

Landslides

ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk --Manuscript Draft--

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| Abstract: | <p>The International Consortium on Landslides (ICL) proposed a Sendai Partnerships to create a global platform from 2015 to 2025 for the promotion of landslide research and disaster risk reduction as a voluntary contribution to the 3rd United Nations World Conference on Disaster Risk Reduction, in Sendai, Japan, 2015. It was accepted at the Session "Underlying Risk Factors" dealing with the priority area No.4 of the Hyogo Framework for Action in 2005. The ISDR-ICL SENDAI PARTNERSHIPS 2015-2025 for global promotion of understanding and reducing landslide disaster risk was agreed and signed on 16 March 2015 by 16 intergovernmental, international and national organizations involved in this field. This article presents the background of the Sendai Partnerships, agreement and signatories by partners, and the full text of the Sendai Partnerships. Then, ICL calls for cooperation to the Sendai partnerships 2015-2025 as a voluntary commitment to the 3rd WCDRR.</p> |

Preface

Kyoji Sassa

ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk

Abstract

The International Consortium on Landslides (ICL) proposed a Sendai Partnerships to create a global platform from 2015 to 2025 for the promotion of landslide research and disaster risk reduction as a voluntary contribution to the 3rd United Nations World Conference on Disaster Risk Reduction, in Sendai, Japan, 2015. It was accepted at the Session “Underlying Risk Factors” dealing with the priority area No.4 of the Hyogo Framework for Action in 2005. The ISDR-ICL SENDAI PARTNERSHIPS 2015-2025 for global promotion of understanding and reducing landslide disaster risk was agreed and signed on 16 March 2015 by 16 intergovernmental, international and national organizations involved in this field. This article presents the background of the Sendai Partnerships, agreement and signatories by partners, and the full text of the Sendai Partnerships. Then, ICL calls for cooperation to the Sendai partnerships 2015-2025 as a voluntary commitment to the 3rd WCDRR.

Keywords ISDR, ICL, WCDRR, Landslides, Disaster Risk Reduction

Introduction

This article reviews the process and the background of the Sendai Partnerships 2015-2025 proposed by the International Consortium on Landslides, from its foundation to 2005 Letter of Intent proposed in the 2nd United Nations World Conference on Disaster Reduction (WCDR) in Kobe, Japan in 2005, and the 2006 Tokyo Action Plan as the first stage of development to the Sendai Partnerships. It further reviews the 10th Anniversary Conference of ICL that was held in January 2012 where the ICL Strategic Plan 2012-2021 was developed. Following the Strategic Plan, ICL-IPL Conference was organized in Kyoto, Japan in November 2013 when the concept and the initial draft of the ICL-IPL Sendai Partnerships to be linked to 3rd United Nations World Conference on Disaster Risk Reduction (WCDRR) were adopted. A process to establish the Sendai Partnerships in the 3rd WCDRR was examined in the International Forum “Urbanization and Landslide Disaster” held in Kyoto University, in October 2014.

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Thereafter, consultations over, and the revision of the proposed partnerships were carried out to reach the final version of the Sendai Partnerships. The final version was approved in a formal “Working Session” of the 3rd WCDRR, agreed and signed by the sixteen intergovernmental, international and national organizations. Those processes and the signing ceremony as well as the Sendai Partnerships are reported in this article. ICL invites all relevant organizations and individuals to support this voluntary contribution to the 3rd WCDRR, Sendai, Japan.

The Initial Stage from ICL foundation in 2002 to the 2006 Tokyo Action Plan

The International Consortium on Landslides (ICL) was founded on 21st January 2002 with support from UNESCO, WMO, FAO, UNISDR, IUGS and with participation of two Japanese Ministries (Ministry of Education, Culture, Sports, Science and Technology and the Ministry of Foreign Affairs) to promote landslide research for the benefit of society and the environment, and capacity building, including education, notably in developing countries (Sassa 2004-a). ICL has established the International Programme on Landslides (IPL) as an international initiative of ICL in 2002 (Sassa 2004-b). IPL aims to conduct international cooperative research and capacity building.

ICL proposed a thematic session on landslides to take place at the 2nd United Nations World Congress on Disaster Reduction (WCDR), Kobe, Japan in 2005. ICL was advised to broaden the scope of that session to combine it with a thematic session on floods. Then, both groups jointly organized the thematic session 3.8 New International Initiative for Research and Risk Mitigation of Floods (IFI) and Landslides (IPL) at the 2nd WCDR, Kobe, Japan in 2005. ICL proposed 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 in this session. It was adopted in the session and agreed with signature from 7 global stakeholders (UNESCO, WMO, FAO, UNISDR, UNU, ICSU, WFEO) within 2005.

Based on this Letter of Intent, the **2006 Tokyo Action Plan** – strengthening research and learning on landslide and related earth system disasters for global risk preparedness was adopted by participants in the 2006 Tokyo Round Table Discussion “Strengthening Research and Learning on Earth System Risk Analysis and Sustainable Disaster Management within UN-ISDR as Regards to Landslides – towards a dynamic global network of the International Programme on Landslides (IPL), which was held at the United Nations University, Tokyo from 18th to 20th January 2006 (Sassa 2006). The Tokyo Action Plan proposed the World Landslide Forum (**WLF**) held every three years, the identification of World Centres of Excellence on Landslide Risk Reduction (**WCoE**)

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3 acting for three years at each World Landslide Forum, and the establishment of the IPL
4 Global Promotion Committee (**IPL-GPC**) for the management of an upgraded
5 International Programme on Landslides (IPL). IPL-GPC consists of all ICL member
6 organizations and ICL supporting organizations exchanging MOU with ICL for the
7 implementation of IPL or organizations providing financial supports to IPL. All
8 signatory organizations of the Letter of Intent supported IPL, and each of UNESCO,
9 WMO, FAO, UNISDR, UNU, ICSU, WFEO exchanged MOU for the implementation of
10 IPL. This constitutes the current stage of IPL.
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16 **Abbreviations in foot note.:**

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18 **FAO:** Food and Agriculture Organization of the United Nations, **ICSU:** International Council for Science,
19 **IPL:** International Programme on Landslides, **IUGS:** International Union of Geological Sciences,
20 **MEXT:** Ministry of Education, Culture, Sports, Science and Technology, Government of
21 Japan, **UNESCO:** United Nations Educational, Scientific and Cultural Organization, **UNISDR:** United
22 Nations International Strategy for Disaster Risk Reduction, **UNU:** United Nations University, **WFEO:**
23 World Federation of Engineering Organizations, **WMO:** World Meteorological Organization.
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29 **The Second Stage from the 10th Anniversary Conference in 2012 to the International** 30 **Forum “Urbanization and Landslide Disaster” in 2014**

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32 ICL organized a 10th Anniversary Conference on 17-20 January 2012 in Kyoto with
33 financial supports from the Japan Science and Technology Agency (JST). Participants
34 reviewed the first decade of ICL and IPL activities and examined the second decade of
35 ICL-IPL activities. As a result, **ICL Strategic plan 2012-2021** – To create a safer
36 geoenvironment was adopted (Sassa 2012). This conference approved the establishment
37 of four regional networks and five thematic networks of ICL to expand the activities of
38 ICL members and cooperation with non-ICL members in the specific region and themes.
39 ICL organized the ICL-IPL Conference in Kyoto, Japan in 2013 with financial supports
40 from JST. At this conference, ICL discussed and made the 2014 Beijing Declaration to
41 be adopted in the World Landslide Forum 3 in Beijing, China on 2-6 June 2014.
42 Furthermore ICL examined and made the draft of ICL-IPL Sendai Partnerships
43 2015-2025 -Landslide disaster risk reduction for a safer geo-environment to be
44 examined in Sendai, Japan, in March 2015. **The 2004 Beijing Declaration**-Landslide
45 mitigation toward a safer Geo-environment was examined in the high-level panel
46 discussion with the participation of the Director-General of UNESCO Ms Irina Bokova
47 and was adopted at the end of WLF3 in Beijing, China that was held on 2-6 June 2014.
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50 ICL organized the Steering Committee meeting in Kyoto on 7-9 October 2014 together
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3 with the **International Forum “Urbanization and Landslide Disaster”** – Hiroshima
4 landslide disaster in August, 2014 and Japan’s contribution to Post-2015 framework for
5 Disaster Risk Reduction. This forum, together with ICL Steering Committee meeting,
6 was planned as a preparatory meeting of the ICL-IPL Sendai Partnerships Conference
7 on 11-15 March 2015. Key members of ICL, UNESCO, UNISDR, MEXT, and the
8 Cabinet Office and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT),
9 Government of Japan attended and discussed for the global collaborative framework
10 contributing to the Third World Conference on Disaster Risk Reduction.
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16 **Establishment of the ISDR-ICL Sendai Partnerships 2015-2025**

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18 ICL initially proposed a thematic session “Urbanization and Geodisasters” to be
19 considered as part of the 3rd WCDRR. This topic was not retained among the topics of
20 the Conference. Thereafter, ICL succeeded to be a co-organizer of the Working Session
21 No.4 (WS 4) “Underlying Risk Factors” (Priority No. 4 of the Hyogo Framework for
22 Action) together with MLIT, UNESCO and other organizations under the initiative of
23 ISDR. ICL proposed a Sendai Partnership on Landslides to the session. It was changed
24 from the initial proposal of “ICL-IPL Sendai Partnerships 2015-2024 -Landslide
25 disaster risk reduction for a safer geo-environment” to the Sendai Partnerships for the
26 Global Promotion of Understanding Disaster Risk (Priority 1 of the Sendai Framework
27 for Disaster Risk Reduction 2015-2030) so as to widen the scope beyond only landslides.
28 However, an opinion came that it is too wide, the session should focus specific disasters
29 within the interest of organizers of the Working Session No.4. Then, it was changed to
30 the ISDR-ICL: SENDAI PARTNERSHIPS 2015-2024 for Global Promotion of
31 Understanding and Reducing Landslide, Flood and Tsunami Disaster Risk - Tools for
32 Implementing and Monitoring the Post-2015 Framework for Disaster Risk
33 Reduction and the Sustainable Development Goals. This version was circulated to
34 the expected intergovernmental, international and national organizations on 21
35 January 2015. However, an opinion suggested that because this partnerships is
36 under the initiative of the International Consortium on Landslides, it is better to
37 focus on landslides. As a result, it was finally returned to only landslides.
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50 The revised title of the finally agreed Sendai partnerships were;

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53 **Header:** Voluntary commitment to the World Conference on Disaster Risk
54 Reduction, Sendai, Japan, 2015
55 **Title:** ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of
56 understanding and reducing landslide disaster risk
57 **Subtitle:** *Tools for Implementing and Monitoring the Post-2015 Framework for*
58 *Disaster Risk Reduction and the Sustainable Development Goals*
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4 This version was sent to intergovernmental and international organizations on 14
5 February 2015. Based on the various input from those organizations, the main text
6 was further revised. Then, the latest version of partnerships was reported and its
7 implementation plan was examined in the ICL-IPL Sendai Partnerships Conference
8 on 11-15 March 2015. Then, this Sendai Partnerships was proposed to the Working
9 Session No.4 “Underlying Risk Factors” held at 10:00 -11:30 AM in Hagi Hall of the
10 Sendai International Center on 16 March 2015. The chairperson of the session was
11 Mr. Kamal Kishore and the moderator was Mr. Badaoui Rouhban. Dr. Kyoji Sassa
12 proposed this Sendai partnerships in the final part of the session which was devoted
13 to make statements of commitments on addressing the Underlying Risk Factors in
14 the post-2015 framework for disaster risk reduction. As a result, the launch of the
15 Sendai Partnerships was announced in the session.
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24 **Signing Ceremony and the Sendai Partnerships**

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26 The signing ceremony of the ISDR-ICL Sendai Partnerships was organized in a
27 Japanese Restaurant “JUNSEN” in Sendai, Japan from 12:00-13:30 on 16 March
28 2015. 16 intergovernmental, international and national organizations signed the
29 Sendai Partnerships. Heads of some organizations attended and signed there, some
30 organizations nominated an officer in-charge of disaster reduction to sign the
31 documents while some organizations signed it in advance and sent a representative
32 to bring the signed partnerships to this signing ceremony. Following are the
33 organizations which agreed and signed the Sendai partnerships on 16 March 2015.
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- 39 1. International Consortium on Landslides (ICL)
- 40 2. United Nations Office for Disaster Risk Reduction (UNISDR)
- 41 3. United Nations Educational, Scientific and Cultural Organization (UNESCO)
- 42 4. Food and Agriculture Organization of the United Nations (FAO)
- 43 5. United Nations University (UNU)
- 44 6. International Council for Science (ICSU)
- 45 7. World Federation of Engineering Organizations (WFEO)
- 46 8. International Union of Geological Sciences (IUGS)
- 47 9. International Union of Geodesy and Geophysics (IUGG)
- 48 10. Cabinet Office, Government of Japan (CAO)
- 49 11. Ministry of Education, Culture, Sports, Science and Technology, Government of
50 Japan (MEXT)
- 51 12. Kyoto University
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- 4 13. Science Council of Japan
- 5 14. National Civil Protection Department, Italian Presidency of the Council of
- 6 Ministers, Government of Italy
- 7 15. National Protection and Rescue Directorate, Republic of Croatia
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- 9 16. Global Risk Forum GRF Davos
- 10 (The World Meteorological Organization (WMO) is expected to sign after 17th
- 11 WMO Congress in May/ June 2015).
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14 ICL expects that the ISDR-ICL Sendai partnerships agreed by the above 16
15 organizations is a global platform to promote understanding and reducing landslide
16 disaster risk. Social necessity for research and technological development of
17 landslide disaster risk reduction are increasing in the progress of urbanization, and
18 the mountain and coastal development especially in changing climate context. ICL
19 wishes to cooperate with many of the involved organizations to reduce landslide
20 disasters in the coming decade.

21 Fig. 1 is a photo of Signing Ceremony, Fig. 2 shows Ms Margareta Wahlström
22 (left-top) speaking at the ceremony and the toast by Kyoji Sassa (left-bottom) and the
23 SAKE cup designed for the toast in the celebration of the Sendai Partnerships. The cup
24 was made by one of the best Japanese Lacquerware shop in Aizu of Fukushima
25 Prefecture in Japan. The sake cup is made from a wooden cup, URUSHI lacquer , and
26 real gold ICL logo. At first the stamp of ICL logo was created. Stamp with liquid taken
27 from the Japanese URUSHI tree (*Toxicodendron vernicifluum*, formerly *Rhus*
28 *verniciiflua*) was pressed on the Sake cup. It has strong adhesive force. The cup was
29 covered by full of real gold foils. When all excess foils were removed, the ICL logo and
30 the gold edge appeared. The URUSHI is very strong and can stand for long time. The
31 logo was designed by Sassa at the time of ICL foundation. The ICL investigated the
32 Inca's World Heritage Machu Picchu at landslide risk in those years. **I** on the top of
33 slope symbolizes human assets at landslide risk (such as Machu Picchu), **L** symbolizes
34 the Landslide disaster risk reduction efforts by humans (such as a retaining wall or a
35 structure to stop moving landslide debris. **C** symbolizes the Consortium as well as
36 landslide mass under rapid motion. Please notice that C is slightly inclined showing the
37 motion. One opinion from ICL group was that the Consortium seems to be NOT stable,
38 and may fall down in this case. It should stand straight. Two opinions are reflected from
39 the background of sciences and technologies of ICL and both supports were divided into
40 half and half in this cross disciplinary group. But finally ICL chose **mobility** than
41 **stability** in its logo. Participants from 16 different types and disciplinary groups toasted
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3 for the further progress of landslide disaster risk reduction for the sustainable
4 development in the changing climate context.

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6 The full text of Sendai Partnerships is shown after Fig. 1 and Fig. 2. The
7 partnerships includes the list of ICL members as of 1 April 2015 as ANNEX. The
8 ANNEX is periodically updated.
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26 Fig. 1 Signing ceremony of ISDR-ICL Sendai Partnerships 2015-2025
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39 Fig. 2 Speech and Toast with Sake cup designed for Sendai Partnerships.
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44 ISDR-ICL SENDAI PARTNERSHIPS 2015-2025
45 for global promotion of understanding and reducing landslide disaster risk
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6 **Call for cooperation and Acknowledgement**

7 The Sendai Partnerships is NOT a declaration, but a voluntary commitment to the
8 3rd WCDRR. ICL members will intensify its activities for understanding and
9 reducing landslide disaster risk over the world. 4 regional and 5 thematic networks
10 of ICL (Sassa 2012) and 15 World Centres of Excellence on Landslide Risk
11 Reduction (Sassa et al 2015) as well as 62 member organizations from 33 countries,
12 and 41 IPL project group will contribute to this Sendai Partnerships with supports
13 from 15 intergovernmental, international and national organizations in their
14 countries or regions. ICL wishes to obtain supports from national and local
15 governments, funding agencies, and also non-ICL scientists, engineers and private
16 sectors for this partnerships.
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18 One of the core activities of this partnerships is to create ISDR-ICL Landslide
19 Teaching Tools. We discussed this on 15 March 2015 in Sendai, Japan. We will make
20 efforts to create the first version of this Teaching Tools and examine it in the next
21 ICL-IPL meeting as the follow-up and implementing meeting of the Sendai
22 Partnerships. The meeting will be organized in Kyoto, Japan on 8-11 March 2016.
23 Participations from the sixteen partners, new partners and experts on landslides
24 are requested to attend and cooperate with this voluntary commitment to the 3rd
25 WCDRR. No registration fee is required.
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27 The Japan Science and Technology Agency (JST) and the United Nations Educational,
28 Scientific and Cultural Organization (UNESCO) financially supported this series of
29 meetings in 2012, 2013 and 2015. The International Union of Geological Sciences
30 (IUGS) is appreciated for providing financial support annually to the ICL activities.
31 Many colleagues supported the establishment of this Sendai Partnerships. Those
32 individuals can be seen in the photo of Fig.1. The following individuals are
33 especially appreciated for the establishment of Sendai Partnerships and signatures.
34 Ms Margareta Wahlström, Ms Feng Min Kan and Ms Yuki Matsuoka of the United
35 Nations Office for International Strategy for Disaster Risk Reduction, Mr. Qunli Han and Mr.
36 Giuseppe Arduino, Mr. Alexandros Makarigakis of UNESCO, Mr. Kaoru Saito of the
37 Cabinet Office, Government of Japan, Mr. Satoru Nishikawa of the Water Agency of
38 Japan, Mr. Badaoui Rouhban, IPL advisor, and Mr. Hans van Ginkel and Mr. Salvano
39 Briceno who advised the partnerships, but could not come to Sendai. Mr. Franco
40 Gabrielli and Mr. Robert Mikac from Governments of Italy and Croatia, Mr. Dominique
41 Burgeon (FAO), Mr. Roland Overhansli (IUGS) and Mr. Alik Ismail-Zedeh (IUGG), Mr.
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2 Takashi Onishi of Science Council of Japan, Mr. Toshimitsu Komatsu (WFEO) attended
3 and signed the partnerships on the site. Mr. Srikantha Herath for Kazuhiko Takeuchi
4 of UNU, Mr. Kaoru Takara (ICL Treasurer) for Ms Kayo Inaba of Kyoto University, Ms
5 Irasema Alcantara-Ayala (ICL vice president) for Gordon Mcbean of ICSU attended
6 together with signed partnerships of those organizations. ICL President Yueping Yin,
7 the past ICL President Paolo Canuti, four Vice presidents and representatives of 62 ICL
8 member organizations are very much appreciated for their supports and further
9 contribution to this partnerships.
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Fig. 1 Signing ceremony of ISDR-ICL Sendai Partnerships 2015-2025

Front (left to right): Sorrenti Ambra (for Franco Gabrielli, Italian Civil Protection), Irasema Alcantara-Ayala (for Gordon Mcbean, ICSU), Srikantha Herath (for Kazuhiko Takeuchi, UNU), Roland Oberhansli (IUGS), Kaoru Saito (Cabinet Office, Japan), Giuseppe Arduino (for Qunli Han, UNESCO), Kyoji Sassa (ICL), Margareta Wahlström (UNISDR), Dominique Burgeon (FAO), Robert Mikac (for Croatia Civil Protection), Takashi Onishi (Science Council of Japan), Alik Ismail-Zedeh (IUGG), Kaoru Takara (for Kayo Inaba, Kyoto University).

Back (left to right): Hiroshi Fukuoka (ICL), Nicola Casagli (ICL), Yuki Matsuoka (UNISDR), Alexandros Makarigakis (UNESCO), Toshimitsu Komatsu (WFEO), Satoru Nishikawa (Water Agency, Japan), Badaoui Rouhban (IPL-ICL), Paolo Canuti (ICL), Yueping Yin (ICL), Matjaz Mikos (ICL)

Left Bottom: Qunli Han (UNESCO) and Franco Gabrielli (Italian Civil Protection)



Fig. 2 Speech and Toast with Sake cup designed for Sendai Partnerships.

Left-top: Speech by Ms Margareta Wahlström celebrating the launch of the ISDR-ICL Sendai Partnerships 2015-2025.

Right-top: Originally designed sake cup for the celebration of the Sendai Partnerships.

Bottom: Thanks for all partners by Mr. Kyoji Sassa and Toast for the success of the the ISDR-ICL Sendai Partnerships 2015

**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,

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- 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:



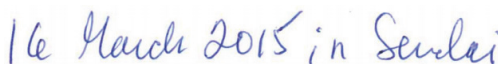
Mr. Kyoji Sassa
Executive Director
International Consortium on Landslides
Host organization of the Partnerships



Date



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



Date

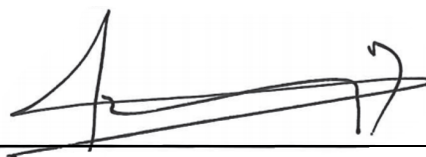
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Mr. Qunli Han
Director
Division of Ecological and Earth Sciences
United Nations Educational, Scientific
and Cultural Organization

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. Michel Jarraud (tbc)
Secretary-General
World Meteorological Organization

expected in June 2015

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

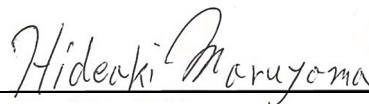
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Sendai, Japan, 2015



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

16/03/2015

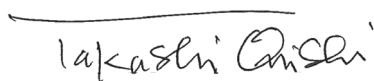
Date



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

16.03.2015

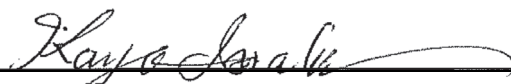
Date



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

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. CENACID – UFPR (Centro de Apoio Científico em Desastres | Center for Scientific Support in Disasters – Federal University of Parana), BRAZIL
4. Geological Survey of Canada, CANADA
5. China Geological Survey, CHINA P.R.
6. Institute of Cold Regions Science and Engineering, Northeast Forestry University, CHINA P.R.
7. Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, CHINA P.R.
8. Bureau of Land and Resources of Xi'an, China P.R.
9. Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, CHINA P.R.
10. Tongji University, College of Surveying and Geo-Informatics, CHINA P.R.
11. Universidad Nacional de Colombia, Colombia
12. Croatian Landslide Group from University of Rijeka and University of Zagreb, CROATIA
13. City of Zagreb, Emergency Management Office, CROATIA
14. Charles University, Faculty of Science, CZECH REPUBLIC
15. Institute of Rock Structure and Mechanics, Czech Academy of Sciences, Department of Engineering Geology, CZECH REPUBLIC
16. Joint Research Centre (JRC), EUROPEAN COMMISSION
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. National Institute of Disaster Management, New Delhi, INDIA
21. Gadjah Mada University, INDONESIA
22. Parahyangan Catholic University, INDONESIA
23. Research Center for Geotechnology-Indonesian Institute of Sciences, INDONESIA
24. Building & Housing Research Center, IRAN
25. Soil Conservation and Watershed Management Research Institute, IRAN
26. University of Firenze, Earth Sciences Department, ITALY
27. ISPRA-Italian Institute for Environmental Protection and Research, ITALY
28. University of Calabria, Laboratory of Environmental Cartography and Hydraulic and Geological Modeling, ITALY
29. Istituto di Ricerca per la Protezione Idrogeologica (IRPI), of the Italian National Research Council (CNR), ITALY
30. Kyoto University, Disaster Prevention Research Institute, JAPAN

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