.

Related information is available from: Web site: <http://ICL.dpri.kyoto-u.ac.jp>.

## 6. MoUs between ICL and Global Stakeholders to Promote the 2006 Tokyo Action Plan

ICL has exchanged the Memorandum of Understanding to promote the 2006 Tokyo Action Plan with global stakeholders related to landslides. The United Nations Secretariat for International Strategy for Disaster Risk Reduction (UN/ISDR) and the United Nations University (UNU) already exchanged the MoUs as introduced in ICL Newsletter No.8. Thereafter, ICL exchanged MoUs with WMO, WFEO, and UNESCO as follows.

### 6.1 MoU between WMO and ICL

To promote implementation of the 2006 Tokyo Action Plan, the World Meteorological Organization (WMO) and the International Consortium on Landslides (ICL) exchanged the Memorandum of Understanding concerning Strengthening Cooperation in Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within the Framework of the United Nations International Strategy For Disaster Reduction – as Regards “Landslides”.

<p style="text-align: center;"><b>MEMORANDUM OF UNDERSTANDING</b> <b>BETWEEN</b> <b>THE WORLD METEOROLOGICAL ORGANIZATION</b> <b>AND</b> <b>THE INTERNATIONAL CONSORTIUM ON LANDSLIDES</b></p> <p>The World Meteorological Organization (hereinafter referred to as "WMO"), Geneva, Switzerland, represented by its Secretary-General, Mr. Michel Jarraud, and The International Consortium on Landslides (hereinafter referred to as "ICL"), Kyoto, Japan, represented by its President, Mr. Kyoji Kasai, Hereinafter referred to as the Parties</p> <p><b>Referring</b> to the Letter of Intent, proposed on 19 January 2005 during the United Nations World Conference on Disaster Reduction (WCDR), Thematic Session 3.E: New International Initiatives for Research and Risk Mitigation of Floods (FF) and Landslides (FL), and approved and signed by each party,</p> <p>Wish "strengthening research and learning on 'Earth System Risk Analysis and Sustainable Disaster Management' within the framework of the 'United Nations International Strategy for Disaster Reduction' (UNISDR)",</p> <p>which propose the establishment of specific goal-oriented Memoranda of Understanding (MoUs) between international stakeholders targeting Disaster Risk Reduction, focusing on landslide risk reduction, and other related natural hazards;</p> <p><b>Referring further</b> to the 2006 Tokyo Action Plan - Strengthening research and learning on global risk preparedness for landslides and related earth system disasters, which was signed in the Round Table Discussion held at the United Nations University on 18-20 January 2006;</p> <p><b>Recognizing</b> that UNISDR is the international system for the disaster risk reduction which ensures effective international promotion, coordination and guidance for disaster risk reduction. UNISDR system includes the Global Platform for Disaster Risk Reduction (to be enhanced and renewed from the Inter-Agency Task Force on Disaster Reduction), which is responsible for addressing gaps, providing guidance and coherent support to ensure the disaster reduction agenda forward globally. UNISDR system also includes an ongoing initiative with various partners called "Information Platform on Disaster Risk Reduction" for awareness raising, information and good practice sharing, and promotion of global knowledge.</p> <p><b>Recognizing further</b> the current developments and activities related to international cooperation in the field of landslides, including the:</p> <ul style="list-style-type: none"> <li>• Establishment of the ICL as an international non-governmental and non-profit scientific organization promoting landslide research and capacity building for the benefit of society and the environment in 2002,</li> <li>• Memorandum of Understanding concerning cooperation for the promotion of activities of meteorology, hydrology and landslide for the safety of human life and property, protection of the environment, sustainable economic and social development, and</li> </ul>	<p>education and training in relevant fields agreed upon by WMO and ICL in 2002,</p> <ul style="list-style-type: none"> <li>• Initiation of the International Programme on Landslides (IPL) of the ICL, contributing to the International Strategy for Disaster Reduction also in 2002, and</li> <li>• Establishment of the Research Centre on Landslides (RCL) within UNISDR to promote ICL, IPL, and contribute as its secretariat in 2007,</li> </ul> <p><b>Highlighting</b> that one of the essential factors favouring sustainable disaster management around the world is the exchange of experience and knowledge between developing and developed countries;</p> <p><b>Understanding</b> that any discussion about global sustainable development without addressing the issue of Disaster Risk Reduction, including landslides, is incomplete.</p> <p><b>Acknowledging</b> that risk prevention policies including warning systems related to natural hazards like landslides must be improved or established;</p> <p><b>Underlining</b> that disasters affect poor people and developing countries disproportionately;</p> <p><b>Recognizing</b> that after years of under-investment in preventive scientific, technical and communication/infrastructure activities it is time to change course and develop all activities needed to better understand natural hazards and to reduce the vulnerability/susceptibility of developing countries to natural hazards;</p> <p><b>Committing</b> that the sharing of scientific knowledge for landslide risk reduction is a primary goal of the two Parties in this MoU;</p> <p><b>Recognizing in addition</b> that the mission and the objective of this Memorandum are to promote inter-agency cooperation on an international scale and foster rapid transfer of knowledge through networking and well-coordinated collaboration; and</p> <p><b>Understanding</b> that the two Parties wish to contribute to a world scale flow landslides, and all related hazards through the 2006 Tokyo Action Plan, that shall be in harmony with the Hyogo Framework for Action 2005-2015, adopted at WCDR;</p> <p><b>Wishing</b> to pursue scientific and technical cooperation in the field of landslide disaster risk reduction in order to:</p> <p>Promote the establishment of an international network engaged in research and learning on landslides as crucial contribution for earth system risk analysis and sustainable disaster management; and</p>
<p>Mobilize resources necessary for the initiatives and activities under this MoU by exploring funding through the international organizations network;</p> <p><b>have agreed as follows:</b></p> <p><b>Article I. Objective</b> Areas of cooperation shall include:</p> <ol style="list-style-type: none"> <li>1. <b>Promote</b> landslide research for the benefit of society and the environment, learning and capacity building in landslide risk reduction notably in developing countries;</li> <li>2. <b>Integrate</b> atmospheric sciences, earth sciences, water sciences, geophysical and geotechnical sciences, technology and disaster management within the appropriate cultural and social contexts in order to evaluate landslide risk in urban and rural areas including cultural and natural heritage sites, as well as contribute to the protection of the human and natural environment, including lifelines and buildings of high societal value;</li> </ol> <p><b>Article II. Areas of Cooperation.</b> <b>Promote</b> some or all of the global cooperation fields that have been agreed in 2006 Tokyo Action Plan listed below:</p> <ol style="list-style-type: none"> <li>(1) <b>Technology Development</b> <ol style="list-style-type: none"> <li>A. Monitoring and Early Warning</li> <li>B. Hazard Mapping, Vulnerability and Risk Assessment</li> </ol> </li> <li>(2) <b>Targeted Landslides: Mechanisms and Impacts</b> <ol style="list-style-type: none"> <li>A. Catastrophic landslides</li> <li>B. Landslides threatening heritage sites</li> </ol> </li> <li>(3) <b>Capacity Building</b> <ol style="list-style-type: none"> <li>A. Enhancing Human and Institutional Capacities</li> <li>B. Collecting and Disseminating Information/Knowledge</li> </ol> </li> <li>(4) <b>Mitigation, Preparedness and Recovery</b> <ol style="list-style-type: none"> <li>A. Preparedness</li> <li>B. Mitigation</li> <li>C. Recovery</li> </ol> </li> </ol> <p><b>Article III. Implementation</b></p> <ol style="list-style-type: none"> <li>1. Cooperative activities under this MoU shall be subject to and dependent upon the financial support and human resources available to each of the two Parties, that shall work together to secure the funding needed to meet specific objectives.</li> <li>2. Each Party shall designate a focal point for this MoU.</li> <li>3. The RCL, referred to above under the fourth paragraph shall serve as the coordinating entity which will ensure the follow-up and</li> </ol>	<p>implementation of this MoU as well as coordinating its activities with those of other international partners signatories of the Letter of Intent referred to above under the first paragraph.</p> <p><b>Article IV. Exchange of information</b> The information and data exchange between the two parties shall be non-proprietary. In the unlikely event of any change in the status of information or data, the parties shall immediately consult with each other concerning this change.</p> <p><b>Article V. Dispute</b> All disputes arising out of, or in connection with the present Memorandum or branch thereof, shall be settled primarily by mutual agreement. However, if at the expiration of a six-month period starting from the date of the dispute arose, no amicable settlement has been made, this Memorandum shall be deemed to have terminated.</p> <p><b>Article VI. Obligations</b> This Memorandum is not intended to create for either party any obligation under international or domestic law.</p> <p><b>Article VII. Status of the Parties</b> Neither party shall be considered to be an agent or representative of the other party, neither party shall be authorized to use the other party's emblem or logo, nor shall either party declare or imply that it has an officially recognized affiliation or status with regard to the other party.</p> <p><b>Article VIII. Entry into force and termination</b> The Memorandum shall enter into force upon signature by the two parties and remain in force until the year 2015. It may be modified or extended by written agreement and may be terminated at any time by at least ninety (90) days written notification by one party to the other parties. The termination of this Memorandum shall not affect the validity or duration of projects that have been established under mutually approved terms of reference and initiated prior to such termination.</p>
<p><i>[Signature]</i> Mr. Michel Jarraud Secretary-General World Meteorological Organization</p> <p>30 June 2006 Date</p>	<p><i>[Signature]</i> Mr. Kyoji Kasai President International Consortium on Landslides</p> <p>29 July 2006 Date</p>

WMO-ICL MoU Document

## 6.2 MoU between WFEO and ICL

To promote implementation of the 2006 Tokyo Action Plan, the World Federation of Engineering Organizations (WFEO) and the International Consortium on Landslides exchanged the Memorandum of Understanding concerning Strengthening Cooperation in Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within the Framework of the United Nations International Strategy For Disaster Reduction – as Regards “Landslides”.

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
THE WORLD FEDERATION OF ENGINEERING ORGANIZATIONS  
AND  
THE INTERNATIONAL CONSORTIUM ON LANDSLIDES  
CONCERNING STRENGTHENING COOPERATION IN RESEARCH AND LEARNING ON  
EARTH SYSTEM RISK ANALYSIS AND SUSTAINABLE DISASTER MANAGEMENT WITHIN  
THE FRAMEWORK OF THE UNITED NATIONS INTERNATIONAL STRATEGY FOR  
DISASTER REDUCTION REGARDING THE IMPLEMENTATION OF THE 2006 TOKYO  
ACTION PLAN ON LANDSLIDES**

The World Federation of Engineering Organizations (hereinafter referred to as “WFEO”), Paris, France, represented by its President, Mr. Kamel Ayadi,  
and  
The International Consortium on Landslides (hereinafter referred to as “ICL”), Kyoto, Japan, represented by its President, Mr. Kyoji Sassa,

hereinafter referred to as “the Parties”,

Referring to the Letter of Intent entitled “Strengthening research and learning on Earth System Risk Analysis and Sustainable Disaster Management” within the framework of the United Nations International Strategy For Disaster Reduction (UN/ISDR), which was proposed on 19 January 2005 during the United Nations World Conference on Disaster Reduction (WCDR), Thematic Session 3.E: New International Initiatives for Research and Risk Mitigation of Floods (IF) and Landslides (IFL), and signed by the Parties, and which proposes the establishment of specific, goal-oriented Memoranda of Understanding (MoUs) between international stakeholders targeting disaster risk reduction, focusing on landslide risk reduction, and other related natural hazards;

Referring further to the 2006 Tokyo Action Plan on “Strengthening Research and Learning on Landslides and Related Earth System Disasters for Global Risk Preparedness”, which was agreed in the Round Table Discussion held at the United Nations University from 18 to 20 January 2006;

Recalling that UN/ISDR is the international system for disaster risk reduction which ensures effective international promotion, coordination and guidance; that the UN/ISDR system includes the Global Platform for Disaster Reduction, which is responsible for addressing gaps, providing guidance and coherent support to move the disaster reduction agenda forward globally; that UN/ISDR system also includes an ongoing initiative with various partners called the Information Platform on Disaster Risk Reduction for awareness-raising, information and good practice sharing, and promotion of global knowledge;

Recalling further the current development and activities related to international cooperation in the field of landslides, including:

promote the establishment of an international network engaged in research and learning on landslides as crucial contribution for earth system risk analysis and sustainable disaster management;

and mobilize resources necessary for the initiatives and activities under this MoU by exploring funding through the network of international organizations;

have agreed as follows:

**Article I: Areas of Cooperation**

WFEO and ICL shall cooperate in the following areas:

- (1) the promotion of landslide research for the benefit of society and the environment, learning and capacity-building in landslide risk reduction, notably in developing countries;
- (2) the integration of earth sciences, water sciences, geophysical and geotechnical sciences, technology and disaster management within the appropriate cultural and social contexts in order to evaluate landslide risk in urban and rural areas, including cultural and natural heritage sites, as well as to contribute to the protection of the human and natural environment, including lifelines and buildings of high societal value;
- (3) the promotion of some or all of the global cooperation fields that have been agreed in 2006 Tokyo Action Plan listed below:
  - (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

**Article II: Implementation**

Cooperative activities under this MoU shall be subject to a separate agreement and are dependent upon the financial support and human resources available to each of the Parties, which shall work together to secure the funding needed to meet specific objectives. Each Party shall designate a focal point for this MoU.

the Memorandum of Understanding concerning cooperation in research for landslide risk mitigation and protection of the cultural and natural heritage agreed by UNESCO and the Disaster Prevention Research Institute, Kyoto University (DPR/KU), in 1999;

the establishment of the ICL in 2002 as an international non-governmental and non-profit scientific organization promoting landslide research and capacity-building for the benefit of society and the environment;

the initiation of the International Programme on Landslides (IPL) of ICL contributing to the ISDR, also in 2002;

the establishment of the Research Centre on Landslides (RCL) within DPR/KU to promote ICL, IPL and contribute as its secretariat in 2003;

and the construction of the headquarters building of the UNESCO/ICL/UNITWIN cooperation programme on landslide risk mitigation for society and the environment within RCL in 2004, containing the IPL secretariat;

Highlighting that one of the essential factors favouring sustainable disaster management around the world is the exchange of experience and knowledge between developing and developed countries;

Understanding that any discussion about global sustainable development without addressing the issue of disaster risk reduction, including landslides, is incomplete;

Acknowledging that risk prevention policies, including warning systems related to natural hazards like landslides, must be established or improved;

Underlining that disasters affect poor people and developing countries in particular;

Stressing that, after years of underinvestment in preventive scientific, technical and communication infrastructure activities, it is time to change course and develop all activities needed to understand better natural hazards and reduce the vulnerability of developing countries notably to natural hazards;

Considering that the sharing of scientific and cultural knowledge for landslide risk reduction is a primary goal of the Parties in this MoU;

Being in mind that the mission and the objectives of this MoU are to promote inter-agency cooperations on an international scale and foster rapid transfer of knowledge through networking and well-coordinated collaborations; and

Understanding that the Parties wish to contribute to a world safer from landslides and all related hazards through the 2006 Tokyo Action Plan, which shall be in harmony with the Hyogo Framework for Action 2005-2015, adopted at WCDR;

Wishing to pursue scientific and technical cooperation in the field of landslide disaster risk reduction in order to:

2

The RCL referred to above under the fourth paragraph of the preamble shall serve as the coordinating entity which will ensure the follow-up and implementation of this MoU as well as coordinating its activities with those of other international partners signatories of the Letter of Intent referred to above under the first paragraph of the preamble.

**Article III: Exchange of information**

The information and data exchange in the context of this MoU between the Parties shall be non-proprietary. In the unlikely event of any change in the status of information or data, the Parties shall immediately consult with each other concerning this change.

**Article IV: Disputes**

All disputes arising out of, or in connection with the present MoU or breach thereof, shall be settled primarily by mutual agreement. However, if at the expiration of a six-month period starting from the date of the beginning of the dispute no amicable settlement has been made, this MoU shall be deemed to have terminated.

**Article V: Status of the Parties**

Neither party shall be considered to be an agent or representative of the other party; neither party shall use the other party's name or logo without its prior written consent, nor shall either party declare or imply that it has an officially recognized affiliation or status with regard to the other party.

**Article VI: Entry into force and termination**

The MoU shall enter into force upon signature by the Parties and remain in force until 31 December 2015. It may be modified or extended by written agreement. It may be terminated at any time with at least ninety (90) days written notification by one party to the other party. The termination of this MoU shall not affect the validity or duration of projects that have been established under mutually approved terms of reference and initiated prior to such termination.

  
Mr. Kamel Ayadi  
President  
World Federation of Engineering  
Organizations

  
Mr. Kyoji Sassa  
President  
International Consortium on Landslides

10 July 2006  
Date

4 July 2006  
Date

3

4

### 6.3 MoU between UNESCO and ICL

To promote implementation of the 2006 Tokyo Action Plan, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Consortium on Landslides exchanged the Memorandum of Understanding concerning Strengthening Cooperation in Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within the Framework of the United Nations International Strategy For Disaster Reduction – as Regards “Landslides”.

The signing ceremony was held in Tokyo, Japan on 22 August 2006. General-Director of UNESCO Mr. Koïchiro Matsuura and ICL President Prof. Kyoji Sassa signed the MoU (Fig.1). Fig. 2 presents the established MoU between UNESCO and ICL.

Hans van GINKEL (UNU-Rector), Shuzo NISHIMURA (Kyoto University-Vice President), Badaoui ROUHBAN (UNESCO-Disaster Reduction Section Chief), Satoru NISHIKAWA (Cabinet Office of Japan-Director of Disaster Preparedness), Kaoru TAKARA (DPRI-KU, ICL-Executive Director), Srikantha HERATH (UNU-Programme officer), Hiroshi FUKUOKA (DPRI-KU, ICL-Treasurer) and representatives from Ministry of Foreign Affairs, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Ministry of Agriculture, Forestry and Fisheries (MAFF), and Ministry of Land Infrastructure and Transport (MLIT) of the Government of Japan attended the ceremony.



Fig.1 Exchange of Memorandum of Understanding between UNESCO and ICL to promote the 2006 Tokyo Action Plan on 22 August 2006 in Tokyo, Japan



Fig. 2 UNESCO-ICL MoU document

## 7. Varnes Medal for 2006

ICL Award Committee, coordinated by Prof. Paolo CANUTI (University of Firenze, Italy), decided to bestow the ICL Varnes Medal in 2006 to Prof. Norbert R. Morgenstern (Department of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada).

Professor Morgenstern is a world renowned and respected geotechnical engineer who specializes in all aspects related to slope instability and landslide hazard study, analysis and mitigation. He has been an active professional with a career extending back over 50 years. His successful application of engineering and geotechnical knowledge to the study of landslide issues has had profound impact around the world. His graduate students in the dozens and his professional contacts are global.

The following is Professor Morgenstern's personal resume on education and experience.

### Education

B.A.Sc.	(Civil Engineering)	University of Toronto	1956
D.I.C.	(Soil Mechanics)	Imperial College of Science and Technology	1964
Ph.D.	(Soil Mechanics)	University of London	1964
D.Eng.	(h.c.)	University of Toronto	1983
D.Sc.	(h.c.)	Queen's University	1989

### Experience

1956	Geocon Ltd.
1957-1958	Graduate Studies, Imperial College of Science and Technology
1958-1960	Research Assistant, Imperial College of Science and Technology
1960-1968	Lecturer in Civil Engineering, Imperial College of Science and Technology
1968-1983	Professor of Civil Engineering, University of Alberta
1983-1999	University Professor of Civil Engineering, University of Alberta
1999-present	University Professor (Emeritus) of Civil Engineering, University of Alberta
1994-1997	Chair, Dept. of Civil and Environmental Engineering, University of Alberta
1961-present	Advisor to consulting engineers and public agencies on a variety of problems in Engineering Earth Sciences.

## **8. The “Best Paper Award” in Vol.2 of “Landslides”**

### **Nomination Citation for the Best Paper Award, *Landslides*, Volume 2, 2005**

By R.L. Schuster, April 5, 2006

The Award for Best Paper for *Landslides*, Volume 2, 2005, goes to Rex L. Baum et al., U.S. Geological Survey, for their excellent paper, “Regional landslide-hazard assessment for Seattle, Washington, USA.” This paper presents an outstanding example of landslide-hazard assessment for a large urban area. Landslides occurring on hillsides and bluffs of Seattle and other communities in the Puget Sound region of the State of Washington pose a significant hazard to people, public and private property, businesses, lifelines, and utilities. Landslides occur almost every year during the winter wet season, which usually lasts from October through April. Shallow rainfall-triggered earth slides are the most common types of landslides in the Seattle area; many of these slides transform into debris flows that cause significant damage. During the winters of 1995-96 and 1996-97, hundreds of landslides occurred in the Puget Sound area causing major damage to public and private property and killing four people.

Although most urban communities in the Seattle and Puget Sound area regulate development of steep hillsides, losses continue to mount because (1) population growth continues to exert pressure to develop in landslide-prone areas, (2) new or previously unidentified landslides have damaged structures that were built in unstable areas before regulations existed, and (3) increased erosion and consequent downcutting caused by urban runoff have locally reduced stability. The 1996-97 activity stimulated interest by Puget Sound communities in identifying landslide-prone areas and taking actions to reduce future losses due to landslides. This led to informal partnerships between the U.S. Geological Survey, the City of Seattle, and private consultants that focus on identifying and mapping landslide-hazard areas as well characterizing temporal aspects of the hazard. The authors have developed GIS-based methods to map the probability of landslide occurrence, empirical rainfall thresholds, and physically based methods to forecast times of landslide occurrence. Their methods for mapping landslide-hazard zones incorporate field studies and physically based models to assess relative slope stability, including the effects of material properties, seasonal groundwater levels, and rainfall infiltration. Appropriate uses of the maps include planning for development or redevelopment of hillside properties, municipal facility planning and prioritization, and storm preparedness programs for emergency access and response.

**Citation Response by R.L. Baum, J.A. Coe, J.W. Godt, E.L. Harp, M.E. Reid, W.Z. Savage, W.H. Schulz, D.L. Brien, A.F. Chleborad, J.P. Mckenna, and J.A. Michael**

April 25, 2006

Dear chairman, colleagues, ladies and gentlemen,

We are pleased, humbled, and honored that our paper, "Regional landslide-hazard assessment for Seattle, Washington, USA," has been selected to receive the "Best Paper Award" from among the many fine papers that appeared in the journal *Landslides* during 2005. We wish to thank the International Consortium on Landslides and the Award Committee for considering our paper for this important recognition.

The paper provides an overview of the results of a multi-year effort to develop and test various methods of landslide hazard assessment that can be applied in landslide-prone urban areas. The work was made possible by generous funding from the Landslide Hazards Program of the U.S. Geological Survey, cooperation of various departments within Seattle's city government, and collaboration with other government agencies at all levels, as well as, cooperation of various partners in the private sector.

A remarkable sequence of events led up to the inception of this work. About 1996, the USGS began an urban multi-hazards project for the Puget Sound area of Washington State. The focus was primarily on earthquake, volcano, and flood hazards. Then, landslide hazards came to the forefront after disastrous landslides in January and March 1997 caused much property damage in communities around Puget Sound and the tragic deaths of the Herren family, who were buried by a shallow, rapid landslide as they slept in the basement of their home on the shore of Bainbridge Island, a short distance across Puget Sound from Seattle. Landslide mitigation in Seattle and neighboring communities became a major priority and a landslide component was added to the USGS urban multi-hazards project. Then, in 1998, the Federal Emergency Management Agency launched Project Impact, in an effort to help cities become more resistant to disasters. Seattle was named in February 1998 as one of the first cities to participate in Project Impact, and was given a grant to begin mitigation efforts with other partners from the private and public sectors. The Seattle Project Impact Council recommended that the city partner with the USGS to develop earthquake and landslide hazard maps for use in planning and mitigation efforts. Seattle and the USGS entered a memorandum of agreement to cooperate on development of the maps.

Many people in departments of the City of Seattle were very helpful in obtaining data needed to complete the project. Ken Conradi of the GIS group within the Seattle Department of Public Utilities provided access to some of the necessary GIS coverages. Cheryl Paston, Bill Benzer, and others in Seattle's Landslide Program provided much valuable assistance, access to files of historical landslide data, and input on how our results could be made most useful to the city. Hirod Gill provided access to the hourly rainfall records from the city's rain-gauge network. We salute the many people in various city departments who had the wisdom and foresight over the years to save records of landslides affecting city infrastructure and private property. Their collective efforts over a century made possible a landslide database containing approximately 1400 landslides that have occurred within the city limits. Bill Laprade and his colleagues at Shannon & Wilson, Inc., under contract to the city, made an excellent compilation of these records into the Seattle Landslide Database, which was invaluable in our research. Ines Pearce, Seattle Project Impact Coordinator, gave enthusiastic support throughout the project and helped form links between us scientists and the end users of our maps.

Craig Weaver of the USGS Earthquake Hazards Program tirelessly promoted cooperation between the USGS and many other partners, which resulted, among other things, in the establishment of the Puget Sound LIDAR Consortium. The consortium succeeded in obtaining the high-quality, high-resolution



topographic data of Seattle and neighboring areas. These data, which have multiple uses, formed the topographic framework upon which our analyses were performed and our landslide maps were built. Other USGS colleagues provided support, encouragement, review and thoughtful discussion throughout the project.

Kathy Troost, Derek Booth, and their colleagues at the University of Washington have done a superb job of compiling a detailed geologic map and geotechnical database of Seattle. Their diligent efforts and careful attention to detail resulted in high-quality input for our models that strongly influenced the results of our analyses to produce landslide-hazard and susceptibility maps of Seattle.

Many others contributed to the success of the project, as well. Landslide monitoring in cooperation with the Landau Associates, the Burlington Northern Santa Fe Railway, Shannon & Wilson, Inc., the Washington Department of Transportation, and Dominican Reflection Center of Woodway, Washington, contributed to understanding of processes affecting slope stability of the Seattle area. Thesis projects by students under the supervision of Jerry Higgins at the Colorado School of Mines also contributed to the effort.

Last but not least, we wish to acknowledge our families for their love and support throughout the project and the administrative staff at the USGS for attention to all the details needed to make a project of this size run smoothly.

Thank you all very much!



May, 2006 meeting with the City of Seattle, Washington, USGS, the Univ. of Washington, Geotechnical Consultants, and the Seattle press for the official presentation of FEMA Project Impact/USGS Seattle-area landslide hazard research products

(From left to right are, Paula Gori, Ed Harp, Rex Baum, Jeff Coe, Jonathan Godt, Mark Reid, and Bill Schulz and Lynn Highland.)

## 9. Plan of the First World Landslide Forum

According to the 2006 Tokyo Action Plan, the First World Landslide Forum is being organized. The launching ceremony of the organization Committee of the First World Landslide Forum was held in Tokyo on 22 August 2006 soon after the signing ceremony of Memorandum of Understanding between UNESCO Director-General Koïchiro Matsuura and ICL President Kyoji Sassa.



Participants of the launching ceremony were Koïchiro MATUURA (UNESCO-DG), Hans van GINKEL (UNU-Rector), Shuzo NISHIMURA (Kyoto University-Vice President), Kyoji SASSA (ICL-President), Badaoui ROUHBAN (UNESCO-Disaster Reduction Section Chief), Satoru NISHIKAWA (Cabinet Office of Japan-Director of Disaster Preparedness), Michiko MIYANO (Ministry of Foreign Affairs), Keiji TAKENAWA, Koichi ABE and Tetusto MINAMAI (Ministry of Education, Culture, Sports, Science and Technology (MEXT)), Shiro UENO (Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF)), Haruo NISHIMOTO (Ministry of Land Infrastructure and Transport, Japan (MLIT)), Kaoru TAKARA (DPRI-KU, ICL-Executive Director), Srikantha HERATH (UNU-Programme officer), Hiroshi FUKUOKA (DPRI-KU, ICL-Treasurer) and others. UNESCO issued the information on this signature of MoU and the ceremony over the world in its Flash Info No.128 of 2006. It was shown in the next page.

***Flash info n128-2006***

*UNESCO, 1 September 2006*

*UNESCO and the International Consortium on Landslides sign cooperation agreement*

*On 22 August 2006, KoEhiro Matsuura, Director-General of UNESCO signed with Professor Kyoji Sassa, President of the International Consortium on Landslides (ICL) a Memorandum of Understanding (MoU) on cooperation between UNESCO and ICL in Tokyo, Japan.*

*The MoU is a step towards the implementation of the 2006 Tokyo Action Plan on Landslide Disasters, which was adopted during the 2006 Tokyo Round Table Discussion on Landslides. The MoU will serve as a framework for cooperation between UNESCO and the ICL with a focus on areas to reduce landslide risk worldwide.*

*The signing of the MoU was followed by the launching ceremony of the Organizing Committee of the World Landslide Forum, which is scheduled to take place in November 2008. In his remarks the Director-General stressed the necessity to mobilize scientific knowledge and technological know-how to assess natural hazards and to strengthen disaster mitigation measures.*

*The ICL is an international non-governmental and non-profit scientific organization promoting landslide research and capacity building, and integrating landslide sciences and technology within the appropriate cultural and social contexts. It also coordinates international expertise in landslide risk assessment and mitigation studies and promotes a global, multidisciplinary programme on landslides. Created in 2002 with the support and encouragement of UNESCO, its membership includes national organizations as well as NGOs and United Nations entities. The secretariat of ICL is based in Kyoto University, Japan.*

*Landslides rank high among natural disasters, especially in developing countries, where pressure on land resources often leads to slope cultivation and agriculture which render them prone to landslide disasters. Recent trends, including increased rainfall intensity and frequency, have drastically amplified landslide-associated casualties.*

***Contact: [m.de-pierrebourg@unesco.org](mailto:m.de-pierrebourg@unesco.org) - Telephone: 00 33 (1) 45 68 13 26 - Fax: 00 33 (1) 45 68***

***55 66***

# **The First World Landslide Forum**

(as of 2006.10.10)

## **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), United Nations Development Programme (UNDP), World Bank(WB), International Council for Science (ICSU), World Federation of Engineering Organizations (WFEO), Kyoto University (KU).

(\* The present list of members is attached in the last page)

### **Cosponsors (TENTATIVE)**

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), Japanese Meteorological Agency (JMA), Japan International Cooperation Agency (JICA), Science Council of Japan (SCJ), Ministry of Foreign Affairs, Italy, Italian Civil Protection Department (Presidency of the Council of Ministers), National Emergency Management Agency of Korea (NEMA), Ministry of Environment of the Slovak Republic, Ministry of Environment of the Czech Republic, International Union of Geological Sciences (IUGS), International Union of Geodesy and Geophysics (IUGG), Academy of Forest, Wood and Environment, Japan (AFWE), Japan Landslide Society (JLS), and others.

### **International Organizing Committee**

#### **Honorary Chairpersons**

Salvano BRICENO (Director of UN/ISDR)  
Jacques DIOUF (Director-General of FAO)  
Hans van GINKEL (Rector of UNU)  
Michel JARRAUD (Secretary-General of WMO)  
Koichiro MATSUURA (Director-General of UNESCO)  
Shuzo NISHIMURA (Executive Vice President of Kyoto University)  
(Heads of other Organizers to be identified)

### **Chairpersons**

Edward BROMHEAD (University of London, Kings College London)  
Paolo CANUTI (European Centre of ICL, University of Florence,)  
Srikantha HERATH (Senior Academic Programme Officer of UNU)  
Yoshiaki KAWATA (Director of Disaster Prevention Research Institute of Kyoto University (DPRI/KU))  
Badaoui ROUHBAN (Chief, Section for Disaster Reduction of UNESCO)  
Kyoji SASSA (President of ICL, IPL World Centre) \*  
Robert SCHUSTER (U.S. Geological Survey)  
(\* Representative Chairperson. Other chairpersons to be identified.)

### **Members**

Robert F. ADLER (Senior Scientist of the Goddard Space Flight Center of National Aeronautics and Space Administration (NASA), USA)  
Peter BOBROWSKY (Secretary General of International Union of Geological Sciences (IUGS), Canada)  
See Sew GUE (World Federation of Engineering Organizations (WFEO), Institution of Engineers, Malaysia)  
Alik ISMAIL-ZADEH (Chair of the Commission on Geophysical Risk and Sustainability of International Union of Geodesy and Geophysics (IUGG), Germany/Russia)  
Suzanne LACASSE (Managing Director of Norwegian Geotechnical Institute, Norway)  
Peter LYTTLE (Coordinator of the Landslide Hazard Programme of U.S. Geological Survey)  
Yueping YIN (Director of Department of Environmental Geology, Chinese Geological Survey, China)  
Others to be identified.

## **Local Organizing Committee (TENTATIVE)**

### **Executive Subcommittee**

**Chairperson:** Kaoru TAKARA (Executive Director of ICL, Deputy Director of DPRI/KU)

### **Deputy Chairpersons:**

Libor JANSKY (Senior Academic Programme Officer of UNU)  
Hirotaka OCHIAI (ICL Board Member, Section Head of Forestry and Forest Product Research Institute)

**Secretary General:** Hiroshi FUKUOKA (Treasurer of ICL, Assoc. Prof. of Research Centre on Landslides, DPRI-KU)

**Members:** to be identified.

### **Advisory Subcommittee**

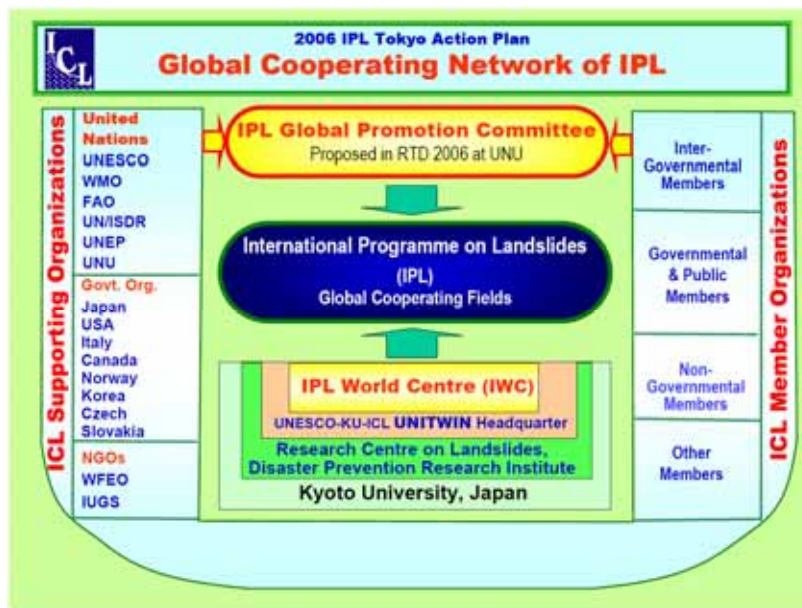
Persons from Cabinet office of Japan (CAO), Ministry of Foreign Affairs, Japan (MOFA), Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT), Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF), Ministry of Land Infrastructure and Transport, Japan (MLIT), Japanese Meteorological Agency (JMA), Japan International Cooperation Agency (JICA)

Scientific advisors to be identified.

## Background and Objectives of the First World Landslide Forum

In January 2006, the 2006 Tokyo Action Plan on the International Programme on Landslides (IPL) was adopted by the international community. It proposed the global cooperating Network of the IPL, and established the IPL Global Promotion Committee and the IPL World Centre as its secretariat to coordinate and support implementation of the global cooperating fields of the IPL.

The adoption of the 2006 Tokyo Action Plan took place on the occasion of the 2006 Tokyo 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) which was held at the United Nations University, Tokyo, from 18<sup>th</sup> to 20<sup>th</sup> January, 2006, to formulate a framework for cooperation and to identify focus areas to reduce landslide risk worldwide. It was further agreed that the 2006 Tokyo Action Plan would be implemented 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.



The Action Plan proposed organizing a World Landslide Forum in order to bring together academics, practitioners, politicians, and other stakeholders to a global, multidisciplinary, problem-focused platform.

This bulletin describes the organization of the First Landslides Forum that will take place at United Nations University, Tokyo, Japan from 18-21 November 2008.

The objectives of the First Landslides Forum (1 WLF) are the following:

## **1. Promotion of research and exchange of experience through open Forums, Symposia and Workshops**

Various meetings to strengthen Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within UN-ISDR as Regards “Landslides” will be organized by all levels of participating groups. Rooms and time span will be allocated to promote those activities.

## **2. Advances and achievements of IPL**

Proposals and reports on IPL projects will be presented for the planned global cooperating fields, which are listed hereafter:

### **Global Cooperating Fields of IPL**

- (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. Designation of World Centres of Excellence on Landslide Risk Reduction**

The IPL Global Promotion Committee will identify and promote World Centers of Excellence (WCoE) within eligible organizations, such as universities, institutes, NGOs, government ministries and local governments, contributing to “Risk Reduction for Landslides and Related Earth System Disasters”. Linkages to CoE at the national level will be used to promote cooperation with the ICL and dissemination of knowledge and information. An independent Panel of Experts, set up by the Global Promotion Committee of IPL, may be appointed to endorse the CoEs.

The first WCoE will be approved by the IPL Global Promotion Committee based on the recommendation by the Panel of Experts and announced at the final day of the first World Landslide Forum.

# Programme of the First World Landslide Forum

## 18 November (Tuesday)

- 9:00-10:00**    **Opening Addresses from Organizers and Sponsors**  
**10:00-12:00**    **Open Forum “Progress of IPL activities”**  
**12:00-14:00**    **Exhibition**  
                    Landslide new technologies & case studies  
**14:00 - 17:00**    **Plenary Symposium “Global Landslide Risk Reduction”**  
**18:30-21:00**    **Reception**

## 19 November (Wednesday)

- 8:30-10:30**    **Plenary Session 1**  
                    Keynote speeches/ Keynote lectures, and Thematic Presentations  
**11:00-12:30**    **Parallel Activities 1**  
                    Thematic sessions, et al.  
**12:30-14:00**    **Exhibition**  
                    Landslide new technologies & case studies  
**14:00- 18:30**    **Parallel Activities 2**  
                    Workshops, Open Forum, Topical Symposia Technical Sessions, and IPL Global  
                    Promotion Committee  
**Evening**        Working Group Meetings

## 20 November (Thursday)

- 8:30-10:30**    **Plenary Session 2**  
                    Keynote speeches/ Keynote lectures, and Thematic Presentations  
**11:00-12:30**    **Parallel Activities 3**  
                    Thematic sessions, et al.  
**12:30-14:00**    **Exhibition**  
                    Landslide new technologies & case studies  
**14:00- 18:30**    **Parallel Activities 4**  
                    Workshops, Open Forum, Topical Symposia Technical Sessions, and IPL Global  
                    Promotion Committee  
**Evening**        Working Group Meetings

## 21 November (Friday)

- 8:30-10:30**    **Plenary Session 3**  
                    Keynote speeches/ Keynote lectures, and Thematic Presentations  
**11:00-12:30**    **Panel Discussion**  
                    **toward WLF-II in 2011**  
**12:30-14:00**    **Exhibition**  
                    Landslide new technologies & case studies  
**14:00- 16:00**    **Parallel Activities 3**  
                    Thematic Sessions and Committee meetings.  
**16:30-18:30**    **Closing Session**



Presentation of New IPL Projects  
 Adoption of output document  
 Nomination of WCoE  
 Conferment of ICL Awards (Varnes Medal, Best Paper Award, IPL Award of Success

19:30- **Post-Conference Dinner (outside of UNU)**

## The First World Landslide Forum

	18 November (Tue)	19 November (Wed)	20 November (Thurs)	21 November (Fri)
<b>AM</b>	<b>Opening Session</b>  <b>Open Forum</b> Progress of IPL activities	<b>Plenary Session 1</b> Keynote speeches/ keynote lectures <b>Parallel Activities 1</b> Thematic sessions, et al.	<b>Plenary Session 2</b> Keynote speeches/ keynote lectures <b>Parallel Activities 3</b> Thematic sessions, et al.	<b>Plenary Session 3</b> Keynote speeches/ keynote lectures <b>Panel Discussion            toward WLF-II in 2011</b>
<b>Lunch</b>	<b>Exhibition</b> New technologies & case studies	<b>Exhibition</b> New technologies & case studies	<b>Exhibition</b> New technologies & case studies	<b>Exhibition</b> New technologies & case studies
<b>PM</b>	<b>Plenary            Symposium:</b> Global Landslide Risk Reduction	<b>Parallel Activities 2</b> * Workshops Open Forum Topical Symposia Technical Sessions  * IPL Global Promotion Committee 1	<b>Parallel Activities 4</b> * Workshops Open Forum Topical Symposia Technical Sessions  * IPL Global Promotion Committee 2	<b>Parallel Activities 5</b> Thematic Sessions, Committee meetings <b>Closing Session</b> Presentation of New IPL Projects, Adoption of output document, Conferment of WCoE and ICL Awards
<b>Eve- ning</b>	<b>Welcome            Reception</b>	Working Group Meetings	Working Group Meetings	<b>Post-Conference Dinner</b> (Outside of UNU)

### Secretariat of the First World Landslide Forum

Research Centre on Landslides, Disaster Prevention Research Institute,  
 Kyoto University, Uji, Kyoto 611-0011, Japan

Web: <http://ICL.dpri.kyoto-u.ac.jp/>, E-mail: [jimu@landslide.dpri.kyoto-u.ac.jp](mailto:jimu@landslide.dpri.kyoto-u.ac.jp)



# 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 (Kyoto University, Japan)**

**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 Union of Geological Sciences (IUGS) / Governments of Japan, USA, Italy, Canada, and Norway

## ICL Members:

Geological Survey of Canada / Chinese Academy of Sciences, Chengdu Institute of Mountain Hazards and Environment / Jilin University, Environmental Geological Disaster Research Institute, China / 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 / Mekelle University, Ethiopia / Building & Housing Research Center, Iran / International Institute of Earthquake Engineering and Seismology (IIEES), Iran / Soil Conservation and Watershed Management Research Institute (SCWMRI), Iran / ENEA (Italian Agency for New Technologies Energy and Environment), Italy / European Commission's Joint Research Centre, IPSC/HSU, Italy / Instituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS, Italy / University of Firenze, Earth Sciences Department, Italy / Ehime University, Faculty of Engineering, Japan / Forestry and Forest Product Research Institute, Japan / Geographical Survey 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, Department of Civil Engineering, Geotechnical Engineering Group, Japan / University of Tokyo, Institute of Industrial Science, Japan / Korea Institute of Geoscience and Mineral Resources (KIGAM) / Mara University of Technology, Malaysia / International Centre for Integrated Mountain Development (ICIMOD), Nepal / International Centre for Geohazards (ICG) in Oslo, Norway / Instituto Geologico Minero y Metalurgico (INGEMMET), Peru / 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 / Comenius University, Faculty of Natural Sciences, Department of Engineering Geology, Slovakia / Swedish Geotechnical Institute / Swiss Federal Institute for Snow and Avalanche Research (SLF) / Ministry of Agriculture and Cooperatives, Land Development Department, Thailand / U.S. Geological Survey, USA / National Aeronautics and Space Administration (NASA), Goddard Space Flight Center, Laboratory for Atmospheres, USA

## ICL Supporters:

Marui & Co., Ltd., Osaka, Japan / Eight Consultants Co., Ltd., Okayama, Japan / Geo-Research Institute, Osaka, Japan / GODAI Development Corp., Kanazawa, Japan / Japan Conservation Engineering & Co., Ltd., Tokyo / Kokusai Kogyo Co., Ltd., Tokyo, Japan / Kowa Co., Ltd., Niigata, Japan / MEISAI Co., Suita, Japan / Nippon Koei Co., Ltd., Tokyo, Japan / Ohta Geo-Research Co., Ltd., Nishinomiya, Japan / OSASI Technos Inc., Kochi, Japan / OYO Corporation, Tokyo, Japan / Research Center of Computational Mechanics, Inc., Tokyo, Japan / Sabo Technical Center, Tokyo, Japan / Sakata Denki Co., Ltd., Tokyo, Japan

## ICL Secretariat:

Research Centre on Landslides, Disaster Prevention Research Institute, Kyoto University, Uji, Kyoto 611-0011, Japan  
Web: <http://ICL.dpri.kyoto-u.ac.jp/>, E-mail: [jimu@landslide.dpri.kyoto-u.ac.jp](mailto:jimu@landslide.dpri.kyoto-u.ac.jp)  
Tel: +81-774-38-4110, Fax: +81-774-32-5597

## 10. List of ICL members (as of 3 October 2006)

1. Geological Survey of Canada, Peter BOBROWSKY/ Baolin WANG
2. Chengdu Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China, Peng CUI / Tianchi LI
3. Jilin University, Environmental Geological Disaster Research Institute, China, Lei NIE / Fawu WANG
4. Lishan Landslide Prevention and Control Office, Xian Municipal Government, China, Yong WANG / Yongjin TIAN
5. Northeast Forestry University, China, Wei SHAN
6. Xian Jiaotong University, Department of Civil Engineering, Geotechnical Engineering Group, China, Hong-Jian LIAO
7. China Three Gorges University, Institute of Geological Hazard Mitigation, Xianqi LUO / Defu LIU / Shimei WANG
8. China Geological Survey, Yueping YIN / Zuochen ZHANG
9. Universidad Nacional de Columbia, Columbia, Carlos Eduardo RODRIGUEZ / Gonzalez GARCIA
10. Charles University, Research Center of Earth Dynamic, Czech Republic, Vit VILIMEK / Jiri ZVELEBIL
11. Mekelle University, Ethiopia, Tadesse NATA
12. Technische Universität Darmstadt, Institute and Laboratory of Geotechnics, Germany, Rolf KATZENBACH / Gregor BACHMANN
13. Building & Housing Research Center, Iran, S.H. TABATABAEI / M.H. Tofigh RAYHANI
14. International Institute of Earthquake Engineering and Seismology (IIEES), Iran, Mohammadreza MAHDAVIFAR / Ebrahim HAGHSHENAS
15. Soil Conservation and Watershed Management Research Institute (SCWMRI), Iran, Zieaoddin SHOAEI
16. ENEA (Italian Agency for New Technologies Energy and Environment), Italy, Claudio MARGOTTINI / Giuseppe DELMONACO
17. European Commission's Joint Research Centre, IPSC/HSU, Italy Alois SIEBER / Dario TARCHI
18. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS, Italy, Daniel Nieto YABAR / Emanuele LODOLO
19. University of Firenze, Earth Sciences Department, Italy, Paolo CANUTI / Nicola CASAGLI
20. Ehime University, Faculty of Engineering, Japan, Ryuichi YATABE / Netra P. BHANDARY
21. Forestry and Forest Product Research Institute, Japan, Motoaki OKUMA / Hirotaka OCHIAI
22. Geographical Survey Institute, Japan, Toshio KITAHARA / Tatsuo SEKIGUCHI
23. Japan Landslide Society, Japan, Hideki MARUI / Toyohiko MIYAGI
24. Kyoto University, Disaster Prevention Research Institute, Research Centre on Landslides, Japan, Kyoji SASSA / Hiroshi FUKUOKA
25. Kyoto University, Disaster Prevention Research Institute, Flood Section, Japan, Kaoru TAKARA /

Roy SIDLE

26. Niigata University, Research Institute for Hazards in Snowy Areas, Japan, Hideaki MARUI / Naoki WATANABE
27. University of Tokyo, Department of Civil Engineering, Geotechnical Engineering Group, Japan, Ikuo TOWHATA / Taro UCHIMURA
28. University of Tokyo, Institute of Industrial Science, Kazuo KONAGAI
29. Korea Institute of Geoscience and Mineral Resources (KIGAM), Korea, Won-Young KIM / Byung-Gon CHAE
30. Mara University of Technology, Malaysia, Roslan Zainal ABIDIN / Yusof ABD. RAHMAN
31. International Centre for Integrated Mountain Development (ICIMOD), Nepal, Madhav KARKI / Mandira SHRESTHA
32. International Centre for Geohazards (ICG) in Oslo, Norway, Oddvar KJEKSTAD / Farrokh NADIM
33. Grudec Ayar, Peru, Raul CARRENO
34. Instituto Geologico Minero y Metalurgico (INGEMMET), Peru, Victor LAY / Antonio GUZMAN
35. Proexrom S.R.L. Technical University, Civil Engineering Faculty, Romania, Nicolae BOTU / Dan CARASTOIAN
36. Federal State Unitary Geological Enterprise Scientific Centre "HydGeo", Russia, Oleg ZERKAL / Julia V. FROLOVA
37. Institute of the Geospheres Dynamics, Russian Academy of Sciences, Russia, Alexander STROM / Nikolai SYRNIKOV
38. Institute of Environmental Geoscience (IEG RAS), Russian Academy of Sciences, Russia, Victor OSIPOV / Valentina SVALOVA
39. Open Joint-Stock Company Engineering Centre, Unified Energy System of Russia, Alexander PIOTROVSKIY
40. Comenius University, Faculty of Natural Sciences, Department of Engineering Geology, Slovakia, Rudolf HOLZER / Ján VLČKO
41. Swedish Geotechnical Institute, Sweden, Karin RANKKA / Bo BERGGREN
42. Swiss Federal Institute for Snow and Avalanche Research SLF, Switzerland, Walter AMMANN / Oliver KORUP
43. Ministry of Agriculture and Cooperatives, Land Development Department, Thailand, Chumpol LILITTHAM/ Aniruth POTICHAN
44. U.S. Geological Survey, USA, Peter T. LYTTLE / Randall G. UPDIKE
45. National Aeronautics and Space Administration (NASA), Goddard Space Flight Center, Laboratory for Atmospheres, USA, Robert F. ADLER / Yang HONG

## 11. Investigation on Leyte landslide in Philippines

### Joint research on the Leyte landslide by ICL Japanese members and Philippine research teams

**Leader:** Prof. Kyoji SASSA, Director of Research Centre on Landslides (RCL), Disaster Prevention Research Institute (DPRI), Kyoto University, President of International Consortium on Landslides

**Deputy leader:** Renato SOLIDUM, PHIVOLCS

**Secretary:** Hiroshi FUKUOKA, RCL/DPRI/KU, Treasurer of ICL

#### Members of Research Team:

DPRI, Kyoto University: Hiroshi SUWA, Fawu WANG (Assistant to the ICL President), Gonghui WANG, Carlo MONDONEDO

Research Institute for Hazards in Snowy Areas, Niigata University: Hideaki MARUI (Assistant to the ICL President)

Forestry and Forest Product Research Institute, Japan: Yasuhiko OKADA, Y. ADIKARI

National Research Institute of Fire and Disaster, Japan: Kiminori ARAIBA

Asian Disaster Reduction Center (ADRC): Masahiko MURATA

Mathematical Assist Design Laboratory: H. TAMAKI, H. NAGURA, Y. SASAZAWA, M. YAZAWA

Nippon Koei Co., Ltd.: S. TAKAHASHI, S. HANATANI, R. TAMAYO, Z. MACARAEG

Philippine Institute of Volcanology and Seismology (PHIVOLCS): A. DAGG, B. BAUTISTA

School of Civil Engineering, University of Philippine: Leonardo LIONGSON

Office of Civil Defense, Department of National Defense: Felino CASTRO V

#### Schedule:

March 19: KIX/Narita to Manila

March 20: Visit to Japanese Embassy, PHIVOLCS, University of Philippine, Office of Civil Defence, JICA Office

March 21: Flight from Manila to Tacloban, and then go to Guinsaugon. Courtesy call on Governor of Southern Leyte Province, Major of St. Bernard City, and visit to Guinsaugon landslide area

March 22-24: Field investigation (survey from the chartered helicopter, ground survey, sampling for landslide

simulating tests, etc)

March 25: Sogod to Tacloban by cars, and then flight to Manila

March 26: Manila to KIX/Narita

The following are some photos showing the investigation activities and Guinsaugon landslide.



Fig. 1 Photos of Activities in PHIVOLCS, Civil Protection, Leyte Governor, St. Bernard Mayer, Trench, Helicopter, Field Investigation



Fig.2 Overview of the landslide taken from the Chartered helicopter (taken by Araiba, K)



Fig.3 The roof of two story house under construction which was transported for around 200m. Within 4 persons constructing this house, 2 persons climbed the Palm tree in the left and 1 person climbed the Santol tree in the center and 1 person was killed.



Fig.4 Group photo of the joint investigation team after the field investigation (Taken by G. Wang).

The investigation team appreciates the cooperation from the Ministry of Foreign Affairs of Japan, Embassy of Japan in Manila, United Nations Office of Coordination of Humanitarian Affairs, Japan International Cooperation Agency, Office of Civil Defense, Department of National Defense of Philippines, Philippine Institute of Volcanology and Seismology (PHIVOLCS), University of Philippines, Government of Southern Leyte Province, and St. Bernard City. Thanks go to Mr. S. Hanatani of the Manila office of Nippon Koei Ltd for his kind logistics in Philippines. Finally we wish the further progress of Philippine-Japan cooperation in the field of landslide risk reduction which was initiated by this joint investigation.

## **12. Date and venue for ICL meetings in 2006 and 2007**

### **1) 5<sup>th</sup> ICL BOR and ICL Symposium in 2006**

**The 5<sup>th</sup> Session of ICL Board of Representatives and the 5<sup>th</sup> ICL Symposium**

**Date: 23-24 November 2006**

**Venue: Bonvin Building, UNESCO Headquarters, 1 Rue Miollis, Paris, France**

#### **23 November 2006 (Thursday): Opening, IPL and ICL Symposium**

9:00-12:00: Opening ceremony (Greeting from UNESCO, UN/ISDR, ICSU, KU and others)

Discussion on the 2003 Tokyo Action Plan and the First World Landslide Forum

Conferment of 2006 Varnes Medal and 2004-2005 Best paper Awards

13:00-15:30: IPL Review Committee Meeting (IPL Reports and new proposals)

16:00-18:00: ICL Symposium

18:30-20:00: Reception (Venue: Miollis bar)

#### **24 November 2006 (Friday): The 5<sup>th</sup> Session of ICL Board of Representatives.**

9:00-12:00: Session 1 of BOR

13:30-16:30: Session 2 of BOR

### **2) The First Session of IPL Global Promotion Committee and the IPL Symposium 2007**

**Date: 21-25 January 2007**

**Venue: United Nations University, Tokyo**

All of the ICL members and IPL projects leaders and participants are welcome to contribute papers, participate and present their research to this symposium.

The Proceedings will be published **in CD with ISBN number**. Paper with clear photographs and color figures are encouraged. The lay-out of the paper will be the same as that appears in the *ICLGA Proceedings: Landslides: Risk Analysis and Sustainable Disaster Management*. A suitable length for each paper is 6 printed pages.

**Deadline of the submission papers for reviewing: 15 November 2006**

**Deadline of the submission of the final paper: 15 December 2006**

Those who are planning to contribute a paper to the symposium are requested to fill the following reply form, and send back to ICL Secretariat by E-mail or Fax **before 30 October 2006**.



(1) Reply Form for Paper Contribution to IPL Symposium 2007

Please fill and return before 30 October 2006 to:

E-mail: [jimu@landslide.dpri.kyoto-u.ac.jp](mailto:jimu@landslide.dpri.kyoto-u.ac.jp),

Fax: +81-774-38-4300

**Deadline for final paper submission: 15 December 2006**

<b>Possible Title:</b>	
<b>Authors' Name:</b>	
<b>Authors' Affiliation:</b>	
<b>E-mail:</b>	<b>Fax:</b>

(2) Reply Form for the Participation to  
the 1<sup>st</sup> IPL Global Promotion Committee and the IPL Symposium 2007

Those who have not yet sent the filled reply form are requested to fill and return the reply form below before **30 October 2006** for the planning and preparation of the meetings.

The First Session of IPL Global Promotion Committee and the IPL Symposium 2007 21-25 January 2007 in UNU, Tokyo		
Participation	Yes	No
Presentation of Papers to IPL Symposium	Yes	No
Voluntary works for Review	Yes	No
Travel Support	( ) Not Necessary, ( ) 250 USD, ( ) 500 USD ( ) 750 USD, ( ) 1,000 USD	

- 3) The 1<sup>st</sup> 2007 Steering Committee will be held on 2 June (Saturday) in conjunction with the First North American Landslide Conference at Vail, Colorado, USA, 3-8 June 2007
- 4) The sixth Session of BOR/ICL will be held in October 2007
- 5) The 1<sup>st</sup> 2008 Steering Committee will be held in Spring 2008
- 6) The First Landslide Forum will be held on 18-21 November 2008 in United Nations University, Tokyo

### 13. Information of Symposia and Meetings on Landslides

Place and Date	Title of symposium / Contact address	Organizer, Cosponsors
UNESCO, Paris 23-24 Nov. 2006	Fifth Session of Board of Representatives (5 <sup>th</sup> BOR/ICL)	ICL UNESCO
	E-mail: <a href="mailto:jimu@landslide.dpri.kyoto-u.ac.jp">jimu@landslide.dpri.kyoto-u.ac.jp</a> Web: <a href="http://icl.dpri.kyoto-u.ac.jp">http://icl.dpri.kyoto-u.ac.jp</a>	
UNU, Tokyo, Japan 21-25 Jan. 2007	First Session of IPL Global Promotion Committee and the IPL Symp. 2007	ICL, UNU, etc.
	E-mail: <a href="mailto:jimu@landslide.dpri.kyoto-u.ac.jp">jimu@landslide.dpri.kyoto-u.ac.jp</a> Web: <a href="http://icl.dpri.kyoto-u.ac.jp">http://icl.dpri.kyoto-u.ac.jp</a>	
Vail, Colorado, USA 2 June 2007	2007 STC Meeting of ICL	ICL
	E-mail: <a href="mailto:jimu@landslide.dpri.kyoto-u.ac.jp">jimu@landslide.dpri.kyoto-u.ac.jp</a> Web: <a href="http://icl.dpri.kyoto-u.ac.jp">http://icl.dpri.kyoto-u.ac.jp</a>	
Vail, Colorado, USA 3 – 8 June 2007	First North American Landslide Conference - Landslides and Society: Integrated Science, Engineering, Management, and Mitigation	Association of Environmental and Engineering Geologists, Geo-Institute of the American Society of Civil Engineers, American Rock Mechanics Association (ARMA), Canadian Geotechnical Society, IAEG, ISRM, ISSMGE, TRB
	E-mail: <a href="mailto:kturner@mines.edu">kturner@mines.edu</a> (Keith Turner, Chairman) <a href="http://www.mines.edu/academic/geology/landslidemail2007/">http://www.mines.edu/academic/geology/landslidemail2007/</a>	
Oct. – Nov. 2007	Sixth Session of Board of Representatives (6 <sup>th</sup> BOR/ICL)	ICL
	E-mail: <a href="mailto:jimu@landslide.dpri.kyoto-u.ac.jp">jimu@landslide.dpri.kyoto-u.ac.jp</a> Web: <a href="http://icl.dpri.kyoto-u.ac.jp">http://icl.dpri.kyoto-u.ac.jp</a>	

FAO Spring 2008	The 1 <sup>st</sup> 2008 Steering Committee	ICL
Xian, China 30 July – 4 July 2008	10th International Symposium on Landslides and Engineered Slopes (10 <sup>th</sup> ICL)	Chinese Inst. of Soil Mech. & Geotechnical Engr., CCES, Chinese National Commission on Engr. Geology, Chinese Soc. of Rock Mechanics & Engr., ISSMGE, ISRM and IAEG.
	E-mail: <a href="mailto:chenzy@iwhr.com">chenzy@iwhr.com</a> (Zuyu Chen, chairman of organizing committee) <a href="mailto:cezhangjh@mail.tsinghua.edu.cn">cezhangjh@mail.tsinghua.edu.cn</a> (Jianhong Zhang, Academic affairs secretary) <a href="mailto:wangyj@iwhr.com">wangyj@iwhr.com</a> (Yujie Wang, Administrative affairs secretary) Web: <a href="http://www.landslide.iwhr.com">http://www.landslide.iwhr.com</a>	
Oslo, Norway 5-14 August 2008	33rd International Geological Congress	IUGS
	<a href="http://www.33igc.org/">http://www.33igc.org/</a>	
Switzerland September 2008	12 <sup>th</sup> International Conference and Field Workshop on Landslides (12 <sup>th</sup> ICFL)	ILRG
Northeastern Japan 11-15 November 2008	Joint Symposium and Field Trip on Landslide Disaster Mitigation in Northeastern Japan	Japan Landslide Society, ICL
UNU, Tokyo 18-21 Nov. 2008	First World Landslide Forum	ICL, UNU, etc.

## 14. Recent Landslide Occurrence News

Information of recent major landslide disasters which took place from 1 April 2006 to 28 September 2006 and appeared in the Internet news sites of the world are compiled and listed below. This list is updated in the "Recent Landslides" page of ICL web <http://icl.dpri.kyoto-u.ac.jp/Landslides%20Alert.htm>

### North America

21 September 2006 - USA - Big landslide closes Route 65 again

The ground was in a constant state of motion yesterday at the site of a massive landslide in Kilbuck. Boulders the size of refrigerators tumbled down the steep and crumbling hillside onto the deserted Ohio River Boulevard below. Tree limbs cracked and groaned under the weight of an estimated half-million cubic yards of dirt and rocks -- a continuous cascade that billowed down on top of the normally busy artery into Pittsburgh, completely blocking it.

17 September 2006 - USA - Landslide posing problems along Hudson

A North Country company has quite a mess to cleanup this weekend. Part of a clay stockpile at the Lehigh Northeast Cement limestone quarry slid into the Hudson River Thursday night.

16 September 2006 - Mexico - Hurricane Lane on way to Mexico

Heavy rain has already hit towns on the coast further south, causing a landslide that killed a seven-year-old boy in the city of Acapulco.

08 September 2006 - Mexico - Landslide kills 10 in northern Mexico

A landslide triggered by heavy rains killed 10 people, mostly children, and injured three others in northern Mexico, authorities said Thursday.

21 August 2006 - USA - Landslide traps 30 at Crow Pass trail head

A significant landslide carrying boulders the size of SUVs blocked Crow Creek Road Monday afternoon and trapped about 30 people at Crow Pass trail head near Girdwood, according to a Forest Service spokeswoman.

13 August 2006 -USA - Sinkhole Swallows Garage and Car

Emergency workers remain on the scene of a massive sinkhole in Nixa this morning. An entire neighborhood has been evacuated after the 100-foot sinkhole opened up and took part of a house with it.

12 August 2006 - USA - Elderly Woman's Home Destroyed by Landslide

Heavy rains triggered landslides in Logan County early Friday morning causing mountains of earth and debris to invade homes.

01 August 2006 Mudslide cleanup halts canyon traffic

What was expected to be a four-hour cleanup project to remove debris from a mudslide in American Fork Canyon turned into a 24-hour headache for motorists and...

31 July 2006 Mudslide blocks drain pipes, causes flooding in Aspen ASPEN

Powerful thunderstorms Sunday flooded several residents basements with up to 2 feet of water and

mud after a mudslide on Smuggler Mountain blocked ...

21 July 2006 - USA - Landslide-Damaged Condos Being Torn Down

They've been condemned for over a year, and Friday a badly damaged condo complex in Carlsbad is coming down. The homes at the Marbella complex on La Costa Avenue were declared unsafe when ground beneath them started shifting in March last year. Residents sued the city of Carlsbad arguing a faulty fire hydrant and water main caused the landslide.

14 July 2006 - USA - Geologists Trying to Figure Out Cause of Pittsburg Landslide

Geologists are trying to determine what caused a big landslide in Pittsburg that's prompted the evacuations of eight homes. The slide struck Thursday near a new housing complex in Pittsburg on Santa Lucia Drive, taking part of one home's back yard down a hillside. Seven other homes have been evacuated as a precaution.

14 July 2006 - USA - Landslide Destroys Weiser Home

Severe thunderstorms moved through the region last night causing wind damage and fires. One thing it may not have caused was a mudslide that destroyed a house just outside Weiser.

12 July 2006 - USA - Rockslide, falling trees damage park trails

Two of the most popular state park trails in the South Carolina mountains have been hit hard by a landslide and falling trees in recent weeks.

11 July 2006 - USA - Mudslide sweeps through neighborhood

29 June 2006 - USA - New landslide closes Bliss Road indefinitely

Bliss Road, the main route to Grandad Bluff, was closed to traffic indefinitely Wednesday after La Crosse city crews discovered heavy rain late Monday had triggered a new landslide.

29 June 2006 - USA - Landslide closes road between Gardiner, Mammoth

A series of small landslides cut off visitor access to Yellowstone National Park from Gardiner for over three hours Tuesday.

25 June 2006 - USA - Floods swamp Chester County on Saturday, causing flooding and mudslides in Caln and Downingtown

20 June 2006 - USA - Minturn landslide eyed for disaster potential

Meadow Mountain slowly creeps from the west toward the Eagle River, buckling the asphalt of U.S. Highway 6 and belching dirt onto the road.

15 June 2006 - Canada - Mudslide Shuts Down Lake Louise-Jasper Route

09 June 2006 - USA - Road to Centennial Park in Twin Falls closed after rockslide

05 June 2006 - USA - Whitehall Mudslide Forces Man From Home

03 June 2006 - USA - Slow landslide a growing headache

02 June 2006 - Guatemala - Landslide hit Panabaj again

On June 2, a flow of mud and stones hit Panabaj and Tzanchaj again. Tzanchaj is the area where the population from Panabaj was relocated after a landslide buried Panabaj last year, leaving more than 600 people dead.

02 June 2006 - USA - Oakland Landslide Forces Families From Homes

A mysterious landslide near Oakland's Central Reservoir has forced at least two families from their

homes

01 June 2006 - Canada - Landslides force Quebec residents to flee

31 May 2006 - USA - Mudslide Closes Road in Columbia County

29 May 2006 - USA - Weekend Storms Damage Planes, Prompt Mudslide

27 May 2006 - USA - Highway to Yosemite closed again

Highway 140 closed not long after it reopened Thursday east of Mariposa because of large rocks falling from an active landslide.

22 May 2006 - USA - Richmond's Dugway Road reopens after landslide

Dugway Road in Richmond reopened today after crews spent the day clearing debris from a landslide.

22 May 2006 - USA - Landslide Crushes Utahns' Dreams, Homes

17 May 2006 - USA - Mudslide forces closure of Route 381 in Stewart

16 May 2006 - USA - Rain-Caused Mudslide in Western Maryland

15 May 2006 - USA - Slide blocks Olympic Discovery Trail

13 May 2006 - USA - Mudslide Shuts Down Part Of Rt. 1 In Topsfield

12 May 2006 - Canada - Rockslide closes Trans-Canada

11 May 2006 - USA - Mudslide closes Turner Valley Road

09 May 2006 - Canada - Landslide carves hole near Nicolet

Residents of Nicolet got a rude awakening yesterday when a landslide carved a 75-metre hole in a hill next to the Nicolet River. Gilles Bedard, a spokesperson for Quebec's Ministry of Public Security, said the landslide occurred at 7 a.m. Nobody in the town, 115 kilometres northeast of Montreal, was injured, he added.

09 May 2006 - USA - Landslide hits Laguna Beach

A small landslide caused by a broken irrigation pipe forced the temporary evacuation of three homes Monday, police said.

07 May 2006 - USA - Mudslide closes main artery to Lake Tahoe

05 May 2006 - Canada - Warren Park landslide reviewed

01 May 2006 - USA - Landslide cuts off Coastside communications

30 April 2006 - USA - Pinole landslide shuts two westbound lanes of I-80

An early morning landslide in Pinole near Interstate Highway 80 resulted in the closure of two of the highways westbound lanes, California Highway Patrol Officer Scott Cakebread said.

24 April 2006 - USA - Landslide knocks out telephone service

More than 15,000 people on San Mateo County's coast were left without regular telephone access — including the ability to call 911 — after a landslide struck a fiber-optic cable in the hills above Half Moon Bay on Saturday.

18 April 2006 - USA - Wet Season Bringing More Landslides

As it warms up this week, many may also face flooding concerns. But more water has created another hazard geologists are concerned about: landslides are threatening more homes.

17 April 2006 - Hawaii - Landslide Sends Rock Onto Roadway

On Oahu's North shore, rocks and debris came raining down onto the roadway by Waimea Falls. One boulder was the size of a car engine. The landslide happened at around four in the morning.

13 April 2006 - USA - Santa Cruz County battered by mudslides, road closures

A day after Santa Cruz County declared a state of emergency asking Gov. Arnold Schwarzenegger to help reimburse the cost of storm damaged roadways, more rain pounded the Santa Cruz Mountains, causing additional slipouts overnight.

12 April 2006 - USA - Huge landslide could go into Wolf Creek

The problem on Allison Ranch Road has become "a huge landslide," that could fall into Wolf Creek, according to Nevada County civil engineer Doug Farrell.

12 April 2006 - USA - CHP reports multiple closures in Sonoma County

The California Highway Patrol expects a landslide blocking state Highway 116 near El Bonita to close the roadway for at least six to eight hours, according to Officer Ben Chaney. The landslide occurred at about 4:03 a.m. and has caused mud, rocks and trees to block the highway at Mays Canyon Road. The CHP issued a Sig-alert at 4:18 a.m.

Two more debris slides are blocking state Highway 116. In Cotati, a tree is down at Redwood Drive and in Forestville, the highway is expected to be closed at Mirabel Road for an extended period due to another landslide.

10 April 2006 - USA - Still No Solution in Mon County Slope Failure Problem

The landslide behind two homes began in November. Now, the slide has gotten worse and there's no decision about who should pay for the problem.

9 April 2006 - USA - Landslide causes collapse of Amador Water Canal

Officials say a landslide beneath the 23-mile-long Amador Water Canal caused a 200-foot section to collapse this morning

7 April 2006 - USA - Cedar Hills slide fuels a landslide — of rumor

The mudslide area in Cedar Hills is causing headaches for city officials again — and it's not even active. City officials have been busy dealing with a landslide of questions and concerns from residents since last week when news reports indicated there had been recent movement at the slide.

5 April 2006 - USA - Hwy. 50 closed due to landslide

The westbound lane of Highway 50 near Whitehall was still closed Tuesday and debris remained intact following a Monday morning mudslide that was still actively slipping in the midst of the storm, according to Caltrans spokeswoman Jan Mendoza.

5 April 2006 - USA - Relentless Rains Cause Multiple Bay Area Slides

A seemingly endless series of storms has caused the saturated ground to shift in many Bay Area spots this week. Debris fell on the roadway closing off traffic in both directions on Highway 17 Tuesday. The rocks slid across the highway in an area near Glenwood Drive. Crews were able to clear the problem by 12:30 p.m.

4 April 2006 - USA - Landslide Forces Closure of Highway 168

Four lanes of Highway 168 in Fresno County were shut down Tuesday night.

3 April 2006 - USA - Mudslide damage looms for residents

The Heights was built around 1989, said Voegelé, who has lived here since 1994. The area has a history over the past 10 years or so of landslide damage and lawsuits involving the Refugio Valley homeowners association; the builder, Standard Pacific; and residents.

2 April 2006 - Hawaii - Lingle tours flooded Oahu

Governor Lingle Saturday toured areas of Oahu damaged in yesterday's floods. The tour began with a look at a Manoa home damaged by a landslide earlier this week and a walk through flooded Kahala Mall.

### **South America**

14 September 2006 - Trinidad-Tobago - Afternoon showers bring floods, landslide

Residents in central and eastern Trinidad were affected by flash flooding yesterday, as early-afternoon thunder showers created rising panic among residents in areas such as Lopinot, Chaguanas, Curepe, St Augustine, Valsayn and St Joseph.

29 August 2006 - Peru - Landslide buries home, leaving one dead and two seriously wounded

A landslide buried a house in Lima's northern suburb San Juan de Lurigancho last night. The house was squashed by the falling rocks and rubble shortly before 1:00 a.m., killing 35 year old Martín Robles Jara (35). His wife and 2 year old daughter were seriously wounded.

12 July 2006 - Chile - Rains, Flooding in Chile Leave 11 Dead

Flooding and landslides triggered by heavy rain in central Chile left at least 11 people dead and forced 30,000 to flee their inundated homes Wednesday, the government said.

18 May 2006 - Colombia - Landslide in Colombia cuts off gas supply

A landslide triggered by heavy rains damaged a gas pipeline and cut off gas supplies to more than 756,000 families in Colombia's capital city, a gas company spokesman said on Wednesday.

13 May 2006 - Peru - Can Machu Picchu survive?

Machu Picchu, one of the most storied archaeological sites in the Americas, has become a victim of its own astounding success, and now faces threats from overcrowding, landslides, erosion, fire — and greed.

13 April 2006 - Colombia - At least 34 people missing in Colombian mudslide

At least 34 people were missing in south-western Colombia after heavy rainfall caused a landslide near the Pacific port city of Buenaventura.

### **Europe**

31 August 2006 - Azerbaijan - Landslide cause in Dozular village announced

The cause for landslide is the 630mm water pipe flowing from north-west of the village. There

observed three water escapes in the pipe. People used it to water the land for 20 years. This kind of irrigation causes landslide on slopes. As the result of the landslide, four houses were damaged and 42 families were evacuated.

03 August 2006 - Ireland - 'Landslide threat' to Irish Republic

The Geological Survey of Ireland says the risk of landslides in upland areas has been underestimated and poor planning has led to some housing developments being built in areas where natural disasters are likely to happen.

28 July 2006 - England - Train hits landslide in London

Hundreds of passengers were evacuated from a rush hour train after it struck a landslide, London's public transport operator says. A train heading into the capital made an emergency stop as tons of earth slipped from an embankment and clogged tracks close to Boston Manor station, in west London.

26 June 2006 - Bulgaria - Hotel Digs Cause Landslide at Bulgarian Road

The road from Bulgaria's southern city of Smolyan to the Pamporovo resort in the Rhodope Mountain has been closed due to a landslide.

22 June 2006 - Romania - Death toll up to seven following mudslide in Romania

21 June 2006 - England - New landslide technology may save lives

A pioneering new technique designed by Loughborough University in Britain to help predict landslides could save hundreds of lives worldwide, if trials prove successful.

18 June 2006 - England - Buses take strain after landslide

31 May 2006 - Swiss - Swiss Rockslide Kills Two, Closes Gotthard Tunnel

30 May 2006 - Russia - Traffic resumes on mudslide-stricken roads in Karachai-Circassia

21 May 2006 - Turkey - Four Trapped Due To Landslide In Kars

Four people were trapped under soil after a landslide occurred in Kagizman town in eastern city of Kars on Wednesday, witnesses said.

18 May 2006 - Turkey - Landslide buries 8 houses in Turkey; four missing

A landslide triggered by heavy rains buried eight hillside homes in eastern Turkey Wednesday, officials said. Four people were reported missing.

04 May 2006 - Armenia - Georgia: Despair of Landslide Villagers

Landslides are destroying houses, pastures and farming land in three mountainous districts - Khulo, Keda and Shuakhevi - in Ajaria, the autonomous republic in south-western Georgia.

01 May 2006 - Italy - Landslide Kills Four In Italy

A man and three of his daughters were killed when a landslide caused by heavy rain destroyed their house on the southern Italian island of Ischia, off the coast of Naples over the weekend.

## **Africa**

16 August 2006 - Nigeria - 4 workers buried alive in Bells Varsity accident



Tuesday at the Bells University of Technology, Ota, Ogun State, when four construction workers were killed in an accident at a construction site on the campus. Two others were seriously injured. The accident, attributed to a landslide, occurred around 4.00pm. The victims were buried alive.

16 August 2006 - Uganda - Mother, children killed in landslide

A housewife and her two daughters were on Friday crushed to death in their sleep by a landslide that destroyed their home in Soono parish, Bumbo sub-county, Manafwa district.

19 July 2006 - Cameroon - Buea - Landslide Kills Four

Corpses of Three children and a woman are in the Buea General Hospital Mortuary, awaiting removal and burial. They were yesterday morning 18th July dug out of the debris of a blockhouse swept away by landslide at 5:00 a.m in Mini Coquette, Bonduma, Buea.

24 April 2006 - Kenya - Villagers warned of impending landslide

Timbwoiyo village in Central Baringo was quiet and peaceful until two weeks ago, when residents were warned that conditions were ripe for potentially deadly landslides.

## Asia

29 September 2006 - Philippines - 14 killed in Laguna landslide

A landslide on the slopes of Mount Makiling in Laguna killed 14 people, the civil defense office said Friday.

25 September 2006 - India - Landslide caused by monsoon rains kills 8 in eastern India

A mudslide triggered by heavy monsoon rains killed eight people after burying them in their homes in eastern India, police said Monday.

25 September 2006 - Nepal - Four siblings killed in landslide

Four children of the same family were killed Monday night when landslides triggered by the torrential rains of the past few days brought down a house in Sindhupalchowk.

23 September 2006 - Bangladesh - Landslide in southern Bangladesh kills 2 children

A landslide triggered by days of heavy rain killed two children and injured six other members of their family in southern Bangladesh, a local government official and villagers said Saturday.

23 September 2006 - Philippines - Eight dead as landslide buries bus

A landslide buried a bus on a rain-soaked mountain road in the northern Philippines, killing eight people, rescue officials said Friday.

14 September 2006 - Nepal - Mother, daughter killed in landslide, Araniko highway blocked

A mother and daughter were killed when a landslide struck Gati VDC of Sindhupalchowk district Friday night.

16 September 2006 - Thailand - Chiang Rai villagers at risk from landslide

Residents of a village in Chiang Rai's Theong district have been warned of a possible landslide after a 500-metre-long crack developed on a nearby hill.

- 16 September 2006 - Japan - Man, daughter die in landslide as heavy rain falls in Saga Prefecture  
A man and one of his daughters died after being swept away by a landslide here Saturday morning, police said.
- 14 September 2006 - Nepal - Five killed in Dolakha landslide  
Five persons were killed in a landslide that occurred at Thongthong in Lamabagar VDC-4 of Dolakha district on Wednesday morning.
- 10 September 2006 - Nepal - 11 killed in flood, landslide; 300 houses swept away in Nepal  
At least eleven people including two children have been killed in flood, landslide and lightening in various parts of Nepal, police said.
- 09 September 2006 - Nepal - Landslide kills one, highways blocked  
At least one person was killed in a landslide following incessant rainfall in Chitwan Saturday.
- 09 September 2006 - Bhutan - Landslide worries Pasakha residents  
A massive landslide after two days of incessant rain has cut off the Pasakha industrial estate from its town where most of the residential areas are located since yesterday.
- 08 September 2006 - Indonesia - Garbage landslide near Indonesian capital kills at least two  
Jakarta- A 10-metre-high pile of garbage at a dump near the Indonesian capital Jakarta suddenly collapsed early Friday, killing at least two people and burying dozens more, a police official said.
- 29 August 2006 - Nepal - Nine Construction Workers Killed in Mustang Landslide  
At least nine persons were killed in the landslide at Ghaansa in Lete VDC of Mustang district last night, Western Regional Police Office said.
- 27 August 2006 - Nepal - Hundreds feared dead in massive landslide in Achham  
Latest reports say hundreds of people are missing in a massive landslide in Khaptad area in the far-western district of Achham.  
Achham landslide sweeps 90 houses Access to ravaged villages cut off ...
- 26 August 2006 - Nepal - 10 dead in Baitadi landslide  
At least 10 people have died and three others seriously injured after a landslide struck Baitadi on Saturday.
- 20 August 2006 - Thailand - Landslide in Surat Thani means 600 are evacuated  
About 600 tourists and residents in Surat Thani were evacuated yesterday morning following a landslide in Khao Sok National Park.
- 19 August 2006 - Vietnam - Eight people killed in northern mountainous landslide  
A landslide caused by prolonged heavy rains killed eight people and seriously injured seven others in the Song Bang ward of the township of northern mountainous Cao Bang province in the morning of August 18. Two out of six dead bodies uncovered have been identified, the latest report said.
- 15 August 2006 - Nepal - Landslide buries a passenger bus in Ramechhap district  
Half a dozen passengers were injured seriously and a bus staff remains trapped when a passenger bus – heading to Manthali of Ramechhap district from Kathmandu-- was suddenly buried in a landslide near Khimti in Ramechhap district Tuesday evening.
- 14 August 2006 - Yemen - Landslide in Dhamar, no casualties

- Heavy rains and floods last night caused landslides in many areas of Dhamar, official source said.
- 14 August 2006 - Philippines - Landslides kill two, displace 1,000 families  
Two people were killed and 1,000 families displaced when landslides triggered by heavy rains buried 10 villages in Lanao del Norte Sunday night, DZMM reported Monday.
- 14 August 2006 - Uzbekistan - 2 Buried Alive, 5 Poisoned to Death in Sanitation Landslide  
Seven people have died in a sanitation ditch landslide in an Uzbek village near the borders of Afghanistan and Tajikistan, Interfax news agency reports.
- 14 August 2006 – China - Chinese coal mine collapse kills 13  
... said rescuers had located the bodies of 13 miners, apparently killed by fumes released by the shaft collapse, which may have been triggered by a landslide. ...
- 14 August 2006 - China - Typhoon Saomai's death toll in China increases to 114  
Six people were reported to have been crushed to death in a landslide triggered by torrential rain in Linshui, a city in Zhejiang ....
- 11 August 2006 - Philippines - Family of 6 perish in DavSur landslide  
Residents reportedly saw a tornado landing on the top of the mountain shortly before the landslide that buried the house of the Dawas located just at the foot of the mountain in Barangay Conel.
- 09 August 2006 - Pakistan - Five killed in Kashmir landslide  
A woman and her four children were killed when a landslide triggered by heavy rains fell on their house near the earthquake-devastated town of Muzaffarabad in Kashmir.
- 09 August 2006 - Philippines - Two children die in Kalinga landslide  
Two children died while their mother was injured after a typhoon-induced landslide buried their house Monday in Tabuk, Kalinga.
- 08 August 2006 - India - Landslide at Canacona blocks traffic  
A massive landslide at Dheketar Canacona on Tuesday evening paralysed traffic from Canacona to Sadolxem.
- 07 August 2006 - India - Landslide damages Hindustan-Tibet road  
A massive landslide, allegedly triggered by intense blasting at Pangi village, near Reckong Peo, district headquarters of Kinnaur, on Monday morning damaged a 200-m stretch of the old Hindustan-Tibet road, commonly known as the mule track, and blocked the new Hindustan-Tibet road (NH-22) for many hours.
- 03 August 2006 - Nepal - 10 people killed in Nepalese landslide  
At least 10 people, including five from a family, were killed in a landslide following torrential rain in a village in Rasuwa district in Nepal early morning, on Thursday.
- 03 August 2006 - China - Locals recall moment when landslide hit village  
Injured victims of a landslide on Monday in Guangdong's Dapu County remain in a stable condition in hospital, as local residents come to terms with the moment of terror. The landslide occurred at around 8 pm in Shixia Village, home to 30 people, when a huge block of mud broke off a hill and smashed through the village. Eight people were killed and five others were injured when their 100-year-old Hakka-style house was destroyed.

31 July 2006 - India - Drainage worker seriously injured in landslide

Two workers sustained injuries, one of them seriously, when they were trapped inside a drainage line following a landslide here Monday, an official said.

29 July 2006 - India - Mangalore: Landslide at Chembugudde - Two Crushed to Death

Saturday July 29 could be called as one of the most 'bloody' day in the history of undivided district of Dakshina Kannada. While the city woke up to hear the murder and suicide case of Ajri near Kundapur, by mid-noon there was another murder case reported from Udupi. Now just after lunch, the entire district is saddened by the death of two persons owing to landslide at Chembugudde near Tokkottu here.

29 July 2006 - Pakistan - Landslides block key road links in Azad Kashmir

Key road links in Azad Kashmir were blocked by landslides Wednesday prompted by the recent spate of monsoon incessant rains, obstructing movement of the people. Heavy downpour which began Monday and caused landslides, cutting off the scenic Neelum valley's only link with Muzaffarabad, the capital of Azad Kashmir, report Inp.

29 July 2006 - Burma - Motor Road Between Buthidaung and Maungdaw Blocked by Landslide

A motor road connecting two western border towns of Burma - Buthidaung and Maungdaw - has been blocked since 26 July 2006 after a landslide caused by heavy rains in the area.

28 July 2006 - Vietnam - Families evacuate landslide-prone areas

Cuu Long (Mekong) Delta provinces plan to evacuate 7,000 households in landslide-prone areas to safer ground, said Le Van Hung, head of Dong Thap Province's water resources department.

26 July 2006 - China - Landslide kills 2, injures another 1 in south China county

Two workers were confirmed dead with another one seriously injured and one more missing in a landslide accident that occurred early yesterday morning in the Changjiang Li Autonomous County of southernmost China's Hainan Province, officials said today.

24 July 2006 - Pakistan - Kashmir landslide kills 12 quake survivors

At least 12 persons, including five women and three children, were killed when a landslide hit a camp in Pakistan's quake-hit Kashmir on Monday, officials said. The landslide, caused by heavy rains in the region, struck a camp of quake survivors at Chela Banda in the outskirts of Muzaffarabad, the capital of Pakistan-administered Kashmir, the authorities said.

23 July 2006 - Nepal - Landslide Blocks Arniko Highway

A landslide triggered by heavy rainfall in northern Nepal on Sunday blocked the only highway to Tibet, an official said. Boulders blocked the Arniko highway at Halhale in Sindhupalchok district said Mohan Wagle, a local administrative official. No one was hurt by the landslide but several buses and trucks were stranded on the mountainous route, he said.

22 July 2006 - Nepal - Three of a Nuwakot family killed in landslide

Three members of a family were killed in a landslide at Gerku VDC-4 in Nuwakot district Friday night. According to reports, the house of one Bhesh Bahadur Nagarkoti was swept away when the mud above the house crumbled due to incessant rain. Nagarkoti's wife Devi Nagarkoti, 25, daughter Ashmita, 8, and son Sandesh, 6, were killed in the landslide.

22 July 2006 - Nepal - Landslide at Padnur - Surrounding Families Face Evacuation

The incessant rains in the taluk has caused landslide at Padnur owing to which nearly 10 families living in the vicinity are facing a possible evacuation on safety measures.

21 July 2006 - Thailand - Heavy rain and landslides in Uttaradit

19 July 2006 - Vietnam - Flooding, landslide kills 5 in Vietnam, 6 missing

Flooding and landslides killed five people in northern Vietnam and left six missing following heavy rains, officials said Wednesday.

17 July 2006 - China - Tropical storm death toll nears

17 July 2006 - India - Landslide at Kabaka - Train Service to Mangalore Hampered

Train service between the town and Mangalore was hampered owing to landslide on railway tracks near Kabaka here on Sunday July 16. Since the mud could not be removed from the tracks immediately, the train service to Mangalore was cancelled on Sunday.

17 July 2006 - Japan - Heavy rains in western Japan cause mudslides, train derailment

16 July 2006 - Nepal - Landslide triggered by monsoon rains kills 17 people in Nepalese village

A landslide triggered by monsoon rains swept through a village in northwest Nepal before dawn Saturday, killing at least 17 people as they slept, officials said. Another 13 people were missing and feared dead after the wall of mud and rock buried seven houses, local administrator Badri Ghimire said.

15 July 2006 - South Korea - Family Stranded By Landslide Reunites

A landslide occurred in Dosari town after Kim sent his two girls to school on July 15. Because of the heavy rainfall and the landslide, five houses collapsed and 12 houses were submerged. Worse yet, the landslide blocked ten kilometers of the only road to Dosari, and 200 people from 57 households were completely isolated. When the water began to fill in, the people fled to houses located on higher ground. However, the Kims, the Kos, and another Kims were more concerned about their children who went to school that morning.

14 July 2006 - India - Jawan killed in J & K landslide

One jawan was killed and another injured when a landslide struck an Army Road Opening Party (ROP) in Udhampur district early today, official sources said here.

14 July 2006 - Philippines - Two reported dead in Florita-spawned Baguio landslide

The Office of the Civil Defense (OCD) reported two fatalities due to landslide and drowning incidents as typhoon "Florita" crossed the Cordillera Region for the past three days. The victims were identified as Perfecto D.Gaerlan, 54, male, resident of Sto.Rosario, Marcos Highway, Baguio City and Gracel Benito, 7 years old of Imelda Village. They are victims of landslide and drowning respectively.

13 July 2006 - Philippines - Landslide kills farmer in Rizal; woman hurt

HEAVY rains on Wednesday afternoon triggered at least three landslides in Rizal, killing a 53-year-old farmer and injuring a woman who was cooking food for her family.

12 July 2006 - India - Landslide on Charmady Ghat - Road on Verge of Collapse

Road transport between Dakshina Kannada and Chikamagalur districts may soon stop following

landslide at Jenukallu on Charmady Ghat, said sources. Despite landslide, vehicles are still moving on the road. But the locals say that this cannot go on for long as day-by-day the road too is collapsing without being able to bear the load of heavy vehicles.

12 July 2006 - Philippines - Philippine landslide claims two

Several landslides triggered by heavy rains from Tropical Storm Bilis buried homes and cars in the northern city of Baguio, killing at least two children, officials said Wednesday.

08 July 2006 - China - 11 killed in China landslide

Eleven people were killed in a landslide early on Saturday at a local iron mine in north China's Shanxi province.

07 July 2006 - Japan - 6 buildings in Wakayama destroyed in landslide

Six buildings, including a factory, were destroyed Thursday morning after a mountain slope in Kamitondacho, Wakayama Prefecture, collapsed due to heavy rain. According to the Wakayama District Meteorological Observatory, more than 200 millimeters of rain had fallen between midnight Tuesday and Thursday morning. According to the Wakayama prefectural government, a landslide detection sensor had been installed after a crack was discovered on the slope in May. The prefectural government planned to set up a safety fence around the slope by mid-July. The crack was 46 centimeters wide.

06 July 2006 - Malaysia - Unit To Monitor Landslide-prone Hill Slopes

The Public Works Department (PWD) has set up a special unit to monitor hill slopes prone to landslides along highways, Works Minister Datuk Seri S. Samy Vellu told the Dewan Rakyat Thursday.

05 July 2006 - Nepal - Kodari highway blocked by landslide

The vehicular movement at Ten Kilometre of Barabishe-Kodari highway came to standstill when landslides blocked the road section Wednesday.

05 July 2006 - India - Another landslide at same spot

ANOTHER landslide occurred on the expressway at the same spot in the Khandala ghat section on Wednesday at 6. 30 pm. Deputy Superintendent of state highway police Sunil Sonawane said it was not as big as Monday's.

04 July 2006 - India - 5 die in landslide

Four migrant labourers and an Army driver were buried alive in a landslide which triggered due to blasting by the General Reserve Engineering Force (GREF) of the Border Roads Organisation (BRO) to widen the National Highway-22 near Khab today.

04 July 2006 - Uzbekistan - 7 picnickers killed by landslide

The landslide in the mountains of the Bostandyk district hit a group of picnickers from the capital Tashkent on Sunday, killing seven of them and injuring another two, the agency said in a Web-posted statement.

03 July 2006 - Pakistan - Landslide kills 10 in Pakistan, 15 missing

At least 10 people have died and several others missing after a landslide struck three houses near a beautiful Pakistani hilly resort in North-West Frontier Province, Pakistan's state-run television

reported on Monday.

The death toll in a massive landslide that swept away several houses in northern Pakistan on Monday, has risen to 17, officials said yesterday.

The death toll from flooding in the scenic Kalam valley Swat district in northern Pakistan reached to 22, Police said on Tuesday.

03 July 2006 - Thailand - Flash flood, landslide alert in many provinces

Interior Minister Kongsak Wanthana said Monday that the predicted floods in the east have eased, saying he ordered an early warning in crisis areas be issued ahead of time to prevent great loss in the face of crisis.

30 June 2006 - India - Landslide at Kallagudde Blocks Moodbidri Road

The main road connecting the town with Moodbidri was blocked on Friday June 30 morning following landslide at Kallagudde near SVS College here on Thursday June 29 night.

28 June 2006 - Malaysia - Girl killed in landslide at Sepanggar

An eight-year-old girl was killed when tonnes of soil slammed into a wooden house on Monday night. The incident occurred near where a 50m-stretch of the Sepanggar highway leading to a port and seaside resort caved in.

27 June 2006 - Philippines - 26 - Geologists identify 582 flood, landslide-prone areas ....

26 - Geologists identify 582 flood, landslide-prone areas in Northeastern Mindanao

27 June 2006 - Pakistan - Quake-hit areas face massive landslide threat

Environmentalists are saying that the unstable earth, resulting from the earthquake, may cause massive landslides and loss of life and agricultural land in the event of heavy or extended rains. According to Dr David Petley of University of Durham it was probably the greatest landslide threat in the world.

Pakistan is set to start on Tuesday evacuation of some 11,000 residents of 30 villages around the city of Muzaffarabad, capital of quake-hit Pakistan-administered Kashmir, from their houses after their villages were declared unsafe and prone to further landslides, officials said.

26 June 2006 - Japan - Lumber workers buried alive in landslide

Man killed by mudslide in Kyushu ..... The Japan Times Online

26 June 2006 - Indonesia - Floods, landslide in Indonesia kill 22

Floods triggered by heavy rain killed 22 people in central Indonesia, the second such disaster in the sprawling nation in less than a week, a police officer said Monday.

25 June 2006 - Indonesia - 21 killed in S Kalimantan Flood and Landslide Kotabaru, S Kalimantan

23 June 2006 - Pakistan - Government to evacuate 30 villages due to landslide risk

Some 11,000 residents of 30 villages around the city of Muzaffarabad, capital of quake-hit Pakistani-administered Kashmir will be evacuated from their houses by the end of this month after their villages were declared unsafe and prone to further landslides, officials said on Friday.

21 June 2006 - Indonesia - Death toll climbs to 114 in landslide in Indonesia

The number of people killed in the Tuesday's landslide and flood climbed to 114 and 22 others were still missing, a local official said on Wednesday.

20 June 2006 - Indonesia - Landslide Kills 7 in Indonesia

At least seven people died and 21 others were missing in a landslide caused by a heavy rain in Indonesia's South Sulawesi province on Tuesday, a rescue team said.

20 June 2006 - Philippines - Three killed in Compostela Valley landslide

Three people died, five were injured and two remained missing after a hillside collapsed and buried six houses in Barangay Napnapan in Pantukan, Compostela Valley on Tuesday, ABS-CBN Regional Network Group reported.

18 June 2006 - China - Landslide in southwest China kills 11: Xinhua

A landslide in a village in the southwestern Chinese province of Sichuan has killed 11 people and injured six others, the official Xinhua news agency said on Sunday.

17 June 2006 - Japan - Heavy rains cause landslide on Tohoku Expwy

Two passengers on a tour bus traveling through Nishikatamachi, Tochigi Prefecture, were injured Friday when the bus swerved to miss a landslide covering three northbound lanes on the Tohoku Expressway, police said.

15 June 2006 - Japan - Heavy rain in southern Japan triggers mudslides, hundreds evacuated

Heavy seasonal rains triggered mudslides in southern Japan, forcing the evacuation of hundreds of people, officials said on Thursday. About 370 people were evacuated from three towns on Japan's southern island of Okinawa, about 1,600 kilometers (1,000 miles) southwest of Tokyo, after nearby mudslides, said prefectural official Tomohiro Katsuren.

14 June 2006 - India - 8 killed, 75,000 displaced in Indian floods

Flash floods and mudslides triggered by heavy monsoon rains have killed eight people and displaced 75,000 in India's northeastern states of Assam and Tripura, officials said on Tuesday.

12 June 2006 - Vietnam - Landslide kills seven illegal miners

Flooding caused a landslide in northern Lao Cai province in the early hours of June 10, burying 7 illegal miners sleeping in the Minh Luong gold quarry, a local official said.

12 June 2006 - China - Fujian train lines closed

THE city suspended train services to Fuzhou and Xiamen yesterday, as heavy rains and a landslide have blocked rail lines between Shanghai and Fujian Province.

11 June 2006 - Taiwan - Rain brings on havoc nationwide

04 June 2006 - Pakistan - Possible landslide in ensuing monsoon threatens 55,000 quake victims

Chief Secretary of Azad Kashmir, Kashmir Murtaza, has warned of massive landslides threatening to 50,000-55,000 of lives of quake victims in the area in the upcoming monsoon seasons, according to reports

02 June 2006 - Malaysia - Malaysian rescuers end search for landslide survivors

Malaysian rescue crews called off their search for survivors Friday following a landslide that killed four people and left more than 200 homeless in an Indonesian migrant settlement.

27 May 2006 - Indonesia - Chronology: Indonesian disasters since '04

24 May 2006 - Thailand - At Least 50 Dead in Flash Flooding

Flash floods triggered by days of heavy rain killed at least 50 people in mountainous northern



- Thailand and left thousands trapped on rooftops and in trees, officials said.
- 19 May 2006 - Japan - Flood and landslide warning issued for Japan  
Heavy rain is expected on the Pacific coast of eastern and western Japan on Saturday, officials said Friday. Officials at the Meteorological Agency said people should be cautious about possible floods and landslides.
- 13 May 2006 - Indonesia - 11 sand miners feared dead in Indonesian landslide  
A 15-meter high sand hill collapsed into 14 miners in the Indonesian town of Bandung Saturday, leaving at least 11 miners buried.
- 12 May 2006 - Philippines - Thousands Evacuated in Central Philippines Amid Landslide Threats  
Thousands of residents from nine villages of Sogod town in Southern Leyte, central Philippines were evacuated Friday due to several reported landslides brought on by heavy rains of tropical storm, local radio reported.
- 02 May 2006 - China - Landslide hits northwest China  
A landslide at a gold mine in northwest China engulfed nearby homes, injuring five people and leaving at least 17 missing, government said Monday.
- 01 May 2006 - Tajikistan: Bad weather causes havoc in south
- 01 May 2006 - Nepal - Five girls killed in mudslide in Nepal
- 24 April 2006 - India - Landslide razes 50 temporary shelters in West Bengal  
At least 50 houses suffered cracks and 50 temporary dwellings collapsed to the ground when a landfill caved in at Kolkata's eastern outskirts Sunday.
- 20 April 2006 - Indonesia - Floods, landslide kill 15 in Indonesian town  
At least 15 people were killed on Thursday when a landslide and floods triggered by weeks of torrential rain swept through a town on Indonesia's Java island, a government official said.
- 14 April 2006 - Malaysia - Landslide in Malaysia: road blocked  
An overnight landslide blocked access to Malaysia's only legal casino in the Genting Highlands, but there were no reports of casualties, the casino operator said Friday.
- 13 April 2006 - China - Thawing snow causes landslide in Xinjiang  
A landslide measuring eight kilometers occurred in northwest China's Xinjiang Uygur Autonomous Region on Wednesday, leaving no casualties, the local government said on Thursday.
- 10 April 2006 - Philippines - Residents in 17 landslide-prone areas told to move  
Residents of at least 17 villages in Bicol that have been classified as most landslide-prone have been asked to relocate as soon as possible, an official of the Mines and Geosciences Bureau said.
- 01 April 2006 - Bangladesh - 4 workers killed in Ctg landslide  
Four workers were killed in a landslide near Bamerchhara Eco Park in Banskhali upazila of Chittagong early yesterday.

### **Australia and Oceania**

11 September 2006 - Australia - Landslide blocks Princes Highway

A landslide has blocked one lane of the Princes Highway near Orbost and delays are expected for up to a week. Last week's heavy rain and more showers on the weekend caused the slide around five kilometres east of Orbost, on the westbound lane.

16 August 2006 - New Zealand - Landslide slams into NZ apartment

Families rushed from their homes today as several thousand tons of hillside broke loose above an upscale Wellington neighbourhood, burying one building to its second floor level and smashing through windows, authorities said.

08 August 2006 - New Zealand - Landslide in suburban street a "huge disaster"

A landslide which slammed into a garage and left at least one Lower Hutt house on the brink of slipping away has been described by the city's mayor as a "huge disaster".

2006-07-28 - Rally NZ forced to revise route after mudslide.

The organizers of the Propecia Rally New Zealand have been forced to make a change to this year's route, after a massive mudslide, estimated to cost in the

14 July 2006 - New Zealand - Landslide hits pensioner's home

Heavy rain caused a hillside collapse that sent a landslide crashing into a Hunterville pensioner's home and buried a road in almost 2m of debris.

11 July 2006 - Tasmania - Rockfall claim blasted

On Tuesday, Greens MHA Kim Booth released photographs, referring to the aftermath of a rockfall which occurred on July 11. However, Mr Llewellyn said the photographs were taken after a blast on July 14. "Three days after the minor rock slip on July 11 blasting was undertaken at the site to stabilise the area," Mr Llewellyn said. "I am advised that this is what the photographs show." He said the rockfall consisted of 50 tonnes of rock while the photograph depicted 250 tonnes. On Tuesday, Mr Booth claimed they had "released photos of a landslide that has occurred at the Meander Dam."

30 April 2006 - New Zealand - Rotorua house badly damaged by landslide

Residents of a Rotorua house will not be able to go back into it tonight after a landslide severely damaged at least half of it this morning, Rotorua police say.

## ***ICL Newsletter***

Issue No.9  
10 October 2006

Published by the  
**Committee for ICL Library and Information Dissemination**  
**(Chairman: Hiroshi FUKUOKA)**

Research Centre on Landslides  
Disaster Prevention Research Institute, Kyoto University,  
Uji, Kyoto 611-0011, Japan,

Web: <http://icl.dpri.kyoto-u.ac.jp/>  
e-mail: [jimu@landslide.dpri.kyoto-u.ac.jp](mailto:jimu@landslide.dpri.kyoto-u.ac.jp)  
FAX: +81-774-384300, Phone: +81-774-38-4111