

UNESCO CHAIR/UNITWIN NETWORK PROGRESS REPORT FORM

Title of the Chair/Network:	UNITWIN-UNESCO/KU/ICL Landslide and Water-related Disaster Risk Management for Society and the Environment Cooperation Programme
Host Institution:	The Disaster Prevention Research Institute, Kyoto University and the International Consortium on Landslides
Date of establishment of Chair/Network: <i>(mm, yyyy)</i>	UNITWIN-UNESCO/KU/ICL Landslide Risk Mitigation for Society and the Environment Cooperation Programme established in March 2003 and revised to the current title in November 2010
Period of activity under report: <i>(mm, yyyy - mm, yyyy)</i>	1 October 2014 to 31 October 2016
Report established by: <i>(name, position)</i>	Kaoru Takara, Director of the Disaster Prevention Research Institute, Kyoto University Kyoji Sassa, Executive Director of the International Consortium on Landslides

To be returned by electronic mail to both: unitwin@unesco.org and i.nichanian@unesco.org

Or by mail to UNESCO, Division for Policies and Lifelong Learning Systems

Section for Higher Education

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1. Executive Summary:

Major outcomes, results and impact of the Chair, including on national policies, in relation to its objectives as stated in Article 2 of the Chair Agreement (between the Institution and UNESCO)
(Not exceeding 300 words)

1. *Landslides-Journal of International Consortium on Landslides*, 13 issues (2600 pages) Vol.11 (No.5 and No. 6), Vol.12 (No.1, 2, 3, 4, 5, and 6), Vol. 13 (No.1, 2, 3, 4, 5) are published under the cooperation of this network and ICL supporting organizations. The impact of this journal will be known from the Journal Impact Factor (3.049) released by Thomson Reuters in 2015.

2. ISDR-ICL Sendai Partnerships 2015-2025

ICL and UNITWIN Network organization proposed the ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk at 2nd United Nations World Conference for Disaster Risk Reduction in Sendai, Japan in March 2015. It was adopted and signed by 17 global organizations (ICL, UNISDR, UNESCO, FAO, UNU, WMO, UNU, ICSU, WFEQ, IUGS, IUGG, Governments of Japan, Italy and Croatia, and others).

Landslide Dynamics: the ISDR-ICL Landslide Interactive Teaching Tools was planned and written in 2015-2016. And all text tools were collected, reviewed and edited. Currently supplementary materials such as PPT tools for lessons and PDF tools for references are prepared. The whole tools

are in the final process to the publication.

Organizing the high-level panel discussion for the implementation planning of the Sendai Partnerships and publication of Vol.1 Sendai Partnerships 2015-2015 is underway in 2015-2016

3. 46 projects of the International Programme on Landslides (IPL) : a programme of ICL for ISDR are implemented by 44 organizations in 23 countries within the ICL member organizations (64 member organizations in 34 countries) in this period.
24 projects within ongoing 46 projects are continued before 2014. 11 new projects were proposed and approved in 2015 and 11 new projects have been proposed and approved in 2016.
<<http://iplhq.org/category/iplhq/ipl-ongoing-project/>>
4. 15 World Centres of Excellence on Landslide Risk Reduction 2014-2017 were identified at the 3rd World Landslide Forum in Beijing, China. Those are working for thematic network and regional network of ICL as the core.<<http://iplhq.org/category/iplhq/world-centre-of-excellence-wcoe/>>
5. Capacity development programmes concerning Disaster Risk Reduction are conducted by ICL network in this period. The outline is reported.
6. Two new UNESCO Chair established within this UNITWIN Network:
 - Prevention and Mitigation of Geo-hydrological Hazards at University of Florence, Italy
 - UNESCO Chair for Water Related Disaster Risk Reduction at University of Ljubljana, Slovenia.

2. Activities:

Overview of activities undertaken by the Chair during the reporting period

UNITWIN network include Kyoto University, ICL headquarters, and 64 member organizations from 34 countries. It is not always easy to collect all activity reports in the same standard from 64 member organizations from 34 countries. ICL picked up two members (Italy, Croatia) from Europe and two members (Japan and China) from Asia. This report presents the main part of UNITWIN Activity in the period of 2014.10-2016.10

a) Education/Training/Research

i) Education leading to Certificate

Eleven (11) Ph.D. were awarded as the UNITWIN education/training/research in the reporting period 2014.10-2016.10.

Sixteen (16) Master's degree were awarded as the as the UNITWIN education/training/research in the reporting period 2014.10-2016.10.

ii) Training (short term)

Short-term training courses were conducted in Japan (Kyoto and Sendai), Kyrgyzstan, Papua, Indonesia, and Ethiopia.

iii) Research

Research is the main activities of this UNITWIN Network. 6 participants from UNESCO joined the ICL foundation meeting in January 2002, then advised that a new International Programme on Landslides (IPL) should be authorized within the UNESCO Chair/UNITWIN programme. Then, UNITWIN programme was proposed and established in 2003. 46 IPL projects were conducted by 44 member organizations of ICL in 23 countries.

UNESCO Chair was proposed from University of Florence, one of ICL founding member organizations. It has conducted three research projects (SAFETY, RESOLUTE and WI-GIN) related to landslides with supports from EU.

b) Conference/Meetings

The most important conference held in this period is “ICL-IPL Sendai Partnerships Conference. Sendai, Japan, 11-15 March 2015”.

This conference was linked to the 3rd World Conference on Disaster Risk Reduction (WCDRR) in Sendai, Japan. The output document of this conference “ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk” as a voluntary commitment to the WCDRR was proposed in a session “Underlying Risk Factors” during WCDRR and approved. The partnership was agreed and signed by 17 global stakeholders including UNESCO, UNISDR, FAO, WMO, UNU, ICSU, WFE0, Governments of Japan, Italy, Croatia and others.

UNESCO Chair “Prevention and sustainable management of geo-hydrological hazards” Inaugural Meeting was held in Florence on 27 October 2016. University of Florence is an ICL founding member. Other 6 meetings and 13 selected conference presentations were reported.

c) Interuniversity Exchange.

Within 64 ICL member organizations, 31 members are from universities. ICL organized the annual meeting and symposium once or twice in 2014, 2015 and 2016. ICL will organize the second annual meeting in 2016 at UNESCO Headquarters, in Paris on 15-18 November 2016

We discussed progress of International Programme on Landslides (IPL), new proposals, and reports of 46 ongoing IPL projects at each annual meeting. This annual meeting is the place for the annual interuniversity exchange.

d) Publications/Multimedia Materials

Refer to the attached list.

e) Cooperation with UNESCO Headquarters, Field Offices

ICL was founded by UNESCO-Kyoto University Joint symposium (IGCP-425 Landslide Hazard Assessment and Cultural Heritage) in 2002. IPL (International Programme on Landslides) was founded as a landslide version of IGCP. The Chair of the IPL Global Promotion Committee which manages all of IPL matters, is Qunli Han (Director of the Ecological Sciences and Earth Sciences of UNESCO).

IPL Advisor is Badaoui Rouhban (Special Advisor to the Assistant Director-General for Natural Sciences). Chair of the ICL network Evaluation Committee is Giuseppe Arduino (Chief of the Section of Ecohydrology, Water Quality and Water Education in the Division of Water Sciences).

UNESCO Divisions of Ecological and Earth Sciences and Water Sciences cooperate with ICL and IPL management since the foundation of ICL and IPL.

f) Other

At University of Ljubljana, Slovenia (Two of ICL members: Faculty of Civil and Geodetic Engineering (ULFGG) and Faculty of Natural Sciences and Engineering (UL NTF)), four chairs established a new research institute called Research Institute for Geo and Hydro Threats (RIGHT) that will help to coordinate research work in the field of natural disaster risk reduction at the faculty level between hydrology, hydraulic engineering, geological engineering, remote sensing, and geodetic engineering.

There was no place to report the publication of International Journal “Landslides: Journal of International Consortium on Landslides”. It is a full-color bimonthly journal with 2015 Impact Factor 3.049 (printed and distributed in digital and print by Springer Nature). 1,500 pages of research papers were published in 2016. Activities of IPL projects as UNITWIN Cooperation Programme are reported in the category of ICL-IPL Activities in each issue.

a) Education/Training/Research

(key education programmes and training delivered and research undertaken by the Chair during the reporting period, target group and geographical coverage)

<p>i) Education (leading to certificate)</p>	<p>ICL conducted Japan-Vietnam SATREPS (Science and Technology Research Partnerships for Sustainable Development) project “Development of landslide risk assessment technology along transport arteries in Vietnam” and educated the following persons from Oct 2014 to Oct 2016. They obtained Doctor’s degrees and Master’s degrees.</p> <p><u>Education leading to Ph.D</u></p> <p>Vivoda Prodan M — Doctor of Philosophy (PhD.) School: Faculty of Civil Engineering, University of Rijeka, Rijeka, Croatia. Title of Doctor Dissertation: The influence of weathering process on residual shear strength of fine grained lithological flysch components. Date of certification: 16 September 2016</p> <p>Dinh Van Tien - Doctor of Philosophy (PhD.) School: Graduate School of Human Informatics, Tohoku-Gakuin University. Title of Doctor Dissertation: Vulnerability of Landslide Hazard in Tropical Region Date of certification: 30 July, 2016</p> <p>Josko Troselj — Doctor of Philosophy (PhD.) School: Graduate School of Engineering, Kyoto University, Japan Title: Fluvial Influence on Estuarine Sediment Transport Processes and Linkage of Its Outflow Data to Coastal Modeling Date of certification: 24 November 2016</p> <p>Le Hong Luong - Doctor of Philosophy (PhD.) School: Graduate School of Human Informatics, Tohoku-Gakuin University. Title of Doctor Dissertation: Large scale landslide risk evaluation by aerial photograph interpretation and integrated AHP approach for humid tropical region based on Japan and Viet nam field surveys Date of certification: 24 March, 2016</p> <p>Maochuan Hu— Doctor of Philosophy (PhD.) School: Graduate School of Engineering, Kyoto University, Japan Title: Impacts of Climate Change and Anthropogenic Activities on Catchment Water Balance and Hydrologic Extremes Date of certification: 23 March 2016</p> <p>Bounhieng Vilaysane — Doctor of Philosophy (PhD.) School: Graduate School of Engineering, Kyoto University, Japan Title: Integrated Impact Assessment of Climate Change on Hydrology of the Xedone River Basin, Lao PDR Date of certification: 25 January 2016</p> <p>Dang Quang Khang - Doctor of Philosophy (PhD.) School: Graduate School of Engineering, Kyoto University, Japan Title of Doctor Dissertation: Development of a new high-stress dynamic-loading ring-shear apparatus and its application to large-scale landslides Date of certification: 23 September, 2015</p> <p>Krkač M — Doctor of Philosophy (PhD.) School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia.</p>
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Title of Doctor Dissertation: A phenomenological model of the Kostanjek landslide movement based on the landslide monitoring parameters.

Date of certification: 17 July 2015

Chunjiao Wang— Doctor of Philosophy (PhD.)

School: North-East Forestry University, Harbin, China

Title: Land surface deformation research of permafrost degradation area in northeast china based on D-InSAR.

Date of certification: 1st July 2015

Hua Jiang — Doctor of Philosophy (PhD.)

School: North-East Forestry University, Harbin, China

Title: Formation law of the landslide and its effect on the subgrade stability in permafrost degradation region.

Date of certification: 1st July 2015

Žic E — Doctor of Philosophy (PhD.)

School: Faculty of Civil Engineering, University of Rijeka, Rijeka, Croatia.

Title of Doctor Dissertation: The contribution to the modeling of the potential flood flow and debris flow propagation in the Rječina River catchment area.

Date of certification: 13 February 2015

Grošić M — Doctor of Philosophy (PhD.)

School: Faculty of Civil Engineering, University of Rijeka, Rijeka, Croatia.

Title of Doctor Dissertation: Time –dependent deformation of flysch rock mass.

Date of certification: 21 November 2014

Podolszki L - Doctor of Philosophy (PhD.)

School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia.

Title of Doctor Dissertation: Stereoscopic analysis of landslides and landslide susceptibility on the southern slopes of Medvednica Mt.

Date of certification: 12 October 2014

Jagodnik V – Doctor of Philosophy (PhD.)

School: Faculty of Civil Engineering, University of Rijeka, Rijeka, Croatia.

Title of Doctor Dissertation: Behavior of laterally loaded piles in natural sandy gravels.

Date of certification: 4 October 2014

Education leading to Mater's Degree

Briški M. -Master's Degree (2016) Alternative solutions of the Trpučanska Road Landslide Remediation. MSc Thesis, Faculty of Civil Engineering University of Rijeka, Rijeka Croatia. In Croatian.

Date of certification: 22 September 2016

Crnković T. -Master's Degree

School: Faculty of Civil Engineering University of Rijeka, Rijeka Croatia.

Title: Three-dimensional analysis of the Mirogoj Landslide in Zagreb, Croatia

Date of certification: 15 September 2016.

Jitao Xiao-Master's Degree

School: North-East Forestry University, Harbin, China

<p>Title: Experimental study of the dielectric properties of the frozen soil Date of certification: 28 June 2016</p> <p>Hrastovski M. -Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Identification of flood triggers in the City of Zagreb – Analysis of rainfall events from 2013 and 2014. Date of certification: 19 February 2016.</p> <p>Živković H -Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Engineering Geological Models of Landslides in the Cerina Settlement (City of Samobor). MSc thesis, Date of certification: 20 November 2015.</p> <p>Rački M -Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Analysis of Landslide Triggers in the Spring of 2013 at the Samobor City Area. Date of certification: 30 September 2015.</p> <p>Šagud D -Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Statistical analysis of landslide inventory of the Podsljeme area from 1979. Date of certification: 30 September 2015</p> <p>Posedi N -Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Engineering Geological Models of the Sovinjak and Žudetići Landslide (Istrian Country) Date of certification: 17 September 2015.</p> <p>Pajalić, S. -Master's Degree School: Faculty of Civil Engineering University of Rijeka, Rijeka Croatia. Title: Determination of the landslide types in Vinodol Valley based on soil classification. Date of certification: 15 September 2015.</p> <p>Zuljani D. -Master's Degree School: Faculty of Civil Engineering University of Rijeka, Rijeka Croatia. Title: Parametric analysis of pile wall as a landslide remediation construction. MSc Thesis, Date of certification: 15 September 2015.</p> <p>Ožbolt A. -Master's Degree School: Faculty of Civil Engineering University of Rijeka, Rijeka Croatia. Title: Remediation of the Smrečje Landslide at the State Road D32. MSc Thesis, Date of certification: 15 July 2015.</p> <p>Yao Liu-Master's Degree School: North-East Forestry University, Harbin, China</p>

	<p>Title: Establishment and experimental study of frozen soil resistivity model Date of certification: 28 June 2015</p> <p>Šošić I -Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Engineering geological model of the Sveti Martin pod Okićem Landslide., Date of certification: 19 June 2015..</p> <p>Doan Huy Loi-Master's Degree School: Graduate School of Engineering, Kyoto University, Japan Title: Study on the 2014 Hiroshima Landslide Disasters Using Ring Shear Apparatus and an Integrated Simulation Model Date of certification: 23 March 2015</p> <p>Pham Van Tien-Master's Degree School: Graduate School of Engineering, Kyoto University, Japan Title: Analyzing Failure Characteristics and Potential of Landslides in Hai Van Mountain, Vietnam Date of certification: 23 March 2015.</p> <p>Pivčević N-Master's Degree School: Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Zagreb, Croatia. Title: Analysis of landslide triggering factors at the area of Bednja Municipality. Date of certification: 16 January 2015.</p>
<p>ii) Training (short term)</p>	<p>ICL conducted Japan-Vietnam SATREPS (Science and Technology Research Partnerships for Sustainable Development) project “Development of landslide risk assessment technology along transport arteries in Vietnam” and educated the following persons from Oct 2014 to Oct 2016 for short term training in ICL and the Disaster Prevention Research Institute, Kyoto University, and Tohoku Gakuin University in Sendai and the Forest and Forest Product Research Institute in Tsukuba (all ICL members) are</p> <ul style="list-style-type: none"> ● Din Van Tien to Tohoku Gakuin for landslide mapping in Sendai from Oct 2014-Nov.2014 and in February 2016. ● Nguyen Xuan Khang and other five engineers for landslide risk management in Sendai in March 2015. ● Nguyen Xuan Khang and other five engineers for landslide risk assessment in Kyoto in March 2016. ● Doan Huy Loi and Nguyen Kim Thanh: UAV landslide mapping technology transfer in Sendai in April 2016 ● Lam Huu Quang and Doan Huy Loi: Writing landslide research paper technology in Kyoto in September 2016 ● Mr. Hoang Ha and other 5 pesons : Landslide field investigation in Shizuoka-Oshima-Mt. Fuji debris flow in September 2016 ● Do Ngoc Ha : Study to take Doctor's degree by thesis in Tsukuba and in Kyoto in October – September 2016 ● Ngo Doan Dung: Study to take Doctor's degree by thesis in Sendai. ● 2015 Kokomeren Summer School on Rockslides and Related Phenomena in Kyrgyzstan. August 15-30, 2015. 5 participants from Japan, Switzerland, Austria, Czech Republic and Kyrgyzstan.

	<ul style="list-style-type: none"> ● 2016 Kokomeren Summer School on Rockslides and Related Phenomena in Kyrgyzstan. August 15-30, 2016. 19 participants from China, Czech Republic, Russia, Switzerland, Germany and Kyrgyzstan. ● UNESCO Chair at University of Florence: 2016, September: training in Engineering Geology in Papua, Indonesia ● Teaching and field training in engineering geology, geotechnics and hydrogeology in Ethiopia - cooperation between University of Arba Minch and Institute of Structure and Mechanics, Academy of Sciences, Czech Republic 																								
iii) Research	<p>ICL member organizations have implemented the following IPL (International Programme on Landslides) projects during the reported period. (IPL was established based on the Memorandum of Understanding 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 regarding the implementation of the 2006 Tokyo Action Plan on Landslides in 2006.)</p> <p>IPL number, title, ICL member organization, its country, leader, and the project period including from Oct. 2014 to Oct. 2016 are listed. The starting year of the project is written. The already completed project is written the ending year. and the ending year of the project or currently ongoing. Annual reports of ongoing projects are uploaded in IPL WEB <http://iplhq.org/category/iplhq/ipl-ongoing-project/></p> <table border="1" data-bbox="363 976 1374 1975"> <tr> <td data-bbox="363 976 443 1155">IPL-101-2</td> <td data-bbox="443 976 695 1155">Landslides monitoring and slope stability at selected historic sites in Slovakia</td> <td data-bbox="695 976 959 1155">Comenius University, Faculty of Natural Sciences</td> <td data-bbox="959 976 1098 1155">Slovakia</td> <td data-bbox="1098 976 1273 1155">Jan Vlcko</td> <td data-bbox="1273 976 1374 1155">2008-</td> </tr> <tr> <td data-bbox="363 1155 443 1442">IPL-106-2</td> <td data-bbox="443 1155 695 1442">International Summer School on Rockslides and Related Phenomena in the Kokomeren River Valley, Tien Shan, Kyrgyzstan</td> <td data-bbox="695 1155 959 1442">Institute of the Geospheres Dynamics, Russian Academy of Sciences / JSC "Hydroproject Institute"</td> <td data-bbox="959 1155 1098 1442">Russia</td> <td data-bbox="1098 1155 1273 1442">Alexander Strom</td> <td data-bbox="1273 1155 1374 1442">2008-</td> </tr> <tr> <td data-bbox="363 1442 443 1765">IPL-150</td> <td data-bbox="443 1442 695 1765">Capacity building and the impact of climate-driven changes on regional landslide distribution, frequency and scale of catastrophe.</td> <td data-bbox="695 1442 959 1765">Department of Geology, University of Nigeria, Nsukka</td> <td data-bbox="959 1442 1098 1765">Nigeria</td> <td data-bbox="1098 1442 1273 1765">Ogbonnaya Igwe</td> <td data-bbox="1273 1442 1374 1765">2009-</td> </tr> <tr> <td data-bbox="363 1765 443 1975">IPL-154</td> <td data-bbox="443 1765 695 1975">Development of a methodology for risk assessment of the earthquake-induced landslides.</td> <td data-bbox="695 1765 959 1975">Japan Landslide Society</td> <td data-bbox="959 1765 1098 1975">Japan</td> <td data-bbox="1098 1765 1273 1975">Satoshi Tsuchiya</td> <td data-bbox="1273 1765 1374 1975">2009</td> </tr> </table>	IPL-101-2	Landslides monitoring and slope stability at selected historic sites in Slovakia	Comenius University, Faculty of Natural Sciences	Slovakia	Jan Vlcko	2008-	IPL-106-2	International Summer School on Rockslides and Related Phenomena in the Kokomeren River Valley, Tien Shan, Kyrgyzstan	Institute of the Geospheres Dynamics, Russian Academy of Sciences / JSC "Hydroproject Institute"	Russia	Alexander Strom	2008-	IPL-150	Capacity building and the impact of climate-driven changes on regional landslide distribution, frequency and scale of catastrophe.	Department of Geology, University of Nigeria, Nsukka	Nigeria	Ogbonnaya Igwe	2009-	IPL-154	Development of a methodology for risk assessment of the earthquake-induced landslides.	Japan Landslide Society	Japan	Satoshi Tsuchiya	2009
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	IPL-155	Determination of soil parameters of subsurface to be used in slope stability analysis in two different precipitation zones of Sri Lanka.	Central Engineering Consultancy Bureau	Sri Lanka	A A Virajh Dias	2009
	IPL-157	Dynamics of subaerial and submarine megaslides	ICL	Japan	Kyoji Sassa	2009-
	IPL-158	Development of Community-based Landslide Early Warning System	Gadjah Mada University	Indonesia	Teuku Faisal Fathani	2009-
	IPL-159	Development of Education Program for Sustainable Development in Landslide Vulnerable Area through Student Community Service.	Gadjah Mada University	Indonesia	Dwikorita Karnawati	2009-
	IPL-161	Risk identification and land-use planning for disaster mitigation of landslides and floods in Croatia.	Kyoto University, DPRI/ Niigata University, R. Center for Natural Hazards and Disaster Recovery	Japan	Hiroshi Fukuoka/ Hideaki Marui	2009-
	IPL-163	Mechanical-mathematical modeling and monitoring for landslide processes	Russian Academy of Sciences, Institute of Environmental Geoscience	Russia	Svalova Valentina	2009-
	IPL-165	Development of community-based landslide hazard mapping for landslide risk reduction at the village scale in Java, Indonesia	Gadjah Mada University	Indonesia	Dwikorita Karnawati	2010-
	IPL-167	Landslides Mechanism and the Subgrade Stability Controlling	Northeast Forestry University	China	Wei Shan	2010-

		Measures in Island Permafrost Area				
IPL-171	Study of the geotechnical characteristics of an unstable urban area of Barranquilla (Colombia) severely affected for slope instabilities and soil volume changes	Universidad Nacional de Colombia	Colombia	Guillermo Ávila	2010-2015	
IPL-172	Documentation, Training and Capacity Building for Landslides Risk Management	National Institute of Disaster Management, New Delhi	India	Surya Parkash	2011-2014	
IPL-173	Croatian virtual landslide data center	Faculty of Mining, Geology and Petroleum University of Zagreb	Croatia	Snjezana Mihalic	2011-	
IPL-175	Development of landslide risk assessment technology and education in Vietnam and other areas in the Greater Mekong Sub-region	ICL / Institute of Transport Science and Technology	Japan, Vietnam	Kyoji Sassa /Nguen Xuan Khang	2011-	
IPL-176	Slope Data Acquisition along Highways in Sabah State for hazard assessment and mapping	Slope Engineering Branch, Public Works Department of Malaysia	Malaysia	Che Hassandi Abdullah	2012-2013	
IPL-177	Study on geological disasters focusing on landslides in and around Tegucigalpa City, Honduras	Universidad Politécnica de Ingeniería, UPI	Honduras	Aníbal Godoy	2012-2013	
IPL-179	Database of Glacial Lake Outburst Floods (GLOFs)	Charles University, Research Center of Earth Dynamic	Czech Republic	Adam EMMER/Vit Vilimek	2012-	

	IPL-180	Introducing Community-based Early Warning System for Landslide Hazard Management in Cox's Bazaar Municipality, Bangladesh	Asian Disaster Preparedness Center(ADPC)	Thailand	N.M.S.I. Arambepola	2011-2013
	IPL-181	Study of slow moving landslide Umka near Belgrade, Serbia	University of Belgrade, Faculty of Mining and Geology	Serbia	Biljana Abolmasov	2012-
	IPL-182	Characterization of landslides mechanisms and impacts as a tool to fast risk analysis of landslides related disasters in Brazil	CENACID – UFPR (Center for Scientific Support in Disasters – Federal University of Parana)	Brazil	Renato Eugenio de Lima	2012-2014
	IPL-183	Landslides in West Africa: impacts, mechanism and management	Department of Geology, University of Nigeria, Nsukka	Nigeria	Igwe Ogbonnaya	2012-
	IPL-184	Study of landslides in flysch deposits of North Istria, Croatia: sliding mechanisms, geotechnical properties, landslide modeling and landslide susceptibility	Faculty of Civil Engineering University of Rijeka	Croatia	Željko Arbanas	2012-
	IPL-185	Design and Validation of an Early Warning System for Landslides - DeVEL	Technische Universität Darmstadt, Institute and Laboratory of Geotechnics	Germany	Rolf Katzenbach	2013-
	IPL-186	Rock-fall hazard assessment and monitoring in the archaeological site of Petra, Jordan	ISPRA-Italian Institute for Environmental Protection and Research	Italy	Claudio Margottini	2013-
	IPL-187	Landslide hazards assessment and modeling and sediment yield	Institute of Geography, UNAM	Mexico	Gabriel L.Paulin	2013-

IPL-188	Study of slow moving landslide Potoška Planina (Karavanke Mountain, NW Slovenia)	Geological Survey of Slovenia Geological Survey of Slovenia	Slovenia	Marko Komac	2013-
IPL-190	Landslide risk identification and resilience study in tectonically active mountains and sea floors	Niigata University, Research Institute for Natural Hazards and Disaster Recovery	Japan	Hiroshi Fukuoka	2015-
IPL-191	Landslide hazard zonation in Carpathian region of Ukraine using GIS	Institute of Telecommunication and Global Information Space	Ukraine	Yakovliev Yevhenii/ Oleksandr Trofymchuk	2015-
IPL-192	Development of post-earthquake rainfall induced landslide (PERIL) hazard mitigation framework	California State University, Fullerton	USA and Nepal	Binod Tiwari	2015-
IPL-193	Integrated systems for landslides monitoring, early warning and risk mitigation along motorways	University of Calabria, DIMES, CAMILAB	Italy	Pasquale Versace	2015-
IPL-194	Public awareness and education programme for landslides management in Malaysia	Slope Engineering Branch, Public Works Department of Malaysia	Malaysia	Che Hassandi Abdullah	2015-
IPL-195	Study for mitigation and recovery of mud eruption disaster in East Java and modeling for risk reduction mudflow hazards	Parahyangan Catholic University	Indonesia	Paulus P. Rahardjo	2015-
IPL-196	Development and applications of a multi-sensors drone for geohazards monitoring and mapping	University of Firenze, Earth Sciences Department	Italy	Veronica Tofani	2015-

	IPL-197	Low frequency, high damaging potential landslide events in “low risk” regions – challenges for hazard and risk management	Institute of Rock Structure and Mechanics Academy of Sciences of the Czech Republic,	Czech Republic	Jan Klimeš	2015-	
	IPL-198	Multi-scale rainfall triggering models for Early Warning of Landslides (MUSE)	University of Firenze, Earth Sciences Department	Italy	Filippo Catani	2015-	
	IPL-199	The effect of root systems in natural slope erosion protection in the hill country of Sri Lanka	Central Engineering Consultancy Bureau	Sri Lanka	Pvip Perera	2015-	
	IPL-200	An assessment of the rock fall susceptibility based on cut slopes adjacent to highways and railways	Central Engineering Consultancy Bureau	Sri Lanka	H.M.J.M.K. Herath	2015-	
	IPL-201	Landslide inventory and Susceptibility map in Durres and Kavaja region	Albanian Geological Survey	Albania	Hasan Kulici	2016-	
	IPL-202	Ripley landslide monitoring project (Ashcroft, BC, Canada)	Geological Survey of Canada	Canada	Peter Bobrowsky/ Claudio Margottini	2016-	
	IPL-203	Analysis and identify of landslides based on species distribution and surface temperature difference	Institute of Cold Regions Science and Engineering, Northeast Forestry University	China	Ying Guo	2016-	
	IPL-204	A study on socio-economic and environmental impacts of landslides	National Institute of Disaster Management, New Delhi	India	Surya Prakash	2016-	

IPL-205	Integrated systems for landslides monitoring, early warning and risk mitigation along motorways	University of Calabria, DIMES, CAMILAB	Italy	Pasquale Versace/ Giovanna Capparelli	2016-
IPL-206	Towards improved landslide mapping and forecasting	Istituto di Ricerca per la Protezione Idrogeologica of the Italian National Research Council	Italy	Fausto Guzzetti/ Mario Parise	2016-
IPL-207	Evaluation on social research approach In determining “acceptable risk” and “tolerable risk” in landslide risk areas in Malaysia	Slope Engineering Branch, Public Works Department of Malaysia	Malaysia	Che Hassandi Bin Abdullah	2016-
IPL-208	Landslide disaster risk communication in mountain areas	Institute of Geography, UNAM	Mexico	Irasema Alcántara Ayala	2016-
IPL-209	Landslides and related sediment disaster project covering the entire South-East Nigeria, West Africa	Department of Geology, University of Nigeria, Nsukka	Nigeria	Igwe Ogbonnaya	2016-
IPL-210	Massive landsliding in Serbia following Cyclone Tamara in May 2014	University of Belgrade, Faculty of Mining and Geology	Serbia	Biljana Abolmasov	2016-
IPL-211	Development of wireless sensor network for monitoring and earlier warning of shallow and deep landslides (WISE-LAND)	Research Center for Geotechnology, Indonesian Institute of Sciences	Indonesia	Adrin Tohari	2016-
<p>Compilation of the large-scale rockslides database of the Central Asia region (Djungaria, Tien Shan and Pamir) as a part of IPL106-2 in 2016.</p> <p>UNESCO Chair at University of Florence:</p>					

	<ul style="list-style-type: none"> • SAFETY: Sentinel for Geohazards regional monitoring and forecasting. EU Commission ECHO - Assistance and emergency aid to the most vulnerable populations of third countries • RESOLUTE Resilience management guidelines and Operationalization applied to Urban Transport Environment. EU Commission H2020-DRS-2014 - Research and Innovation action • WI-GIM Wireless sensor network for ground instability monitoring EU Commission LIFE12-ENV
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b) Conferences/Meetings

(key conferences and meetings organized by the Chair or to which its Chairholder contributed)

i) Key conferences and workshops hosted by the Chair

ICL-IPL Sendai Partnerships Conference (including IPL Symposium on Landslides. 13 March 2015).
Sendai, Japan, 11-15 March 2015

The signing ceremony of the ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk. Sendai, Japan, 16 March 2015.

UNESCO Chair at University of Florence:

- UNESCO Chair Inaugural Meeting. Florence, 27 October 2016

ICL-IPL Kyoto Conference (including the progress of UNESCO/KU/ICL UNITWIN Cooperation Programme and the IPL Symposium on 9 March 2016). Kyoto, Japan, 8-11 March 2016

ii) Other conferences/organizational activities undertaken by the Chairholder

International Forum “Urbanization and Landslide Disaster”-Hiroshima Landslide Disaster in August 2014 and Japan’s Contribution to Post-2015 Framework for Disaster Risk Reduction. Kyoto, Japan, 8 October 2014

2nd Regional Symposium on Landslides in the Adriatic-Balkan Region, Belgrade, Serbia, 14-15 May 2015

International conference “Slope deformations and pseudokarst and 90 anniversary of Dneboh landslide seminar”, Mnichovo Hradiště, Czech Republic, 25 – 28 May 2016

Final SATREPS Workshop on Landslides “Development of Landslide Risk Assessment Technology along Transport Arteries in Vietnam”. Hanoi, Vietnam, 13 October 2016

iii) A selection of conference presentations by the Chairholder and other colleagues

1. Kaoru TAKARA : Background and Implementation of the ISDR-ICL Sendai Partnerships 2015-2025 for Global Promotion of Understanding and Reducing Landslide Disaster Risk. Science & Technology Conference on the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 in Geneva, January 2016
2. Kaoru Takara: Progress of UNESCO-KU-ICL UNTIWN Cooperation Programme. IPL Symposium on

Landslides in Kyoto, Japan, March 2016.

3. Kyoji Sassa: Initiation mechanism of rapid and long runout landslide and simulation of Hiroshima landslide disasters using the integrated simulation model (LS-RAPID). International Forum "Urbanization and Landslide Disaster" and Japan's Contribution to Post-2015, October 2014
4. Kyoji Sassa: 2014.8.20 Hiroshima Urban Landslide Disaster and LS-RAPID Hazard Zoning. IPL Symposium on Landslides in Sendai, Japan, March 2015
5. Kyoji Sassa: Objectives and Achievements of the Vietnam-Japan Joint SATREPS project. SATREPS Final Workshop on Landslides, 13 October 2016.
6. Kyoji Sassa: Contribution from the Landslide Community to the Sendai Framework for Disaster Risk Reduction adopted in 3rd WCDRR in Sendai, Japan. SATREPS Final Workshop on Landslides, 13 October 2016.
7. Nicola Casagli: Multi-scale rainfall triggering models for Early Warning of Landslides (MUSE), March 2016. ICL-IPL Kyoto Conference, 8-11 March 2016
8. Alexander Strom: Central Asia rockslides data base: principles of compilation and preliminary results. ICL-IPL Kyoto Conference, 8-11 March 2016
9. Alexander Strom: Natural phenomena in the New Russian Scale of earthquakes' intensity. INQUA Congress in Nagoya, July 2015
10. Alexander Strom: Earthquake Science and Hazard in Central Asia. Earthquake Science and Hazard in Central Asia. in Almaty, Kazakhstan, September 2016
11. Paolo Canuti: Environmental prevention and disaster risk management. UNESCO Academy on Sustainable Development, Turin (Italy), 16-21 October 2015.
12. Nicola Casagli: Introduction to geo-hydrological and seismic hazards for cultural heritage. Workshop on Emergency Intervention for Cultural Heritage. Bruxelles, EU Parliament, 29 September 2016.
13. Claudio Margottini: Geosciences Save Cultural Heritage: Denver (USA). Annual Meeting Geological Society of America, 28 September 2016.
14. Nicola Casagli: High Level Forum Global Strategy for Geo-disaster Reduction. 14th International Symposium on Geo-Disaster Reduction. Chengdu (China), 11 October 2016.
15. Matjaž Mikoš: Analysis of rainfall-triggered extreme landslide events in Slovenia in the last 25 years, 2nd ReSyLAB, Regional Symposium on Landslides in the Adriatic-Balkan Region, 14-16 May 2015, Belgrade, Serbia.

c) Interuniversity Exchanges/Partnerships

(principal exchanges/partnerships between the Chair and other institutions including UNESCO Chairs/UNITWIN Networks)

Within 64 ICL member organizations, 31 members are from universities. ICL organize the annual meeting and symposium once or twice in 2014, 2015, 2016. ICL will organize the second annual meeting in 2016 at UNESCO Headquarters, in Paris on 15-18 November 2016. We discussed progress of International Programme on Landslides (IPL), new proposals and reports of 46 ongoing IPL projects at each annual meeting. This annual meeting is the place for the annual interuniversity exchange

Others:

UNESCO Chair at University of Florence:

Memorandums of Understanding exchanged with:

- Charles University, Czech Republic
- Institute of Cold Regions Science and Engineering of Northeast Forestry University
- Project Center on Natural Disaster Reduction of Shimane University
- Department of Geoinformation Engineering, Sejong University

- Korea Institute of Geoscience and Mineral Resources (KIGAM)

ICL Adriatic-Balkan Network (ICL ABN) - regional scientific network of landslide scientists. The Network activities include joint activities related to landslide risk reduction with the scientific and academic institutions from Croatia, Slovenia and Serbia, scientific institutions from Albania and Slovenia, professional association from Bosnia and Herzegovina and local government from Croatia.

ICL Cold Region Landslide Network (ICL-CRLN) - thematic network of landslide scientists. ICL CRLN member consists of universities, scientific and academic institutions from Canada, China, the Czech Republic, Japan, Italy, and Russia. ICL-CRLN mainly focuses on joint activities to reduce the risk of landslides in cold regions in the context of climate change.

d) Publications/Multimedia Materials

(major publications and teaching/learning materials)

Please tick relevant fields of output and indicate volume of output:

	[tick]	[no.]
Books	<input checked="" type="checkbox"/>	
Books (edited)	<input type="checkbox"/>	
Books (chapters)	<input type="checkbox"/>	
Monographs	<input type="checkbox"/>	
Research Reports	<input checked="" type="checkbox"/>	
Journal Articles (refereed)	<input checked="" type="checkbox"/>	
Conference Proceedings	<input checked="" type="checkbox"/>	
Occasional Papers	<input type="checkbox"/>	
Teaching/Learning Materials	<input checked="" type="checkbox"/>	
Multimedia Materials (CD-Rom)	<input type="checkbox"/>	
Multimedia Materials (Video)	<input type="checkbox"/>	
Multimedia Materials (Other)	<input type="checkbox"/>	

Give details of major publications and materials including full citations.

i) Theses

Ph.D theses

Dinh Van Tien (2016). Vulnerability of Landslide Hazard in Tropical Region. In Tohoku Gakuin University, Sendai, Japan

Le Hong Luong (2016) Large scale landslide risk evaluation by aerial photograph interpretation and integrated AHP approach for human tropical region based on Japan and Viet Nam field surveys. In Tohoku Gakuin University, Sendai, Japan

Vivoda Prodan M (2016) The influence of weathering process on residual shear strength of fine grained lithological flysch components. University of Rijeka, Rijeka, Croatia.

Chunjiao Wang (2015) Land surface deformation research of permafrost degradation area in northeast china based on D-InSAR. North-East Forestry University, Harbin, China

Dang Quang Khang (2015) Development of a new high-stress dynamic loading ring-shear apparatus and its application to large-scale landslides. Kyoto University, Kyoto, Japan

Hua Jiang (2015) Formation law of the landslide and its effect on the subgrade stability in permafrost degradation region. North-East Forestry University, Harbin, China

Krkač M (2015) A phenomenological model of the Kostanjek landslide movement based on the

landslide monitoring parameters. University of Zagreb, Zagreb, Croatia.

Žic E (2015) The contribution to the modeling of the potential flood flow and debris flow propagation in the Rječina River catchment area. University of Rijeka, Rijeka, Croatia.

Jagodnik V (2014) Behavior of laterally loaded piles in natural sandy gravels. University of Rijeka, Rijeka, Croatia.

Grošić M (2014) Time –dependent deformation of flysch rock mass. University of Rijeka, Rijeka, Croatia.

Podolszki L (2014) Stereoscopic analysis of landslides and landslide susceptibility on the southern slopes of Medvednica Mt. University of Zagreb, Zagreb, Croatia.

Master Theses

Briški M. (2016) Alternative solutions of the Trpučanska Road Landslide Remediation. University of Rijeka, Rijeka Croatia. In Croatian.

Crnković T. (2016) Three-dimensional analysis of the Mirogoj Landslide in Zagreb, Croatia. University of Rijeka, Rijeka Croatia. In Croatian.

Jitao Xiao (2016) Experimental study of the dielectric properties of the frozen soil. North-East Forestry University, Harbin, China

Hrastovski M. (2016) Identification of flood triggers in the City of Zagreb – Analysis of rainfall events from 2013 and 2014. University of Zagreb, Zagreb, Croatia. In Croatian

Pajalić, S. (2016) Determination of the landslide types in Vinodol Valley based on soil classification. University of Rijeka, Rijeka Croatia. In Croatian.

Doan Huy Loi (2015) Study on the 2014 Hiroshima Landslide Disasters Using Ring Shear Apparatus and an Integrated Simulation Model.

Ožbolt A. (2015) Remediation of the Smrečje Landslide at the State Road D32. University of Rijeka, Rijeka Croatia.

Pham Van Tien (2015) Analyzing Failure Characteristics and Potential of Landslides in Hai Van Mountain, Vietnam. Kyoto University, Japan

Pivčević N (2015) Analysis of landslide triggering factors at the area of Bednja Municipality. University of Zagreb, Zagreb, Croatia.

Posedi N (2015) Engineering Geological Models of the Sovinjak and Žudetići Landslide (Istrian Country). University of Zagreb, Zagreb, Croatia.

Rački M (2015) Analysis of Landslide Triggers in the Spring of 2013 at the Samobor City Area. University of Zagreb, Zagreb, Croatia. In Croatian

Šagud D (2015) Statistical analysis of landslide inventory of the Podsljeme area from 1979. University of Zagreb, Zagreb, Croatia. In Croatian

Šošić I (2015) Engineering geological model of the Sveti Martin pod Okićem Landslide. University of Zagreb, Zagreb, Croatia. In Croatian

Yao Liu (2015) Establishment and experimental study of frozen soil resistivity model. North-East Forestry University, Harbin, China

Živković H (2015) Engineering Geological Models of Landslides in the Cerina Settlement (City of Samobor). University of Zagreb, Zagreb, Croatia. In Croatian

Zuljani D. (2015) Parametric analysis of pile wall as a landslide remediation construction. University of Rijeka, Rijeka Croatia.

ii) Publications

- Antolini F.; Barla M.; Gigli G.; Giorgetti A.; Intrieri E.; Casagli N. (2016). Combined finite–discrete numerical modeling of runout of the Torgiovanetto di Assisi rockslide in Central Italy. *International Journal of Geomechanics*, Online first. Doi: 10.1061/(ASCE)GM.1943-5622.0000646
- Bezák, N., Mikoš, M., ŠRAJ, M. (2016). Copula-based IDF curves and empirical rainfall thresholds for flash floods and rainfall-induced landslides. *Journal of Hydrology*, doi: 10.1016/j.jhydrol.2016.02.058.
- Bianchini S.; Raspini F.; Ciampalini A.; Lagomarsino D.; Bianchi M.; Bellotti F.; Casagli N. (2016). Mapping landslide phenomena in landlocked developing countries by means of satellite remote sensing data: the case of Dilijan (Armenia) area. *Geomatics, Natural Hazards & Risk*, DOI: 10.1080/19475705.2016.1189459.
- Carlà T., Intrieri E., Di Traglia F., Casagli N. (2016). A statistical-based approach for determining the intensity of unrest phases at Stromboli volcano (Southern Italy) using one-step-ahead forecasts of displacement time series. *Natural Hazards*, Vol. 84, Issue 1, 669–683.
- Carlà T.; Intrieri E.; Di Traglia F.; Nolesini T.; Gigli G.; Casagli N. (2016). Guidelines on the use of inverse velocity method as a tool for setting alarm thresholds and forecasting landslides and structure collapses. *Landslides*, Online first. Doi:10.1007/s10346-016-0731-5
- Casagli N.; Cigna F.; Bianchini S.; Hölbling D.; Füreder P.; Righini G.; Del Conte S.; Friedl B.; Schneiderbauer S.; Iasio C.; Vlcko J.; Greif V.; Proske H.; Granica K.; Falco S.; Lozzi S.; Mora O.; Arnaud A.; Novali F.; Bianchi M. (2016). Landslide mapping and monitoring by using radar and optical remote sensing: examples from the EC-FP7 project SAFER. *REMOTE SENSING APPLICATIONS*, vol. 4, pp. 92-108.
- Calvari S.; Intrieri E.; Di Traglia F.; Bonaccorso A.; Casagli N.; Cristaldi A. (2016). Monitoring crater-wall collapse at active volcanoes: a study of the 12 January 2013 event at Stromboli. *BULLETIN OF VOLCANOLOGY*, vol. 78(5), pp. 1-16.
- Ciampalini A.; Raspini F.; Lagomarsino D.; Catani F.; Casagli N. (2016). Landslide susceptibility map refinement using PSInSAR data. *REMOTE SENSING OF ENVIRONMENT*, vol. 184, pp. 302-315
- Ciampalini A.; Raspini F.; Bianchini S.; Tarchi D.; Vespe M.; Moretti S.; Casagli N. (2016). The Costa Concordia last cruise: The first application of high frequency monitoring based on COSMO-SkyMed constellation for wreck removal. *ISPRS JOURNAL OF PHOTOGRAMMETRY AND REMOTE SENSING*, vol. 112, pp. 37-49, I
- Dang K, Sassa K, Fukuoka H et al. (2016) Mechanism of two rapid and long-runout landslides in the 16 April 2016 Kumamoto earthquake using a ring-shear apparatus and computer simulation (LS-RAPID). Online publication, August 2016. Doi:10.1007/s10346-016-0748-9
- Fidej, G., Mikoš, M., Rugani, T., Jež, J., Kumelj, Š. Diaci, J (2015). Assessment of the protective function of forests against debris flows in a gorge of the Slovenian Alps. *IForest* 8, 73-81, doi: 10.3832/ifor0994-007.
- Frodella W.; Ciampalini A.; Gigli G.; Lombardi L.; Raspini F.; Nocentini M.; Scardigli C.; Casagli N. (2016). Synergic use of satellite and ground based remote sensing methods for monitoring the San Leo rock cliff (Northern Italy). *GEOMORPHOLOGY*, vol. 264, pp. 80-94
- Giorgetti A.; Lucchi M.; Tavelli E.; Barla M.; Gigli G.; Casagli N.; Chiani M.; Dardari D. (2016). A robust wireless sensor network for landslide risk analysis: System design, deployment, and field testing. *IEEE Sensors Journal*, vol. 16, pp. 6374-6386.
- Hu Z, Shan W.(2016). Landslide investigations in the northwest section of the lesser Khingan range in China using combined HDR and GPR methods, *Bull Eng Geol Environ* (2016) 75:591–603, DOI 10.1007/s10064-015-0805-y.

- Klimesš J., Novotný J., Novotná I., Jordán de Urries B., Vilímek V., Emmer A., Strozzi T., Kusák M., Rapre A.C., Hartvich F., Frey H. (online first): Landslides in moraines as triggers of glacial lake outburst floods: example of the Palcacocha Lake (Cordillera Blanca, Peru). *Landslides*. doi:10.1007/s10346-016-0724-4.
- Klimesš J., Yepes J., Becerril L., Kusák M., Galindo I., Blahut J. (2016): Development and recent activity of the San Andrés landslide on El Hierro, Canary Islands, Spain. *GEOMORPHOLOGY* 261, 119-131.
- Krkač M, Špoljarić D, Bernat S, Mihalić Arbanas S (2016) Method for prediction of landslide movements based on random forests. *Landslides*. In press, Accepted for publishing. DOI 10.1007/s10346-016-0761-z.
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- Pham Hong NGA, Kaoru Takara, Nguyen Hoang SON (2016): Risk Based Approach for Assessing Injuries and Fatalities in Rural Floodplain Area: A case study in Vu Gia-Thu river basin, Cenral Vietnam. *Journal of Japan Society of Civil Engineers, Series B1 (Hydraulic Engineering)*, Vol. 72, No. 4, pp. I_1261-I_1266.
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- Pazzi, V.; Morelli, S.; Pratesi, F.; Sodi, T.; Valori, L.; Gambacciani, L.; Casagli, N. (2016). Assessing the safety of schools affected by geo-hydrologic hazards: the geohazard safety class (GSC). *International Journal Of Disaster Risk Reduction*, vol. 15, pp. 80-93
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- Luo P.P, Apip, He B, W. Duan, K. Takara, D. Nover (2015): Impact assessment of rainfall scenarios and land-use change on hydrologic response using synthetic Area IDF curves, *Journal of Flood Risk Management*, DOI: 10.1111/jfr3.12164.
- Pham Hong NGA, Kaoru Takara, Nguyen Hoang SON (2015): Flood hazard impact analysis in the downstream of Vu Gia- Thu Bon river system, Quang Nam Province, Central Vietnam. *Journal of Japan Society of Civil Engineers, Series B1 (Hydraulic Engineering)*, Vol. 71, No. 4, pp. I_157-I_162.
- Sassa K (2015) Landslide risk assessment at cultural heritage sites. *IAEG XII Congress Proceedings, Engineering Geology for Society and Territory – Vol.2 Landslide Process*, Springer, 279-103.
- Sassa K, Tsuchiya S, Fukuoka H, Doan L, Mikoš M (2015) Landslides: review of achievements in the second 5-year period (2009-2013). *Landslides* 12(2), 213-123.
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- Shan W, Hu Z, Guo Y, and Wang. C. (2015) *Environmental and Engineering Geology of the Bei'an to Heihe Expressway in China with a Focus on Climate Change*. *Engineering Geology for Society and Territory – Volume 1*, Springer International Publishing Switzerland, 271-277.
- Shan W, Hu Z, Guo Y, Zhang C, Wang C, Jiang H, Liu Y, Xiao J. (2015). The impact of climate change on landslides in southeastern of high-latitude permafrost regions of China. *Front. Earth Sci.* 3:7. doi: 10.3389/feart.2015.00007.
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Sassa K, Fukuoka H, Sato Y, Takara K, Doan H L, Setiawan H, Pham V T, Dang K (2014): Initiation Mechanism of Rapid and Long Runout Landslide and Simulation of Hiroshima Landslide Disasters using the Integrated Simulation Model (LS-RAPID). Proceeding of International Forum “Urbanization and Landslide Disaster”, Kyoto, Japan, 8 October 2014, pp. 85-112.

Book (editors):

Khang N.X. and Sassa K (editors) 2016. Development of Landslide Risk Assessment Technology along Transport Arteries in Vietnam (331 pages in Print and CD). Institute of Transport Science and Technology (ITST) and International Consortium on Landslides (ICL) (ISBN:978-4-9903382-3-7)

Lollino G, Shan W et al. (editors) 2015. Volume 1 Climate Change and Engineering Geology, IAEG XII Congress Proceeding, Engineering Geology for Society and Territory- (Springer, ISBN 978-3-319-09299-7)

Sassa K, Fukuoka H. and Khang D. (editors) 2014. International Forum “Urbanization and Landslide Disaster”-Hiroshima landslide disaster in August 2014 and Japan’s contribution to Post-2015 Framework for Disaster Risk Reduction (121 pages). International Consortium on Landslides (ICL)

e) Cooperation with UNESCO Headquarters, Field Offices

ICL was founded by UNESCO-Kyoto University Joint symposium (IGCP-425 Landslide Hazard Assessment and Cultural Heritage) in 2002. IPL (International Programme on Landslides) was founded as a landslide version of IGCP. Chair of the IPL Global Promotion Committee which manages all of IPL is Qunli Han (Director of Ecological Sciences and Earth Sciences of UNESCO).

IPL Advisor is Badaoui Rouhban (Special Advisor to the Assistant Director-General for Natural Sciences). Chair of the ICL network Evaluation Committee is Giuseppe Arduino (Chief of Section Ecohydrology, Water Quality and Water Education in the Division of Water Sciences).

UNESCO Divisions of Ecological Sciences and Earth Sciences and Water Sciences cooperate with ICL and IPL management since the foundation of ICL and IPL.

ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk was proposed by ICL under the strong support from UNESCO during the 3rd World Conference on Disaster Risk Reduction in Sendai, Japan. It was established with signing by ICL, UNESCO, Kyoto University, UNISDR, WMO, FAO, UNU, ICSU, WFEQ, IUGS, IUGG, Government of Japan, Italy and Croatia.

To implement this Sendai Partnerships, ICL is editing Vol.1 Sendai Partnerships 2015-2025 as free online book as well as print book for the Fourth World Landslide Forum. UNESCO-DG is writing Foreword for the book and UNESCO headquarters has contributed an article “UNESCO’s contribution to the implementation of UNISDR’s global initiative and ICL” in it.

Landslide research and risk reduction in Central Asia. Proposal to arrange Working group meeting Drafted by K. Tovmasyan, SC/ATA, 15/08/2016. Discussed by A. STROM with K. TOVMASYAN in September, 2016.

Workshop on Emergency intervention for Cultural Heritage. 29th of September 2016, European Parliament Bruxelles, co-organized by the UNESCO Office in Venice.

Workshop on Managing Disaster Risks in UNESCO Designated Sites. Mostar, Bosnia and Herzegovina. 10-13 October 2016, co-organized by the UNESCO Office in Venice.

f) Other

(any other activities to report)

At University of Ljubljana, Slovenia, four chairs established a new research institute called Research Institute for Geo and Hydro Threats (RIGHT) that will help to coordinate research work in the field of natural disaster risk reduction at the faculty level between hydrology, hydraulic engineering, geological engineering, remote sensing, and geodetical engineering.

3. Future Plans and Development Prospects:

Outline of action plan for the next biennium and short/medium and long-term development prospects. Please do not hesitate to refer to difficulties that the Chair has experienced (Not exceeding 300 words)

UNITWIN network will develop "Landslides: Journal of International Consortium on Landslides" (2015 Impact Factor=3.049) from bimonthly publication of 200 pages/issue up to 2016 to 300 pages/issue in 2017 and later as the core activity of network in the future. It has a great impact to the world in the field of landslides.

ICL has edited "Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools" as a contribution to the ISDR-ICL Sendai Partnerships 2015-2025. It is two volumes of 1700 pages text, PPT tools for lectures and PDF tools for reference materials. It will be published early 2017

ICL and ICL supporting organizations will organize the 4th World Landslide Forum in Ljubljana in 30 May- 2 June 2017 with UNESCO DG Irina BOKOVA as a honorary chair person. Five volumes of full color books will be published before the Forum. A high-level panel discussion and a round table discussion to promote the Sendai Partnerships will be organized on 30-31st May 2017 in the Forum.

The fifth World Landslide Forum will be organized in September 2020 in Niigata, Japan. This is the mid-term of the ISDR-ICL Sendai Partnerships 2015-2025 for global promotion of understanding and reducing landslide disaster risk.

UNESCO Chair on Water-Related Disaster Risk Reduction established in September 2016 at the University of Ljubljana (two of ICL member organizations) will cooperate with UNESCO IHP programme. It plans a PhD summer school on natural disasters at the University of Ljubljana

Strom (ICL member, Russia) will publish the book "Large Landslides In Central Asia: Distribution, Impacts, And Hazard Assessment" in May, 2017

Vilimek and Klimes (ICL members, Czech) will organize the Czech – Peruvian UNESCO seminar about research on Cultural and Natural Heritage of UNESCO in Peru (Machu Picchu and Huascarán National Park) in March 2017, Lima, Peru.

Appendix:

1) Human Resources

Disaster Prevention Research Institute, Kyoto University (host institution)

Kaoru Takara: Professor and Director of Disaster Prevention Research Institute, Hydrology

Takahiro Sayama: Associate Professor, Hydrology

Hendy Setiawan: Landslide research fellow.

Pham van Tien: Landslide researcher

Nguyen Duc Ha: Landslide researcher

International Consortium on Landslides (ICL)

ICL consists of ICL headquarters and 64 member organizations.

This report includes ICL headquarters and major member organizations within 64 organizations.

In this report, ICL headquarters is regarded as the host institution. 63 member organizations except Disaster Prevention Research Institute, Kyoto University are regarded as partner institutions.

It is not easy to list human resources, financial resources on UNITWIN activities of all 63 member organization. ICL will report cases of three European members and one Asian member which are three World Centres of Excellence on Landslide Risk Reduction (WCOE) within 15 WCOEs 2014-2017 of ICL

ICL Headquarters (host institution)

Kyoji Sassa: Professor Emeritus, Executive Director (Landslide dynamics)

Kaoru Takara: Professor-Director (Hydrology and Hydrogeology)

Hiroshi Fukuoka: Professor-Director and researcher (Landslide dynamics)

Hirohisa Ochiai: Doctor-Auditor and researcher (Landslide monitoring)

Khang Dang: Research Promotion Officer (Landslide dynamics)

Mie Ueda: Secretary for ICL-IPL management

Waka Kataoka: Secretary for ICL-IPL management

UNESCO Chair University of Florence (ICL World Centre of Excellence, UNITWIN Partner Institution)

Paolo Canut: Professor. Emeritus - Chair holder

Nicola Casagli: Professor (Engineering Geology)

Sandro Moretti: Professor (Engineering Geomorphology)

Filippo Catani: Associate Professor (Engineering Geomorphology)

Riccardo Fanti: Associate Professor (Engineering Geology)

Giovanni Gigli: Assistant Professor Dr. (Engineering Geology)

Veronica Tofani: Assistant Professor Dr. (Engineering Geology)

Stefano Morelli: Assistant Professor Dr. (Engineering Geology)

Northeast Forestry University (ICL World Centre of Excellence, UNITWIN Partner Institution)

Wei Shan: Professor Dr. (Hydrogeology and Engineering Geology)

Ying Guo: Associate Professor Dr. (Soil physics and soil mechanics)

Yanqiu Xing: Professor Dr. (Remote Sensing Geology)

Zhaoguang Hu: Engineer Dr. (Geophysics)

Croatian Landslide Group (ICL World Centre of Excellence, UNITWIN Partner Institution)

Željko Arbanas: Professor (Soil Mechanics and Geotechnical Engineering)

Snježana Mihalić Arbanas: Professor (Engineering Geology)

Vedran Jagodnik, Assistant Professor (Soil Mechanics and Geotechnical Engineering)

Sanja Dugonjić Jovančević, Assistant Professor (Soil Mechanics and Geotechnical Engineering)
 Martin Krkač, Assistant Professor (Engineering Geology)
 Martina Vivoda, Postdoc Researcher (Soil Mechanics and Geotechnical Engineering)
 Sanja Bernat, Researcher (Engineering Geology)
 Petra Đomlija, Researcher (Engineering Geology)
 Marin Sečanj, Researcher (Engineering Geology)
 Josip Peranić, Researcher (Soil Mechanics and Geotechnical Engineering)

Czech Landslide Group (ICL World centre of Excellence, UNITWIN Partner Institution)

Josef Stemberk (Engineering Geology)
Vít Vilímek (Geomorphology)
Jan Klimeš (Engineering Geomorphology)
Jan Blahút (Engineering Geomorphology)

2) Financial Resources

<i>Please tick sources of financial contribution and specify the amount in U.S. dollars</i>	[tick]	Amount (\$)
Host Institution	<input checked="" type="checkbox"/>	2,316,000
Partner Institution	<input checked="" type="checkbox"/>	1,842,000
Government Body	<input checked="" type="checkbox"/>	1,522,000
Other Public Institution/Body (incl. Research Councils)	<input type="checkbox"/>	
UNESCO	<input checked="" type="checkbox"/>	18,000
Other UN Agency	<input type="checkbox"/>	
IGO	<input type="checkbox"/>	
NGO (JST, JICA, JSPS, etc)	<input checked="" type="checkbox"/>	2,229,000
Industry	<input checked="" type="checkbox"/>	320,000
Other Private	<input type="checkbox"/>	

Give details of financial contributions, material resources and space.

A: Financial resources of ICL headquarters and some of major member organizations within 64 members for the current two years

ICL headquarters

ICL Budget for IPL: 90,000USD
 JST Budget: 345,000USD
 JICA Budget: 1,498,000 USD

Disaster Prevention Research Institute, Kyoto University

JSPS Budget: 118,000 USD
 JST Budget: 265,000 USD

UNESCO Chair University of Florence

Government Body (1,300,000 USD)
 National Service of Civil Protection
European Union (100,000 USD)
 R&D Projects

Industry (100,000 USD)

Private companies

Northeast Forestry University**Government Body (100,000 USD)**

Ministry of Communications of China, Department of Transportation of Heilongjiang Province

Industry (200,000 USD)

Northeast Forestry University Engineering Consulting & Design Institute

Croatian Landslide Group**Government Body (22,000 USD)**

Ministry of Science, University of Rijeka

Industry (20,000 USD)

Croatian Waters

B1: Material resources and space of the above organizations selected from 64 member organizations.**ICL headquarters****A: Major facilities provided by ICL to UNITWIN Programme are:**

1) Undrained dynamic loading ring shear apparatus for large-scale landslides which was developed by UNITWIN programme (400,000 USD) for landslide hazard assessment with support of SATREPS (Science and Technology Research Partnerships for Sustainable Development) programme with Vietnam.

2) Transportable undrained dynamic loading ring shear apparatus for smaller landslides landslides which was developed by UNITWIN programme (350,000 USD) for landslide hazard assessment with support of SATREPS (Science and Technology Research Partnerships for Sustainable Development) programme with Vietnam.
which was developed by UNITWIN programme (300,000 USD) for landslide hazard assessment with support of SATREPS (Science and Technology Research Partnerships for Sustainable Development) programme with Croatia.

3) **Facilities at UNESCO Chair in Florence:** GIS and thematic mapping laboratory, Remote Sensing laboratory specialised on SAR interferometry, optical and hyperspectral remote sensing. Rock and Soil mechanics laboratory. Patented drone multicopter. Remotely controlled underwater vehicle. Ground-based radar interferometer.

4) Facilities at Institute of Cold Regions Science and Engineering (ICRSE) in Northeast Forestry University, China: ICRSE has two parts, ICRSE research center (ICRSE-RC) and ICRSE field observation stations (ICRSE-FOS). The facilities in ICRSE-RC mainly are low-temperature laboratory (20m²), automatic monitoring systems of soil temperature and moisture, triaxial and consolidation instruments and other indoor test equipment, ground penetrating radar, high-density electrical instrument, small rig, light touch detector, unmanned aerial vehicles. The facilities in ICRSE-R are automatic weather stations, automatic monitoring and transmission systems of soil temperature and moisture.

B2: Space provided to UNITWIN Programme.**Spaces at UNITWIN Headquarters in Kyoto, Japan**

1) UNITWIN Headquarters Building which was jointly constructed by ICL and Kyoto University in the Kyoto University Uji campus in 2004.

It has three rooms, a meeting rooms for 30 persons, a IPL research room for 5 persons, and a joint research room and journal editorial room.

2) UNITWIN Laboratory which is located in Kyoto University Main Campus, Kyoto Japan. The main facilities are two undrained dynamic loading ring shear apparatuses. All students and trainees from Croatia, Vietnam, Indonesia, Pakistan and others under the UNITWIN programme are implementing landslide experiments and writing thesis for Doctors and Masters in Kyoto University and other network universities.

3) ICL headquarters which is located in a side of the Kyoto University North campus. A room for UNITWIN Coordinator from ICL and the research promotion office and two secretaries who promote and manage the International Programme on Landslides, and a meeting room for 20 persons.

Spaces at UNESCO Chair in Florence:

1) UNESCO Chair Headquarters Building in the University of Florence Campus of Arcetri with offices for 25 researchers and meeting room for 20 persons

2) Civil Protection Laboratories in the University of Florence Campus of Arcetri with 400 sqm of labs and a conference room for 40 persons

3) Engineering Geology Group in the University of Florence main Campus of Arcetri with offices and labs for 25 researchers

Spaces at Institute of Cold Regions Science and Engineering in Northeast Forestry University, China: ICRSE has two parts, ICRSE research center(ICRSE-RC) has laboratories and conference rooms, a total of 400 m². Another is ICRSE field observation stations.

End of the Form