The ISDR-ICL Sendai Partnerships 2015–2025: Background and Content

Kyoji Sassa

Abstract

The International Consortium on Landslides proposed the ISDR-ICL Sendai Partnerships 2015–2025 for global promotion of understanding and reducing landslide disaster risk at the session “Underlying risk factors” of the Third United Nations World Conference on Disaster Risk Reduction (WCDRR) in the morning of 16 March 2015, in Sendai, Japan. The proposal was accepted and signed by 16 United Nations, international and national organizations in the afternoon of the same day in a Japanese restaurant “Junsei”, Sendai, Japan. This article describes the background and content of the Partnerships including example of major landslide disaster in the world with the full text of the partnerships and the list of signatory organizations.

Keywords

Landslides • International Consortium on Landslides (ICL) • International Strategy for Disaster Risk Reduction (ISDR) • World Conference on Disaster Risk Reduction (WCDRR)

Introduction

Part 1 ISDR-ICL Sendai Partnerships 2015–2025 describes: 1.1 The ISDR-ICL Sendai Partnerships 2015–2025: Background and Content, 1.2 Three selected forum lectures as examples of recent landslide research as the scientific base of the partnerships, 1.3 Contributions from signatory organizations of the Sendai Partnerships as basic information for the high-level panel discussion for Strengthening Intergovernmental Networks and the International Programme on Landslides (IPL) for “ISDR-ICL SENDAI PARTNERSHIPS 2015–2025 for global promotion of understanding and reducing landslide disaster risk”, 1.4 One of the contributions from ICL to the Partnership “Landslide Dynamics-ISDR-ICL Landslide Interactive Teaching Tools (LITT)”, 1.5 The planned common platform for landslide case reports for the promotion of cooperation.

This chapter presents a visual overview of some landslide disasters around the world to the wider communities that are partly involved in landslide disaster risk reduction, showing first the significance of the Partnerships, then the background of the Partnerships and the full content of the partnerships.

Examples of Landslide Disasters Around the World

“Landslide disasters are caused by exposure to hazardous motions of soil and rock that threaten vulnerable human settlements in mountains, cities, coasts, and islands” (from the Sendai Partnership Resolution). When large-scale landslides have occurred and caused major disasters, they are reported. When small scale-landslides have occurred and caused disasters in urban areas in National capitals or Provincial capitals such as Hiroshima city in Japan and Ha Long city in Vietnam (introduced in the Preface), those are reported. However, small-scale landslides that killed people living in a few houses in rural areas are not always recorded

K. Sassa (✉)

International Consortium on Landslides, Kyoto, Japan
e-mail: sassa@iclhq.org

© The Author(s) 2017

K. Sassa et al. (eds.), *Advancing Culture of Living with Landslides*,
DOI 10.1007/978-3-319-59469-9_1

in many countries. Both the number and frequency of small-scale landslides are some order of magnitude higher than that of large-scale landslides. To achieve the UN Sustainable Development Goals No. 11 “Make cities and human settlements inclusive, safe, resilient and sustainable”, disaster reduction should be fostered by “the development of people-centered early warning technology for landslides with increased precision and reliable prediction both in time and location, especially in a changing climate context” (from the Sendai Partnership Resolution) and by applying it to rural areas as well as urban areas.

Unfortunately, small-scale landslides occur in many places and so frequently that they are neither remarked nor recorded, in contrast with the cases of earthquakes, volcanic eruptions, and typhoons/hurricanes. However, big landslide disasters are reported and may be found in Wikipedia or other sources on the internet.

Definition of landslides have varied around the world. As a voluntary commitment to the International Decade of Natural Disaster Reduction (1990–2000), the landslide-related communities in the International Geotechnical Societies and UNESCO established a working party for the World Landslide Inventory to establish a definition of landslides. The discussed result was published in “Landslide Types and Processes” by David Cruden and David Varnes in *Landslides—Investigation and Mitigation*, Transportation Research Board, US National Research Council in 1996. In order to disseminate this new definition and classification of landslides, including debris flows,

earth flows, rock falls, rock toppling and other types of very slow to very rapid movements of rock, debris or soils, the *Landslide Handbook—A Guide to Understanding Landslides* was edited as an International Programme on Landslides IPL 106 Best Practice handbook for landslide hazard mitigation (2002–2007), and it was published by U. S. Geological Survey in 2008. This handbook with many illustration and photographs, has been translated and published in Portuguese and Spanish, Japanese, and Chinese. This project received the IPL Award for Success at the 2nd World Landslide Forum at the Food and Agriculture Organization of the United Nations (FAO) headquarters in Rome, Italy.

As a contribution to the Sendai Partnerships, ICL are editing the *Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools (LITT)* (two volumes of around 1600 pages) for capacity development necessary as a key component of Sendai Partnerships. The revised landslide handbook “Landslide types: Description, illustration and photos” including more illustrations and photos and “Landslide Dynamics for risk reduction” for the assessment of landslide initiation and motion are written and included as the fundamental part of the *Landslide Interactive Teaching Tools (LITT)*, which is introduced in this volume.

Landslide researchers know major landslide disasters, and showing some examples to scientists, engineers, and policy makers who are partly involved to landslide risk reduction efforts is useful. Table 1 presents an outline of major landslide disasters in the world.

Table 1 A list of major landslide disasters around the world

No	Date	Place	Casualties
1	21 May 1792	Nagasaki, Japan	16,000
2	19 May 1919	Kelud, Indonesia	5110
3	16 December 1920	Ningxia, China	>100,000
4	25 August 1933	Sichuan, China	–3100
5	5 July 1938	Kwansai, Japan	–1000
6	13 December 1941	Ancash, Peru	4000–6000
7	10 July 1949	Oblast, Tajikistan	800–4000
8	18 July 1953	Wakayama, Japan	1046
9	26 September 1958	Shizuoka, Japan	1094
10	10 January 1962	Ranrahirca, Peru	4000–5000
11	09 October 1963	Longarone, Italy	= 2000
12	31 May 1970	Yungay, Peru	18,000
13	18 March 1971	Chungar, Peru	400–600
14	13 November 1985	Tolima, Colombia	23,000
15	30 October 1998	Mt. Casita, Nicaragua	2000
16	16 December 1999	Vargas, Venezuela	30,000
17	17 January 2001	El Salvador	500–1700
18	17 February 2006	Leyte, Philippines	1144

(continued)

Table 1 (continued)

No	Date	Place	Casualties
19	9 August 2009	Kaohsiung, Taiwan	500–600
20	8 August 2010	Gansu, China	1287
21	11 January 2011	Rio de Janeiro, Brazil	>1,000
22	16 June 2013	Uttarakhand, India	5700
23	02 May 2014	Badakhshan, Afghanistan	500
24	1 October 2015	El Cambray Dos, Guatemala	220

Examples of Large-Scale Landslides and Their Disasters Around the World

Photos and summary information is presented on several large-scale landslides in which the depth of the sliding surfaces are the order of 10 to 100 meters. Those differ from small-scale shallow landslides, in which the depth of sliding surfaces of the initial landslides are a few meters (as presented in the Preface) (Fig. 1).

Fig. 1 a Mayuyama Landslide was triggered on the Unzen volcano by a nearby earthquake on 21 May 1792. The landslide mass moved into the Ariake Sea and triggered a tsunami wave. The landslide and the landslide-induced tsunami killed 15,153 people. It was the largest landslide disaster and the largest volcanic disaster in Japan. *Left top* is a Google photo of the landslide. *Left bottom* is the landslide cross-section. *Right bottom* shows the reproduction of the landslide and the resulting tsunami wave, using computer simulations of the landslide and the tsunami (*Sources* Landslides Vol. 11(5) 2014 Vol. 13 (6), 2016) **b** Vajont landslide was triggered by water-level changes in a dam reservoir on 9 October 1963. A large-scale rapid landslide mass entered into the reservoir of the Vajont dam. The water in the reservoir overflowed over the dam and wiped out a community along the river. *Left photo* shows the landslide mass fill in the dam reservoir. *Right two photos* show the community of Longarone village, Italy before and after the landslide and flood. The village disappeared and around 2000 people were killed. **c** Nevados Huascaran debris avalanche was triggered by an earthquake on 31 May 1970 in Peru. The rapidly moving large-scale landslide mass destroyed the town of Yungay and killed around 18,000 people. *Left photo* is an air photo showing the source of landslide and the debris covering the Yungay town. *Right photos* show that nothing remained of Yungay town. **d** A large-scale landslide-debris flow was triggered by the eruption of Nevado del Ruiz volcano on 13 November 1985 in Columbia. The resulting volcanic debris flow destroyed the town of Armero in Tolima, Columbia, killing 20,000–23,000 people. The map on the *top left* shows the debris flow path and volcanic hazard zones of nearby areas. *All three photos* show the town after the disaster. **e** A group of many small landslides were triggered by heavy rainfall in Salerno, Italy on 5 May 1998. This is a similar type of disaster to the 2014 Hiroshima landslide disaster introduced in the Preface. Initial small and shallow landslides moved debris down to the lower slope and torrents increased the flow in volume, overwhelming the urban settlement. 280 persons were killed in Salerno town. **f** A storm on December 14–16, 1999 struck the State of Vargas along the Caribbean Sea in Venezuela. It triggered thousands of landslides and large-scale debris flows that killed 10,000–30,000 persons. **g** An earthquake triggered a rapid landslide

The author investigated (1) Mayuyama landslide-tsunami disaster, (7) Las Colinas earthquake-induced landslide, (8) Leyte rainfall + earthquake induced landslide, and (12) Potential landslides in Machu Picchu. The author visited (2) Vajont landslide, (5) Salerno landslides-debris flows, (11) Usay earthquake-induced landslide and the landslide-dammed Lake Sarez. The author did not visit (3) Huascaran debris avalanche, (4) Nevado del Ruiz debris flow, (6) Vargas debris flow, (9) Uttarakhand landslide-

on January 13, 2001 in Las Colinas, El Salvador. The landslide mass travelled through a densely populated urban area and killed 500–1700 people **h** Accumulated rainfall of 674 mm from 8 to 17 February 2006 hit Guinsaugon, Leyte, Philippine. A very small earthquake (Ms 2.6) then occurred on 17 February 2006. This small earthquake after the long rainfall triggered a large-scale rapid landslide in volcano-clastic debris that killed more than 1144 people. *Source* Landslides Vol. 7(3), 2010) **i** Heavy rainfall from 14 to 17 June 2013 struck the Indian state of Uttarakhand. This heavy rainfall caused snow melting of a glacier, triggered landslides and led to floods. The death toll was 5700 people. **j** Mudslides occurred on 2 May 2014 in Badakhshan, Afghanistan. A week before the mudslides, there had been torrential rain. The sliding mass flowed over a settlement and killed around 500 people. *Source* Wikipedia **k** The Usay landslide is a very large landslide, with a depth of 700 m, which was triggered by an earthquake in 1911. The landslide mass blocked the river, forming a landslide dam lake called Lake Sarez. The water level of this lake has continued to increase and is currently near the top of the landslide dam (height is 567 m). *Top-left* is an air photo of the Usay landslide dam and Lake Sarez, and *bottom-left* shows a wide area satellite photo. *Lower right* is a ground photo of the landslide dam and the lake. *Top right* is a record of the increasing water level since 1940. This landslide dam is threatened by further gradual increases in water level and also landslide-induced tsunami, which may be triggered by a landslide from the slopes along the shore of the dam lake (*Source* Science Vol. 326, 2009). **l** The Inca World Heritage site at Machu Picchu shows signs of potential landslides. *Left-top* shows the Machu Picchu citadel constructed on the sliding surface of a big landslide between two peaks of Huayna Picchu and Machu Picchu. The sliding surface and another potential sliding surface (*yellow*) are along gently dipping shear bands. Close up photos of the shear bands are in (b) and (c). *Left-bottom* is the movement record of an extensometer installed in the lower slope of Machu Picchu citadel. *Right figure* shows ground radar investigation along a part of the *red dotted line*. It suggested the Plaza (*flat area*) was formed by filling a crack (it might be a head scarp of the potential retrogressive landslide). *Sources* Proc. 1st World Landslide Forum

(a)

(b)

Vajont landslide in Longarone, Italy on 09 October 1963 (Death toll: 2,000)

<http://landslides.usgs.gov>

(c)

Nevado Huascaran Debris Avalanche in Yungay, Peru on 31 May 1970 (Death toll: 18,000)

<http://landslides.usgs.gov>

(d)

Nevado del Ruiz debris flows, Colombia on 13 November 1985 (Death toll: 23,000)

<http://landslides.usgs.gov>

Fig. 1 (continued)

(e)

(f)

Fig. 1 (continued)

(g)

**Las Colinas landslide, El Salvador on 17 January 2001
(Death toll: 500 - 1,700)**

(h)

**Leyte Landslide, Philippines on 17 February 2006
(Death toll: 1,144)**

Fig. 1 (continued)

(i)

Landslide in Kedarnath, Uttarakhand, India on 16 June 2013 (Death toll: 5700)

(i)

Badakhshan mudslide, Afghanistan on 2 May 2014 (Death toll: 500)

Fig. 1 (continued)

A large group of officials from the UN, ICL, and ISDR posing for a group photo in a traditional Japanese room. A banner in the foreground reads "UN World Conference on Disaster Risk Reduction 2015 Sendai, Japan" and "ISDR-ICL SENDAI PARTNERSHIPS 2015 - 2025 16th March, 2015 Sendai, Japan".

debris flows and floods, or (10) Badakhshan mudslides. The cases of (3), (4), (6), (9) are indirect information from Wikipedia (2016.10.3) below and other websites.

Background of the ISDR-ICL Sendai Partnerships 2015 -2025

The very beginning of ISDR-ICL Sendai Partnerships came from the foundation of ICL in January 2002 which UNISDR supported and sent its delegate. The concept of an ICL

contribution to the post-2015 Framework for Disaster Risk Reduction started from the 10th anniversary Conference on 17–20 January 2012 in Kyoto, Japan, with financial support from the Japan Science and Technology Agency (JST). Participants reviewed the first decade of ICL and IPL activities and examined the second decade of ICL-IPL activities. As a result, **ICL Strategic plan 2012–2021—To create a safer geoenvironment** was adopted. This conference approved the establishment of four regional networks and five thematic networks of ICL to expand the activities of ICL members and cooperation with non-ICL members in the specific region and themes. ICL organized the ICL-IPL Conference in Kyoto, Japan in 2013 with financial support from JST. At this conference, ICL discussed and prepared the 20014 Beijing Declaration to be adopted in the World Landslide Forum 3 in Beijing, China on 2–6 June 2014. Furthermore ICL examined and drew up the draft of ICL-IPL Sendai Partnerships 2015–2025—Landslide disaster risk reduction for a safer geo-environment to be examined in Sendai, Japan, in March 2015. **The 2004 Beijing Declaration—Landslide mitigation toward a safer Geoenvironment** was examined in the high-level panel discussion with the participation of the Director-General of UNESCO Ms Irina Bokova and was adopted at the end of WLF3 in Beijing, China, which was held on 2–6 June 2014 (Fig. 2).

ICL organized the Steering Committee meeting in Kyoto on 7–9 October 2014, together with the **International Forum “Urbanization and Landslide Disaster”—Hiroshima landslide disaster** in August, 2014 and Japan’s contribution to the Post-2015 framework for Disaster Risk Reduction. This forum, together with the ICL Steering Committee meeting, was planned as a preparatory meeting for the ICL-IPL Sendai Partnerships Conference on 11–15 March 2015. Key members of ICL, UNESCO, UNISDR, MEXT, and the Cabinet Office and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Government of Japan attended and discussed the global collaborative framework contributing to the Third World Conference on Disaster Risk Reduction.

The ISDR-ICL Sendai Partnerships 2015–2025

The signing ceremony of the ISDR-ICL Sendai Partnerships was organized in a Japanese Restaurant “Junsei” in Sendai, Japan from 12:00–13:30 on 16 March 2015. 16 intergovernmental, international and national organizations signed the

Sendai Partnerships. The heads of some organizations attended and signed there, some organizations nominated an officer in-charge of disaster reduction to sign the documents, while some organizations signed it in advance and sent a representative to bring the signed partnerships to this signing ceremony. Following are the organizations which agreed and signed the Sendai partnerships on 16 March 2015. The World Meteorological Organization (WMO) signed the Sendai Partnerships on 15 April 2016. ICL took 6–8 months to obtain the signatures from seven global stakeholders (UNESCO, WMO, FAO, UNISDR, UNU, ICSU and WFEO) for the Letter of Intent aiming to provide a platform for a holistic approach in research and learning on ‘Integrated Earth System Risk Analysis and Sustainable Disaster Management’ after WCDR in 2005 and also exchange MoUs with each of the same global stakeholders to promote the 2006 Tokyo Action Plan—Strengthening Research and Learning on Landslides and Related Earth System Disasters for Global Risk Preparedness. ICL planned to establish the Sendai Partnerships during the 3rd WCDRR in Sendai, Japan. Figure 3 shows the memorial photo after signing the Sendai Partnerships in a Japanese restaurant “Junsei” in Japan.

The full text of the ISDR-ICL Sendai Partnerships is shown below as an appendix of this article. The partnerships are updated due to a change of ICL members and also signatory organizations. The objectives of partnerships will be better realized by new signatory organizations and new ICL members.

Call for Cooperation

ICL wishes to implement and develop this Sendai Partnerships 2015–2025 together with all organizations and individuals. We wish to invite those organization and individuals to join the high-level panel discussion and the round-table discussion on 30–31 May 2017 during the Fourth World Landslide Forum in Ljubljana, Slovenia. The information of the WLF4 is uploaded at <https://www.wlf4.org/>.

The information of the International Consortium on Landslides can be obtained from <http://icl.iplhq.org/category/home-icl/>.

Information on the International Programme on Landslides (IPL, a programme of the ICL for ISDR) can be obtained from <http://iplhq.org/>. All inquiries on ICL, IPL and the Sendai Partnerships should be addressed to ICL Secretariat secretariat@iclhq.org.

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

**ISDR-ICL SENDAI PARTNERSHIPS 2015-2025
FOR GLOBAL PROMOTION OF UNDERSTANDING AND REDUCING
LANDSLIDE DISASTER RISK**

*Tools for Implementing and Monitoring the Post-2015 Framework for Disaster Risk
Reduction and the Sustainable Development Goals*

At the 2nd United Nations World Conference on Disaster Reduction, which was held in Kobe, Japan, on 18-22 January 2005, the International Consortium on Landslides (ICL) co-organized a session which resulted in a global partnership and platform taking a holistic approach to research and learning on 'Integrated Earth system risk analysis and sustainable disaster management'. This partnership was forged through a "Letter of Intent", that was signed by UNESCO, UNISDR, WMO, FAO, UNU, ICSU, and WFEO. It further led to the adoption and implementation of the 2006 Tokyo Action Plan, thus creating a global partnership on Landslides, i.e., the current International Programme on Landslides (IPL) of ICL.

At the 3rd World Conference on Disaster Risk Reduction (WCDRR), which was convened by the United Nations and hosted by Japan in Sendai from 14 to 18 March 2015, the ICL and its IPL contributed further to the UN International Strategy for Disaster Reduction (ISDR) and co-organized the Working Session "Underlying Risk Factors" together with UNESCO, the Japanese Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and other pertinent organizations.

At the Working Session, the causes that create risk and their cumulative effects, as well as the relevant achievements of the Hyogo Framework for Action 2005-2015, were reviewed. Steps to address the principal drivers of vulnerability and exposure and to support hazard and risk assessment were suggested. In addition, the participating scientific and academic institutions and governmental and non-governmental organizations proposed that the *Sendai Partnerships 2015-2025 for Global Promotion of Understanding and Reducing Landslide Disaster Risk* be established. This sound global platform will be mobilized in the coming decade to pursue prevention, to provide practical solutions, education, communication, and public outreach to reduce landslide disaster risk. These Partnerships will engage all significant stakeholders concerned with the challenge of understanding and reducing disaster risk, including relevant international, national, local, governmental, and non-governmental institutions, programmes and initiatives. The Partnerships will focus on delivering tangible and practical results that are directly related to the implementation of the goals and targets of the post-2015 Framework for Disaster Risk Reduction.

The *Sendai Partnerships 2015-2025 for Global Promotion of Understanding and Reducing Landslide Disaster Risk* are hereby established. They represent **Tools for Implementing and Monitoring** the Post-2015 Framework for Disaster Risk Reduction and the Sustainable Development Goals.

Partners in the "Partnerships" adopt the following Resolution:

We acknowledge that:

- ✓ Landslide disasters are caused by exposure to hazardous motions of soil and rock that threaten vulnerable human settlements in mountains, cities, coasts, and islands.

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

- ✓ Climate change will intensify the risk of landslides in some landslide prone areas through an increase in the frequency and/or magnitude of heavy rainfall, and shifts in the location and periodicity of heavy rainfall.
- ✓ Developments in mountains and coastal areas, including construction of roads and railways and expansion of urban areas due to population shifts, increase exposure to hazards of landslides.
- ✓ Although they are not frequent, strong earthquakes have potential to trigger rapid and long runout landslides and liquefaction. Earthquake-induced coastal or submarine large-scale landslides or megaslides (with depths on the order of hundreds of meters to one thousand meters) in the ocean floor can trigger large tsunami waves. These hazardous motions of soil and water impacting on exposed and vulnerable population can result into very damaging effects.
- ✓ The combined effects of triggering factors, including rainfall, earthquakes, and volcanic eruptions, can lead to greater impacts through disastrous landslides such as lahars, debris flows, rock falls, and megaslides.
- ✓ Understanding landslide disaster risk requires a multi-hazard approach and a focus on social and institutional vulnerability. The study of social and institutional as well as physical vulnerability is needed to assess the extent and magnitude of landslide disasters and to guide formulation of effective policy responses.
- ✓ Human intervention can make a greater impact on exposure and vulnerability through, among other factors, land use and urban planning, building codes, risk assessments, early warning systems, legal and policy development, integrated research, insurance, and, above all, substantive educational and awareness-raising efforts by relevant stakeholders.
- ✓ The understanding of landslide disaster risk, including risk identification, vulnerability assessment, time prediction, and disaster assessment, using the most up-to-date and advanced knowledge, is a challenging task. The effectiveness of landslide disaster risk reduction measures depends on scientific and technological developments for understanding disaster risk (natural hazards or events and social vulnerability), political “buy-in”, and on increased public awareness and education.
- ✓ At a higher level, social and financial investment is vital for understanding and reducing landslide disaster risk, in particular social and institutional vulnerability through coordination of policies, planning, research, capacity development, and the production of publications and tools that are accessible, available free of charge and are easy to use for everyone in both developing and developed countries.

We agree on the following initial fields of cooperation in research and capacity building, coupled with social and financial investment:

- ✓ Development of people-centered early warning technology for landslides with increased precision and reliable prediction both in time and location, especially in a changing climate context.
- ✓ Development of hazard and vulnerability mapping, vulnerability and risk assessment with increased precision, and reliability as part of multi-hazard risk identification and management.
- ✓ Development of improved technologies for monitoring, testing, analyzing, simulating, and effective early warning for landslides.
- ✓ Development of international teaching tools that are always updated and may be used free of charge by national and local leaders and practitioners, in developed and developing countries through the Sendai Partnerships 2015-2025.
- ✓ Open communication with society through integrated research, capacity building, knowledge transfer, awareness-raising, training, and educational activities to enable societies to develop effective policies and strategies for reducing landslide disaster risk, to strengthen their capacities for preventing hazards to develop into major disasters,

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

- and to enhance the effectiveness and efficiency of relief programs.
- ✓ Development of new initiatives to study research frontiers in understanding landslide disaster risk, such as the effect of climate change on large-scale landslides and debris flows, the effective prediction of localized rainfall to provide earlier warning and evacuation especially in developing countries, the mechanism and dynamics of submarine landslides during earthquakes that may cause or enhance tsunamis, and geotechnical studies of catastrophic megaslides for prediction and hazard assessment.

We further agree to advocate that activities should be balanced at regional, national, and community levels in order to empower and engage more professionals, practitioners and decision-makers in formulating policies and establishing programmes for the benefit of disaster risk reduction efforts.

We further agree that progress made in the contribution of the *Sendai Partnerships 2015-2025 for Global Promotion of Understanding and Reducing Landslide Disaster Risk* toward the implementation of the Post-2015 Framework for Disaster Risk Reduction will be reported and emerging challenges will be discussed every two years at the Global Platform for Disaster Risk Reduction in Geneva.

A Call for joining the Partnerships

Competent global, regional, national, and local institutions participating in the 3rd WCDRR and in the implementation of the Post-2015 Framework for Disaster Risk Reduction are invited to support this initiative by joining and signing these Partnerships through participation in clearly defined projects related to the issues and objectives of these Partnerships. The potential partners are requested to be in contact with the secretariat of the host organization.

Host Organization and Secretariat

The International Consortium on Landslides (ICL) hosts the Sendai Partnerships 2015-2025 as a voluntary commitment to the United Nations World Conference on Disaster Risk Reduction, Sendai, Japan. The ICL Secretariat in Kyoto, Japan, serves as the Secretariat of the Sendai Partnerships.

Signatories:

Mr. Kyoji Sassa
Executive Director
International Consortium on Landslides
Host organization of the Partnerships

16 / 03 / 15

Date

Ms. Margareta Wahlström
Special Representative of the UN Secretary-
General for Disaster Risk Reduction
Chief of UNISDR

16 March 2015 in Sendai

Date

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

Mr. Qunli Han
Director
Division of Ecological and Earth Sciences
United Nations Educational, Scientific
and Cultural Organization

16 March 2015
Date

Mr. Dominique Burgeon
Resilience Coordinator, Director
Emergency and Rehabilitation Division
Food and Agriculture Organization of
the United Nations

16 March 2015
Date

Mr. Kazuhiko Takeuchi
Senior Vice-Rector
United Nations University

16 March 2015
Date

Mr. Petteri Taalas
Secretary-General
World Meteorological Organization

15.4.16
Date

Mr. Gordon McBean
President
International Council for Science

16/03/2015
Date

Mr. Toshimitsu Komatsu
Vice President
World Federation of Engineering
Organizations

March 16, 2015
Date

Mr. Roland Oberhänsli
President
International Union of Geological Sciences

16/03/2015
Date

Mr. Alik Ismail-Zadeh
Secretary-General
International Union of Geodesy and
Geophysics

16 MARCH 2015, SENDAI, JAPAN
Date

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

Mr. Kaoru Saito
Director
Disaster Preparedness and
International Cooperation Division
Disaster Management Bureau
Cabinet Office, Government of Japan

16/03/2015

Date

Mr. Hideaki Maruyama
Director
Office for Disaster Reduction Research
Ministry of Education, Culture, Sports,
Science and Technology, Japan

16.03.2015

Date

Mr. Takashi Onishi
President
Science Council of Japan

March 16, 2015

Date

Ms. Kayo Inaba
Executive Vice President for Gender
Equality, International Affairs, and
Public Relations
Kyoto University

16.03.15

Date

Mr. Prefetto Franco Gabrielli
Head
National Civil Protection Department
Italian Presidency of the Council of
Ministers
Government of Italy

16.03.2015

Date

Mr. Jadran Perinic - a
Director General
National Protection and Rescue Directorate
Republic of Croatia

16.03.2015

Date

Mr. Walter Ammann
President/CEO
Global Risk Forum GRF Davos

16 March 2015

Date

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

ANNEX to the ISDR-ICL SENDAI PARTNERSHIPS 2015-2025

ICL member organizations (registered on 1 April 2015)

1. Albanian Geological Survey, ALBANIA
2. The Geotechnical Society of Bosnia and Herzegovina, BOSNIA AND HERZEGOVINA
3. Geological Survey of Canada, CANADA
4. China Geological Survey, CHINA P.R.
5. Institute of Cold Regions Science and Engineering, Northeast Forestry University, CHINA P.R.
6. Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, CHINA P.R.
7. Bureau of Land and Resources of Xi'an, China P.R.
8. Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, CHINA P.R.
9. Tongji University, College of Surveying and Geo-Informatics, CHINA P.R.
10. Universidad Nacional de Colombia, Colombia
11. Croatian Landslide Group from University of Rijeka and University of Zagreb, CROATIA
12. City of Zagreb, Emergency Management Office, CROATIA
13. Charles University, Faculty of Science, CZECH REPUBLIC
14. Institute of Rock Structure and Mechanics, Czech Academy of Sciences, Department of Engineering Geology, CZECH REPUBLIC
15. Joint Research Centre (JRC), EUROPEAN COMMISSION
16. Cairo University, EGYPT
17. Technische Universität Darmstadt, Institute and Laboratory of Geotechnics, GERMANY
18. Department of Geology of National Environmental Agency of Georgia, GEORGIA
19. Universidad Politécnica de Ingeniería, UPI, HONDURAS
20. Instituto Hondureño de Ciencias de la Tierra, IHCIT /Universidad Nacional Autónoma de Honduras UNAH, HONDURAS
21. National Institute of Disaster Management, New Delhi, INDIA
22. Amrita Vishwa Vidyapeetham, Amrita University, INDIA
23. Gadjah Mada University, INDONESIA
24. Parahyangan Catholic University, INDONESIA
25. Research Center for Geotechnology-Indonesian Institute of Sciences, INDONESIA
26. Building & Housing Research Center, IRAN
27. Soil Conservation and Watershed Management Research Institute, IRAN
28. University of Firenze, Earth Sciences Department, ITALY
29. ISPRA-Italian Institute for Environmental Protection and Research, ITALY

**Voluntary commitment to the World Conference on Disaster Risk Reduction
Sendai, Japan, 2015**

30. University of Calabria, Laboratory of Environmental Cartography and Hydraulic and Geological Modeling, ITALY
31. Istituto di Ricerca per la Protezione Idrogeologica (IRPI), of the Italian National Research Council (CNR), ITALY
32. Kyoto University, Disaster Prevention Research Institute, JAPAN
33. University of Tokyo, Geotechnical Engineering Group, JAPAN
34. Niigata University, Research Institute for Natural Hazards and Disaster Recovery, JAPAN
35. Forestry and Forest Product Research Institute, JAPAN
36. Japan Landslide Society, JAPAN
37. Korea Institute of Geoscience and Mineral Resources (KIGAM), REPUBLIC OF KOREA
38. Korea Forest Research Institute, REPUBLIC OF KOREA
39. Korea Infrastructure Safety & Technology Corporation, REPUBLIC OF KOREA
40. Korea Institute of Construction Technology, REPUBLIC OF KOREA
41. Korean Society of Forest Engineering, REPUBLIC OF KOREA
42. Slope Engineering Branch, Public Works Department of Malaysia, MALAYSIA
43. Institute of Geography, UNAM, MEXICO
44. International Centre for Integrated Mountain Development (ICIMOD), NEPAL
45. Department of Geology, University of Nigeria, Nsukka, NIGERIA
46. Norwegian Geotechnical Institute (NGI), Oslo, NORWAY
47. Grudec Ayar, PERU
48. Department of Engineering and Ecological Geology, Moscow State University, RUSSIA
49. JSC "Hydroproject Institute", RUSSIA
50. University of Belgrade, Faculty of Mining and Geology, SERBIA
51. Comenius University, Faculty of Natural Sciences, Department of Engineering Geology, SLOVAKIA
52. University of Ljubljana, Faculty of Civil and Geodetic Engineering (ULFGG), SLOVENIA
53. Geological Survey of Slovenia, SLOVENIA
54. University of Ljubljana, Faculty of Natural Sciences and Engineering (UL NTF), SLOVENIA
55. Central Engineering Consultancy Bureau (CECB), SRI LANKA
56. National Building Research Organization, SRI LANKA
57. Landslide group in National Central University from Graduate Institute of Applied Geology, Department of Civil Engineering, Center for Environmental Studies, CHINESE TAIPEI
58. National Taiwan University, Department of Civil Engineering, CHINESE TAIPEI
59. Ministry of Agriculture and Cooperatives, Land Development Department, THAILAND
60. Asian Disaster Preparedness Center, THAILAND
61. Institute of Telecommunication and Global Information Space, UKRAINE
62. California State University, Fullerton, USA & Tribhuvan University, Institute of Engineering, Nepal, USA/NEPAL
63. Institute of Transport Science and Technology, Ministry of Transport, VIET NAM
64. Vietnam Institute of Geosciences and Mineral Resources, Ministry of Natural Resources and Environment, VIET NAM

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.