

# NATIONAL REPORT ON IHP RELATED ACTIVITIES

## *Japan*

Various activities of UNESCO have been implemented under the support of the Japanese National Commission for UNESCO with financial contribution in the form of Fund-in-Trust (JFIT) for the Promotion of Science for the Sustainable Development. Japanese National Committee for IHP of UNESCO is expected to solve complex global challenges through following activities with a cross-cutting approach in collaboration with all the studies including social and human sciences, in addition to changing value. The following summary includes the activities of Japanese National Committee for IHP of UNESCO undertaken during June 2014 to May 2016.

### 1. ACTIVITIES UNDERTAKEN IN THE PERIOD JUNE 2014 – MAY 2016

#### 1.1 Meetings of the IHP National Committee

##### 1.1.1 Decisions regarding the composition of the IHP National Committee

The composition of the Japanese IHP National Committee is as follows:

Members of the IHP National Committee as of May 2016.

	Name	Position	E-mail
Chair*	TACHIKAWA Yasuto	Prof., Kyoto Univ.	<a href="mailto:tachikawa@hywr.kuciv.kyoto-u.ac.jp">tachikawa@hywr.kuciv.kyoto-u.ac.jp</a>
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*	KURODA Reiko	Prof. The Tokyo Univ. of Science	<a href="mailto:rkuroda@rs.tus.ac.jp">rkuroda@rs.tus.ac.jp</a>
	OKI Taikan	Prof., IIS, The Univ. of Tokyo	<a href="mailto:taikan@iis.u-tokyo.ac.jp">taikan@iis.u-tokyo.ac.jp</a>
	KAZAMA Futaba	Prof., Univ. of Yamanashi	<a href="mailto:futaba@yamanashi.ac.jp">futaba@yamanashi.ac.jp</a>
	KAWAMURA Akira	Prof., Tokyo Metropolitan Univ.	<a href="mailto:kawamura@tmu.ac.jp">kawamura@tmu.ac.jp</a>
	TANIGUCHI Makoto	Prof., RIHN	<a href="mailto:makoto@chikyu.ac.jp">makoto@chikyu.ac.jp</a>
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	TSUJIMURA Maki	Prof., Univ. of Tsukuba	<a href="mailto:mktsuji@geoenv.tsukuba.ac.jp">mktsuji@geoenv.tsukuba.ac.jp</a>
	NAKAYAMA Mikiyasu	Prof., The Univ. of Tokyo	<a href="mailto:nakayama@k.u-tokyo.ac.jp">nakayama@k.u-tokyo.ac.jp</a>
	HARUYAMA Shigeo	Prof., Mie Univ.	<a href="mailto:haruyama@bio.mie-u.ac.jp">haruyama@bio.mie-u.ac.jp</a>
	HIYAMA Tetsuya	Prof., ISEE, Nagoya Univ.	<a href="mailto:hiyama@nagoya-u.jp">hiyama@nagoya-u.jp</a>
	HORI Tomoharu	Prof., WRRRC, DPRI, Kyoto Univ.	<a href="mailto:horitomoharu.3w@kyoto-u.ac.jp">horitomoharu.3w@kyoto-u.ac.jp</a>
	MIYAKE Katsuhito	Deputy Director, ICHARM, PWRI	<a href="mailto:k-miyake@pwri.go.jp">k-miyake@pwri.go.jp</a>
	WATANABE Tsugihiko	Prof., Kyoto Univ.	<a href="mailto:nabe@kais.kyoto-u.ac.jp">nabe@kais.kyoto-u.ac.jp</a>

#### Notes:

- \* Member of the Japanese National Commission for UNESCO;
- CICAORI: Center for International Collaboration, Atmosphere and Ocean Research Institute;
- DPRI: Disaster Prevention Research Institute, Kyoto University;
- ICHARM: The International Centre for Water Hazard and Risk Management (UNESCO Category II Centre);
- IIS: Institute for Industrial Sciences, University of Tokyo;
- ISEE: Institute for Space-Earth Environmental Research, Nagoya University (formerly Hydrospheric Atmospheric Research Center (HyARC));
- PWRI: Public Works Research Institute;
- RIHN: Research Institute for Humanity and Nature; and
- WRRRC: Water Resources Research Center.

#### Secretariat of the Japanese National Committee for IHP, UNESCO:

c/o Ms. MOTOOKA Yoshiko

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### **Special Notes:**

We would like to make special mention that Dr. Yutaka Takahasi received the Japan Prize in the field of Resources, Energy and Social Infrastructure, by his outstanding activities on “Contribution to development of innovative concept on river basin management and reduction of water-related disasters” on 23 April 2015. Dr. Takahasi served IHP as Vice-Chairperson (1990-1991) of Intergovernmental Council and the first Chairperson (1993-1996) of the IHP Regional Steering Committee for Southeast Asia and the Pacific. This is the first time for a hydrological scientist to receive such a big award. We are very proud of him and would like to share this great news with sincere congratulations. For further details of the prize, see [http://www.japanprize.jp/en/prize\\_prof\\_2015\\_takahasi.html](http://www.japanprize.jp/en/prize_prof_2015_takahasi.html).

We are also very pleased to have a meeting on Cooperation with UNESCO on Water-Related Activities and Projects, with Madam Flavia Schlegel, Assistant Director-General for Natural Science, UNESCO, at the Graduate School of Advanced Integrated Studies, Kyoto University on 3 October 2015 at her occasion of visiting Kyoto to attend the 12<sup>th</sup> Science and Technology in Society (STS) Forum on 3-5 October 2015. Dr. Kaoru Takara (Former Chair, Japanese IHP National Committee), Dr. Toshio Koike (Director, ICHARM), Dr. Koichiro Oshima (Vice-President, Kyoto University), Dr. Yosuke Yamashiki (Chairperson, UNESCO-IHP International Initiative on Water Quality (IIWQ) International Experts Advisory Group) and other Kyoto University Professors welcomed her and had a mutually beneficial time to exchange various kinds of information on IHP activities at UNESCO Headquarters, regional and national levels, as well as ones of Kyoto University and ICHARM.

#### 1.1.2 Status of IHP-VIII activities

Various activities relating to IHP-VIII (2014-2018) Themes have been implemented since 2014 as follows.

### **THEME 1: Water Related Disasters and Hydrological Changes**

#### **FA 1.1 – Risk management as adaptation to global changes**

- Climate change research under the MEXT SOSEI program “Program for Risk Information on Climate Change” is intensively conducted from 2012 to 2016
- Development of a new flood management method utilizing paddies into river management against global warming [National Institute for Rural Engineering (NIRE), Univ. of Tsukuba, The Univ. of Tokyo]

#### **FA 1.2 – Understanding coupled human and natural processes**

- Hydrogeological and sociological survey on development processes of East-Asian cities co-existing with floods [Kyoto Univ.]

#### **FA 1.3 – Benefiting from global and local earth observation System**

- Scientific sessions on interaction between hydrological cycle and physical/biochemical oceanography by cooperation between IHP and IOC held at annual meetings of JpGU in Pacifico Yokohama, Kanagawa, Japan, 28 April - 2 May 2014 and Makuhari Messe, Chiba, Japan, 24-28 May 2015 [JAMSTEC, The Univ. of Tokyo, Kyoto Univ.]
- UNESCO Pakistan project “Strategic Strengthening of Flood Warning and Management Capacity of Pakistan” [Phase 2: from 2015 to 2017] [ICHAARM]
- Global water cycle assessment: IHP contribution to GEOSS [Univ. of Tokyo] collaborated with ICHARM. There are number of activities led by Prof. Koike (Univ. of Tokyo, Director of ICHARM) and others such as Asian Water Cycle Initiative and ICHARM symposium titled Asian Water Cycle Symposium (AWCS2016), Tokyo, Japan, 1-2 March 2016 [ICHAARM, Univ. of Tokyo]

#### **FA 1.4 – Addressing uncertainty and improving its communication**

- Climate change research under the MEXT SOSEI program “Program for Risk Information on Climate Change” is intensively conducted from 2012 to 2016

#### **FA 1.5 – Improve scientific basis for hydrology and water sciences for preparation and response to extreme hydrological events**

- A Global Center of Excellence (GCOE) Program at Kyoto University “Sustainability/Survivability Science for a Resilient Society Adaptable to Extreme Weather Conditions” adopted for 2009-2014. Interdisciplinary research and education at Ph.D. level is implemented at Kyoto University for extreme weather and water conditions [Takara, Tachikawa and others].
- Collaborative joint research for hydrologic prediction between Yangon Technological University and Kyoto University from 2014 to 2015. [Kyoto Univ.]
- Inundation analysis and Flood/drought risk assessment [ICHARM, PWRI, IFNet, JMA and universities] under the MEXT SOSEI Program from 2012 to 2016, changes of water-related disasters and water resources under global warming were investigated.
- Committee on Hydrosience and Hydraulic Engineering, JSCE, launched the subcommittee on flood risk management in 2013, which is in charge of field survey of actual flood cases (the subcommittee is chaired by Hori). The subcommittee conducted the field survey in five large flood and geo-hazard events which occurred in 2014 and 2015.
- Research Project on Disaster Prevention/Mitigation Measures against Floods and Storm Surges in Bangladesh [Prof. Nakagawa, DPRI, Kyoto Univ.] under the Science and Technology Research Partnership for Sustainable Development (SATREPS) from 2013 to 2018.
- Research to develop methodologies to observe, predict and analyze water-related hazards, supporting assessment of water-related risks [ICHARM/PWRI] from 2014 to 2016.
- Research to pioneer new methods and models to assess, analyze and monitor exposure and vulnerability to water-related hazards, supporting risk management at both local and global scales [ICHARM/PWRI] from 2014 to 2016.
- Japan-ASEAN Science and Technology Innovation Platform (JASTIP) supported by Japan Science and Technology Agency (JST) from 2015-2019 [Prof. K. Takara, T. Sayama, Y. Tachikawa, Kyoto Univ.]

### **THEME 2: Groundwater in a Changing Environment**

#### **FA 2.1 – Enhancing sustainable groundwater resource management**

- GWES (Groundwater in Emergency Situations).  
Great Eastern Japan Earthquake and Tsunami showed the importance of groundwater use in emergency situation during disasters.
- UNESCO Chair on Sustainable Groundwater Management in Mongolia at the Institute of Geography and Geo-ecology, Mongolian Academy of Sciences and the University of Tsukuba, Japan. UNESCO has decided to launch Phase 3 activity (for next 4 years) of this chair between Mongolian Academy of Sciences and the University of Tsukuba in August 2015. The new phase of the chair will focus on the monitoring of the groundwater and the surface water interaction and the consultant on the sustainable groundwater resources governance in Ulaanbaatar, capital city of Mongolia.
- Frontier of sustainable groundwater management systems based on groundwater flow process in arid/semi-arid region in cooperation with China and Mongolia [Univ. of Tsukuba, Hiroshima Univ., Kumamoto Univ.]
- A research project on the impact of the forest thinning on the groundwater recharge funded by CREST Program of the Japan Science and Technology Agency (JST). [Univ. Tsukuba, Kyoto Univ., Univ. Tokyo, Kyushu Univ.]
- IAEA (International Atomic Energy Agency) / UNESCO Technical Meeting on Groundwater Contamination Following the Fukushima Nuclear Accident was held at IAEA Headquarters, Vienna, 8 – 10 September 2014 to discuss the nature of groundwater and surface water contamination at the Fukushima NPS and its vicinity, and to share the experiences, particularly in terms of countermeasures and communication with stakeholders, at other areas, such as Chernobyl, Ukraine, Sellafield, UK, and Hanford and Brookhaven, USA [Tsujimura, Univ. Tsukuba]

### **FA 2.2 – Addressing strategies for management of aquifers recharge**

- UNESCO Chair on Sustainable Groundwater Management in Mongolia at the Institute of Geo-ecology, Mongolian Academy of Sciences and the University of Tsukuba, Japan. The chair activity has been continued actively focusing on the monitoring of the groundwater and the surface water interaction and the consultant on the sustainable groundwater resources governance in Ulaanbaatar, capital city of Mongolia.

### **FA 2.3 – Adapting to the impacts of climate change on aquifer systems**

- Groundwater resources assessment under the pressure of humanity and climate change (GRAPHIC) [Research Institute for Humanity and Nature (RIHN)]  
UNESCO-GRAPHIC organized several international activities including symposiums and training courses to evaluate the effects of climate change and human activities on groundwater resources.

### **FA 2.4 – Promoting groundwater quality protection**

UNESCO-IHP International Initiative on Water Quality (IIWQ) organized UNESCO International Scientific Symposium “Scientific, Technological and Policy Innovations for Improved Water Quality Monitoring in the Post-2015 SDGs Framework under the collaboration with Kyoto University and Lake Biwa Environmental Research Institute, 15<sup>th</sup> – 18<sup>th</sup> July, 2015 in Kyoto.

## **THEME 3: Addressing Water Scarcity and Quality**

### **FA 3.1 – Improving governance, planning, management, allocation and efficient use of water resources**

- DPRI initiated the Japan Egypt-Hydro Network (JF-HydroNet) with the coordination with three Egyptian Institutions under the umbrella of GCOE-ARS project at Kyoto Univ. for a joint research and education project on the water resources and environmental problems of the Nile Delta of Egypt [Prof. Tetsuya Sumi, WRRRC, DPRI, Kyoto Univ.].
- Hydro-microbiological Approach for Water Security in Kathmandu Valley, Nepal [Prof. Kazama, Univ. of Yamanashi] under the Science and Technology Research Partnership for Sustainable Development (SATREPS) from 2013-2018.
- Asian G-WADI (Global Network on Water and Development Information for Arid Lands) and International Draught Initiative (IDI) held 6<sup>th</sup> Asian G-WADI and 1<sup>st</sup> IDI Expert Group Meeting, 13<sup>th</sup> – 16<sup>th</sup> June 2015, Tehran, Iran. [Prof. Tsujimura, Univ. Tsukuba, Prof. Koike, ICHARM]

## **THEME 4: Water and Human Settlements of the Future**

### **FA 4.2 – System wide changes for integrated management approaches**

- Development of a Comprehensive Disaster Resilience System and Collaboration Platform in Myanmar [Prof. Meguro, IIS, The Univ. of Tokyo] under the Science and Technology Research Partnership for Sustainable Development (SATREPS) from 2014 to 2019.
- Research to propose policy tools for integrated and comprehensive water and risk management to enhance human and ecosystem resilience, for instance through preparedness, early warning, and hard-soft integration [ICHARM/PWRI] from 2014 to 2016.

## **THEME 5: Ecohydrology, Engineering Harmony for a Sustainable World**

### **FA 5.1 – Hydrological dimension of a catchment - identification of potential threats and opportunities for a sustainable development**

- Hydrological and ecological impact assessment of long-term global warming on river basins in the world [Kyoto Univ.]

### **FA 5.2 – Shaping of the catchment ecological structure for ecosystem potential enhancement - biological productivity and biodiversity**

- Valorization of Bio-resources in Semi- arid and Arid Land for Regional Development [Univ. Tsukuba]  
Univ. Tsukuba has performed an international collaboration research on the relationship between the bio-resources and surface water/ groundwater resources in semi-arid regions in Tunisia funded by the Science and Technology Research Partnership for Sustainable Development (SATREPS) of

the Japan International Cooperation Agency (JICA) and the Japan Science and Technology Agency (JST).

### **FA 5.3 – Ecohydrology system solution and ecological engineering for the enhancement of water and ecosystem resilience and ecosystem services**

#### **THEME 6: Water Education, Key for Water Security**

##### **FA 6.2 –Addressing vocational education and training of water technicians**

To share the knowledge of hydrologic modeling techniques and enhance the understanding of hydrologic predictions, CommonMP (Common Modeling Platform for water-material circulation analysis) was developed at the National Institute for Land and Infrastructure Management [NILIM].

- Promoted UNESCO’s “IWRM Guidelines at river basin level (IWRM Guidelines)” by NARBO (Network of Asian River Basin Organizations)
- Preparation for Educational material of IWRM guidelines for UNESCO by Japan Water Agency, secretariat of NARBO.
- International Environment Leaders Training Program funded by Ministry of Education, Culture, Sports, Science and Technology (MEXT) [Univ. Tsukuba, Kyoto Univ., Univ. Tokyo, Kumamoto Univ. et al.]
- ICHARM Training Programmes and a one-year Master Degree Program on water-related risk management in cooperation with the National Graduate Institute for Policy Studies (GRIPS) supported by JICA
- A series of training on RRI model and storm surge model for the government officers (DMH and ID) supported by the Asian Development Bank project “TA-8456: Transformation of Urban Management - Part II Flood Management” in the Republic of the Union of Myanmar [ICHARM]
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##### **FA 6.3 – Water education for children and youth**

- Kyoto University implemented Global COE Program “Sustainability/Survivability Science for a Resilient Society Adaptable to Extreme Weather Conditions” supported by MEXT and JSPS (2009-2014) [Takara].
- Kyoto University is implementing a Leading Graduate Schools Program “Inter-Graduate School Program for Sustainable Development and Survival Societies” (2011-2018) [Takara, Hori, Tachikawa].
- Kyoto University implemented a collaborative education programs with universities in Asia “International Human Resource Development for Disaster-Resilient Countries“ under Re-inventing Japan Project supported by MEXT (2011-2016) [Hori, Tachikawa]
- ICHARM Training Programmes and a one-year Master Degree Program on water-related risk management in cooperation with the National Graduate Institute for Policy Studies (GRIPS) supported by JICA.
- ICHARM Training Programmes and a three-year Doctoral degree program on “Disaster Management Program” cooperation with the National Graduate Institute for Policy Studies (GRIPS)
- Two short-term training courses have been conducted about Capacity Development for Flood Risk Management, June 2014-June 2016 [ICHARM].
- Joint international summer program “Sustainable Water Management in an Era of Big Data” co-organized with the University of Tokyo, July27-August 7, 2016 [ICHARM]
- University of Tsukuba has launched a new graduate level English course “SUSTEP (Sustainability Science, Technology and Policy) Program” to educate global leaders having comprehensive capacity of environment and sustainable development since April 2014.
- International Summer Program on Sustainable Water Management in an Era of Big Data organized by The University of Tokyo and ICHARM, 27 July - 7 August, 2015.

## **Other regional and cross-cutting themes activities**

### **(1) Post Catalogue of Rivers:**

- Activities for post Catalogue of Rivers for Southeast Asia and the Pacific has been discussed. The information of the six volumes locates at: <http://hywr.kuciv.kyoto-u.ac.jp/ihp/japan/riverCatalogue.html>

### **(2) Asian Pacific FRIEND:**

- With the dissemination of information from the SEAP region it is hoped that there will be better understanding and co-operation on matters related to water resources within each country as well as regionally. Of particular importance was the establishment of the Asian Pacific FRIEND, a UNESCO-IHP regional collaborative project, and the Asian Pacific Water Archive (APWA) that archives and makes available hydrometeorological and related data for Asian Pacific FRIEND projects and other IHP related activities in the region. Japan has been contributing to Asian Pacific FRIEND since its first Technical Sub-Committee (TSC) meeting in Kuala Lumpur in May 1997.

### **(3) International Flood Initiative (IFI), International Sediment Initiative (ISI) and International Programme on Landslides (IPL):**

- Contribution to IFI as secretariat  
ICHARM has been serving as the secretariat of the International Flood Initiative (IFI), a joint initiative with international organizations such as UNESCO (IHP), WMO, UN/ISDR, UNU, IAHS, AHR, ICLR and IIASA. ICHARM manages the IFI website (<http://www.ifi-home.info/>) and compiles inputs, materials and tools provided by member agencies, while also providing its own outputs. With respectful contributions from participatory organizations, IFI has been making an effort to conceptualize, design and implement flood mitigation and protective actions and activities. Being intimately aware of the achievements that have been made in flood management in the last decade, the IFI has also tried to foster the mobilization of resources and networks of the UN system, non-governmental organizations and so on in order to assist communities and governments in developing culturally sensitive flood management strategies and thereby addressing sustainable development, such as through IFI flagship project “to support benchmarking flood risk reduction at global, national and local levels” since 2013. ICHARM organized the IFI plenary session at the 6th International Conference on Flood Management (ICFM6), Sao Paulo, Brazil on 16 September 2014, the plenary session during the 23rd IHP RSC meeting in Medan, Indonesia on 21 October 2015, and the Flood Session towards IFI Asia Pacific region collaborated with the Asian Water Cycle Initiative (AWCI) and the Network of Asian River Basin Organizations (NARBO) also as the ICHARM’s ten-year anniversary on 1 March 2016 to discuss how to step forward and revitalize its activities aimed at the integrated flood management through monitoring, assessment and capacity building for the implementation of the important international frameworks such as the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) in March, Sustainable Development Goals (SDGs) in September and the Paris Agreement on Climate Change (Paris Agreement) all in 2015.

### **(4) UNESCO Chair on Sustainable Groundwater Management in Mongolia (Phase 3):**

- Phase 3 has been launched in August 2015 (for next 4 years) between Mongolian Academy of Sciences and the University of Tsukuba. The new phase of the chair will focus on the monitoring of the groundwater and the surface water interaction and the consultant on the sustainable groundwater resources governance in Ulaanbaatar, capital city of Mongolia.

### **(5) International Commission on Tracers (ICT), International Association of Hydrological Sciences (IAHS)**

- The ICT commission has established the session: “Tracer methods for understanding the response of hydrological systems to transient contamination” (Hw15) by 26<sup>th</sup> IUGG (International Union of Geodesy and Geophysics) General Assembly to be held in Prague, in June 2015 [Tsujimura, M., Univ. Tsukuba as a Vice President of ICT].
- The ICT commission has establish the workshop “Tracer and isotope hydrology” (S8.4) by 42<sup>nd</sup> IAH (International Association of Hydrogeologists) Congress, to be held in Rome, Italy in September 2015 [Tsujimura, M., Univ. Tsukuba as a Vice President of ICT].

## 1.2 Activities at national level in the framework of the IHP

### 1.2.1 National/local scientific and technical meetings

- IHP Training Course Task Forth Meetings in Nagoya and Kyoto and Working Group Meetings in Tokyo (Prof. Uyeda, Prof. Nakamura, Prof. Takara, Prof. Ishizaka and Prof. Sumi) were held several times to discuss the organization of the Training Courses, the plan for the 24<sup>th</sup> and 25<sup>th</sup> Training Courses, future direction, and the reviews.
- The 30<sup>th</sup> IHP National Committee meeting was held at MEXT on 30 May 2016 to discuss various issues relating to the 22<sup>nd</sup> Session of IHP Intergovernmental Council (June 2016) .

### 1.2.2 Participation in IHP Steering Committees/Working Groups

- The 22<sup>nd</sup> RSC meeting was held in Yogyakarta, Indonesia in conjunction with International Conference on Ecohydrology (ICE), 10-14 November 2014. [Takara, Chikamori, Tachikawa, Kobayashi, Kawamura]
- The 23<sup>rd</sup> RSC meeting was held in Medan, Indonesia in conjunction with the International Symposium on "Integrated Actions for Global Water and Environmental Sustainability" in collaboration with North Sumatera University, 19-22 October 2015. [Takara, Chikamori, Tachikawa, Kobayashi, Takeuchi, Koike, Sayama]

### 1.2.3 Research/applied projects supported or sponsored

- Japan-ASEAN Science and Technology Innovation Platform(JASTIP) supported by Japan Science and Technology Agency (JST) [Prof. K. Takara, T. Sayama, Y. Tachikawa, Kyoto Univ.]
- "Precise Impact Assessments on Climate Change" supported by MEXT SOSEI Program "Climate Change Risk Information" 2012-2016 [ICHARM, PWRI, Kyoto Univ., Univ. Tokyo and others]
- JSPS-Asian Core Program, "Research and Education Center for the Risk Based Asian Oriented Integrated Watershed Management," 2011-2015 [PI: Prof. Yoshihisa Shimizu, Kyoto Univ.]
- Program for Leading Graduate Schools "Inter-Graduate School Program for Sustainable Development and Survivable Societies" (GSS) 2011-2018 sponsored by MEXT-JSPS [Prof. Kaoru Takara, DPRI, Kyoto Univ.]
- Grant-in-Aid for ODA UNESCO activities, 2015 sponsored by MEXT [Kyoto University]
- Research Project "New frontiers in global hydrology" supported by Grant-in-Aid for Scientific Research of The Japan Society for the Promotion of Science. (2016-2032) [T. Oki, The Univ. of Tokyo]
- Research Project "Research and Development for Reducing Geo-Hazard Damage in Malaysia Caused by Landslide and Flood" supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), 2010-2015, JST-JICA [K. Tosaka, The Univ. of Tokyo]
- Research Project "Development of Landslide Risk Assessment Technology along Transport Arteries in Viet Nam" supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), 2011-2016, JST-JICA [K. Sassa, International Consortium on Landslides (ICL)]
- Research Project "A tracer simulator of fallout radionuclides for safe and sustainable water use" Core Research for Evolutional Science and Technology (CREST), 2011-2017, the Japan Science and Technology Agency (JST). [T. Oki, University of Tokyo]
- Research Project "Hydro-microbiological Approach for Water Security in Kathmandu Valley, Nepal" supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), 2013-2018, JST-JICA [F. Kazama, Univ. of Yamanashi]
- Research Project "Disaster Prevention/Mitigation Measures against Floods and Storm Surges in Bangladesh" supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), 2013-2018, JST-JICA [H. Nakagawa, DPRI, Kyoto Univ.]

- Research Project “Development of a Comprehensive Disaster Resilience System and Collaboration Platform in Myanmar” supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), 2014-2019, JST-JICA [K. Meguro, IIS, The Univ. of Tokyo]
- Research Project “Advancing of Co-Design of Integrated Strategies with Adaptation to Climate Change (ADAP-T)” supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), 2015-2020, JST-JICA [T. Oki, IIS, The Univ. of Tokyo]
- Research Project “AAA+ (Answers to Asian Aquatic Problems) : Solutions for the Water-Related Problems in Asian Metropolitan Areas” supported by Tokyo Metropolitan Government, 2009-2014 [Kawamura, A., Tokyo Metro. Univ.]
- Grant in Aid for Scientific Research (B) “Interaction between Groundwater and Surface Water in Semi-arid Regions” by Japan Society for the Promotion of Science (JSPS), April 2011 – March 2015 [Tsujimura, M., Univ. Tsukuba]
- Grant in Aid for Scientific Research (B) “Evaluation and Mapping of Residence Time and Storage Volume of Groundwater in Headwaters in Japan Using CFCs” by Japan Society for the Promotion of Science (JSPS), April 2011 – March 2015 [Tsujimura, M., Univ. Tsukuba]
- UNESCO Pakistan project “Strategic Strengthening of Flood Warning and Management Capacity of Pakistan” [Phase 2: from 2015 to 2017] [ICHARM]
- Asian Development Bank Project “TA-8456: Transformation of Urban Management - Part II Flood Management” in the Republic of the Union of Myanmar, July 2014-June 2016 [ICHARM]

#### 1.2.4 Collaboration with other national and international organizations and/or programmes

The Japanese IHP National Committee has been closely collaborating with:

- Some committees in the Science Council of Japan (SCJ), including the Sub-Committee on IRDR (Integrated Research on Disaster Reduction) of ICSU (International Science Union), ISSC (International Social Science Council) and UNISDR (United Nations Office for Disaster Risk Reduction).
- The national government and its branches relating to hydrology and water resources administration,
- Nagoya University and Kyoto University for IHP Training Courses and Graduate School and other universities and research institutes,
- The Japan Water Forum (JWF),
- World Meteorological Organization (WMO), and
- International NGOs/NPOs such as the International Association of Hydrological Sciences (IAHS), the International Water Resources Association (IWRA), the International Association for Hydro-Environment Engineering and Research (IAHR), the World Water Council (WWC) especially for World Water Forum (WWF), the Asia Pacific Association of Hydrology and Water Resources (APHW), Asia Oceania Geosciences Society (AOGS) and the International Consortium on Landslides (ICL).

#### 1.2.5 Other initiatives

**ICHARM:** International Centre for Water **H**azard and **R**isk **M**anagement under the auspices of UNESCO was established in Tsukuba, Japan in March 2006, after getting accreditation by the member states of UNESCO at the 33<sup>rd</sup> General Conference of UNESCO. Dr. Kuniyoshi Takeuchi, the former chairman of the Japanese National Committee for UNESCO-IHP, was assigned as the first Director of ICHARM. In its inception, ICHARM has been playing core roles in research, training, and information networking activities on water-related disasters at global levels. The activities are expected to contribute in the prevention and reduction of water-related disasters, focusing on flood disasters at the initial stage. On 1 October 2014, Dr. Toshio Koike, Professor of the University of Tokyo, was assigned as the second Director of ICHARM while the former director assigned as the Advisor at ICHARM.



On 23 July 2013, the Ambassador of Japan to UNESCO, H.E. Mr Isao Kiso and the Director-General of UNESCO, Irina Bokova, signed an agreement for the renewal of ICHARM at the UNESCO Headquarters in Paris. The agreement, which entered into force upon its signature, grants ICHARM the status of an international centre under the auspices of UNESCO (Category 2) for a second six-year term.

It is important to cooperate with existing UNESCO water Centers such as IHE in the Netherlands, HidroEX in Brazil, IRTCES in China, HTC in Malaysia and RCUWM in Iran, Federal Institute of Hydrology (BfG) of Germany etc. The outline of ICHARM is as follows.

- 1) Mission: The mission of the Centre is to serve as the Global Centre of Excellence for Water Hazard and Risk Management by, inter alia, observing and analyzing natural and social phenomena, developing methodologies and tools, building capacities, creating knowledge networks, and disseminating lessons and information in order to help governments and all stakeholders manage risks of water-related hazards at global, national, and community levels. The hazards to be addressed include floods, droughts, landslides, debris flows, tsunamis, storm surges, water contamination, and snow and ice disasters. The Centre envisions a Center of Excellence housing a group of leading people, superior facilities, and a knowledge base which enables conducting i) innovative research, ii) effective capacity building, and iii) efficient information networking. Based on these three pillars, ICHARM will globally serve as a knowledge hub for best national/local practices and an advisor in policy making.
- 2) Functions:
  - (i) to promote scientific research and to undertake effective capacity-building activities at the institutional and professional levels;
  - (ii) to create and reinforce networks for the exchange of scientific, technical and policy information among institutions and individuals;
  - (iii) to develop and coordinate cooperative research activities, taking advantage particularly of the installed scientific and professional capacity of the IHP networks, WWAP, the IFI/P and relevant programmes of non-governmental organizations, international institutions and networks;
  - (iv) to conduct international training courses for practitioners and researchers on the global level; and
  - (v) to organize knowledge and information transfer activities including international symposia or workshops, and to engage in appropriate awareness-raising activities;
- 3) Structure: The center is established as a part of the Public Works Research Institute (PWRI) and operated under the responsibility of its Chief Executive.

Based on the 2013 renewed agreement between the UNESCO and the Government of Japan on ICHARM, the Governing Board was established. Following the first Governing Board meeting on February 25, 2014, the second meeting was held on 3 March 2016 and examined and adopted, "ICHARM Long-term (around 10 years) and Mid-term (around 5 years) Programmes" and the "ICHARM Work Plan (From April 2016 to March 2018)" that describes the detail of activity plan. Also reviewed is the "ICHARM Activity Report" dated from April 2014 to March 2016 (including the plan for March 2016). Following members are designated as the Governing Board Members from March 3, 2016 to the next board meeting;

Takashi Shiraishi, President, National Graduate Institute for Policy Studies (GRIPS)

Korenfeld Federman, Chairperson, International Hydrological Programme Intergovernmental Council;

Robert Glasser, Special Representative of the Secretary-General for Disaster Risk Reduction, United Nations Office for Disaster Risk Reduction (UNISDR)

Shinichi Kitaoka, President, Japan International Cooperation Agency (JICA)

Koji Ikeuchi, Vice Minister for Engineering Affairs, Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Taketo Uomoto (Chairperson), President, Public Works Research Institute (PWRI)

Irina Bokova, Director-General, United Nations Educational, Scientific and Cultural Organization (UNESCO)

See other information at: <http://www.icharm.pwri.go.jp/html/about/governingboard.html>

The events related to the ICHARM are summarized as below:

- (1) Side Event of the 6<sup>th</sup> Asian Ministerial Conference on Disaster Risk Reduction on 23 June 2014 in Bangkok, Thailand
- (2) IFAS Workshop hosted by JICA and the Japan Science and technology Agency (JST) in University Tenaga nasional, Malaysia on 30 June -4 July 2014
- (3) ICHARM's acoustic Doppler current profiler (aDcp) was awarded the 16<sup>th</sup> Infrastructure Technology Development Award presented by Minister of Land, Infrastructure, Transport and Tourism (MLIT), Japan on 30 July 2014
- (4) Signing Memorandum of Understanding for potential research collaboration with Regional Centre on Urban Water Management (RCUWM) in Tehran, Iran in the presence of the ambassador of the Islamic Republic of Iran and Chief Executive of PWRI on 1 September 2014 in Tsukuba, Japan
- (5) WMO APFM Advisory Committee and Management Committee on 8-9 September 2014 in Geneva, Switzerland
- (6) ICHARM's IFI plenary session during at the 6<sup>th</sup> International Conference on Flood Management (ICFM6) on 16 September 2014 in Sao Paulo, Brazil
- (7) Field survey for research project on observation of large-scale inundation area on 11-18 September 2014 in the Jamuna River, Bangladesh
- (8) Inception meeting of ADB (TA8456) Part II: The Capacity Development Technical Assistance Project initiated in 2014, convened on 16 September 2014 in Nay Pyi Taw, Myanmar
- (9) ICHARM international symposium "together with the people coping with increasing water-related disasters in the world" collaborated with the National Graduate Institute for Policy Studies (GRIPS) on 30 September 2014 in Tokyo, Japan
- (10) The World Bank seminar "Understanding risk in an Evolving World: Emerging Best practices in Natural Disaster Risk Assessment" on 1 October 2015 in Tokyo, Japan
- (11) IFAS Workshop hosted by JICA and the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) in Jakarta, Indonesia on 6-10 October 2014
- (12) Pre-workshop of ADB (TA8456) project, convened on 6 October 2014 in Nay Pyi Taw, Myanmar
- (13) Field Survey on housing on a river flow observation and Hearing Survey on housing on 9-14 October 2014 in the Lower Mekong Basin, Cambodia
- (14) The Coordinator Meeting of the 7<sup>th</sup> World Water Forum on 24 October 2014 in Marseille, France (participated as the coordinator of the design group of the theme 1.3, 'Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness,' in the theme process and a design group member of the main focus 3, 'Water and Natural Disaster,' in the science and technology process and proposed a session of the UNESCO IHP RSC in the main focus 3).
- (15) The 23<sup>rd</sup> United Nations Secretary General's Advisory Board on Water and Sanitation (UNSGAB) on 29-31 October 2014 in Tokyo, Japan
- (16) The 16<sup>th</sup> Governing Council Meeting of Asia-Pacific Water Forum and second Asia-Pacific Regional Preparatory meeting for the 7<sup>th</sup> World Water Forum on 19 November 2014 in Seoul, South Korea
- (17) The second Joint project team meeting of Sentinel Asia, an initiative in which disaster management and space agencies in the Asian region, at the full-fledged implementation stage (Step 3) on 19-21 November 2014 in Yangon, Myanmar
- (18) The Workshop "River Basin Management using Science and Technology" co-hosted by the JICA-JST SATREPS Myanmar Project (University of Tokyo and Yangon Technical University), the Network of Asian River Basin Organization and the Ministry of Transportation, Myanmar on 24 November 2014, Nay Pyi Taw, Myanmar
- (19) The International Water Association (IWA) regional seminar "Challenges and Responses to Extreme Climate Events" on 25-26 November 2014 at the Asian Institute of Technology in Bangkok, Thailand

- (20) The UNESCO IHP second Category 2 Centres (C2C) meeting at German Federal Institute of Hydrology (BfG) on 15-17 December 2014 in Koblenz, Germany
- (21) ADB (TA8456) Technical training (TM-1) for RRI model and storm surge model on 19 December 2014 at the ADB Nay Pyi Taw office, Myanmar
- (22) The THA 2015 International Conference on “Climate Change and Water & Environment Management in Monsoon Asia” hosted by Thai Hydrologist Association on 28-30 January 2015 in Bangkok, Thailand
- (23) Courtesy visit and meeting with the Minister of Public Works and Housing on the “Program for Risk Information on Climate Change”, called SOUSEI program by MEXT on 9-10 February 2015 in Jakarta, Indonesia
- (24) 47<sup>th</sup> Session of the UNESCAP/WMO Typhoon Committee session on 9-13 February 2015 in Bangkok, Thailand
- (25) ADB (TA8456) Technical training (TM-2) training for RRI model and storm surge model on 16-20 February 2015 at the Department of Meteorology and Hydrology (DMH) in Nay Pyi Taw, Myanmar
- (26) The Workshop on Flood Contingency Planning with Evidence-based Simulation on 24 February 2015 at the Calumpit Municipal Office in the Philippine
- (27) The International Seminar on Enhancing Resilience against Multi-Hazards through Effective Mitigation Systems and Adaptation Strategies jointly organized by UNESCO and the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) on 24-26 February 2015, Manila, the Philippine
- (28) Follow up seminar for ICHARM training on 3-4 March 2015 in Jakarta, Indonesia
- (29) The 3<sup>rd</sup> United Nations World Conference on Disaster Risk Reduction (UNWCDRR) on 14-18 March 2015 in Sendai, Japan
- (30) The 7<sup>th</sup> World Water Forum on 12-17 April 2015 in Daegu and Gyeongbuk, Korea
- (31) ADB (TA8456) Technical training (TM-3) for RRI model and storm surge model on 12-14 May 2015 at the Department of Meteorology and Hydrology (DMH) in Nay Pyi Taw, Myanmar
- (32) The workshops on sediment disasters and management on 25-26 May 2015 in Taipei, Taiwan
- (33) The 30<sup>th</sup> ISO/TC113 (the standardization of hydrometry, or measurement of liquid flow in open channels) meeting on 25-29 May 2015 at JSCE in Tokyo, Japan
- (34) The Integrated Research on Disaster Risk (IRDR) 13<sup>th</sup> Science Committee on 2-4 June 2015 in Qingdao, China
- (35) The 17<sup>th</sup> Governing Council Meeting of Asia-Pacific Water Forum on 10 June 2015 in Singapore
- (36) ADB (TA8456) Technical training (TM-4) for RRI model and storm surge model on 15-17 June 2015 at the Department of Meteorology and Hydrology (DMH), followed by DMH Consultation Meeting for Risk Assessment on 18 June 2015 in Nay Pyi Taw, Myanmar
- (37) The 26<sup>th</sup> International Union of Geodesy and Geophysics (IUGG) General Assembly on 22-28 June 2015 in Prague, Czech
- (38) The 2015 International Workshop on Typhoon and Flood (IWTF) on 27-29 June 2015 in Taipei, Taiwan
- (39) The Expert Meeting on Developing Indicators for Disaster Risk Reduction by UNISDR on 27-29 July 2015 at the United Nations Geneva Office in Geneva, Switzerland
- (40) Workshops on Risks and Impacts on Floods from Extreme Events in ASEAN countries on 5 August 2015 in Bali, Indonesia
- (41) The Workshop “Evidence based forecasting of monsoon driven floods in transboundary rivers of Pakistan” on 6-7 August 2015 in Lahore, Pakistan
- (42) The Workshop on “Strengthening Water Partnerships for Climate Change and Disaster Risk Management” on 11 August 2015 at the ADB headquarters in Manila, the Philippines
- (43) The Workshop on “South-South Cooperation at Regional Level for Modelling and Managing Hydro-Hazards” hosted by the UNESCO Jakarta Office on 31 August -1 September 2015 in Jakarta, Indonesia
- (44) WMO APFM Advisory Committee and Management Committee on 7-8 September 2015 in Geneva, Switzerland

- (45) ICHARM's Director Prof. Koike was awarded the Science Award by the Japan Society of Hydrology and Water Resources on 10 September 2015
- (46) Field survey for research project on observation of large-scale inundation area on 17 September 2015 in Joso City, Japan
- (47) The workshop for the UNESCO project "Enhancing natural Hazards resilience in South America (ENHANS)" on 21-22 September 2015 in Lima, Peru
- (48) The 4th Conference of the Taiwan Integrated Research Programme on Climate Change Adaptation Technology on 24-25 September 2015 in Taiwan
- (49) IFAS Workshop hosted by JICA and the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre) in Jakarta, Indonesia on 5-9 October 2015
- (50) The 11<sup>th</sup> APRU Research Symposium on Multi-Hazards around the Pacific Rim (APRU 2015) on 7-11 October 2015 in Tacloban, the Philippines
- (51) Interim meeting of ADB (TA8456) project, convened on 14 October 2015 in Nay Pyi Taw, Myanmar
- (52) ADB (TA8456) workshop on Flood Hazard Mapping on 15 October 2015 in Nay Pyi Taw, Myanmar
- (53) ADB (TA8456) follow-up training (1) for RRI model and storm surge model on 12-16 October 2015 at the Department of Meteorology and Hydrology (DMH)
- (54) ICHARM's Advisor Prof. Takeuchi was doubly awarded for the long-term leadership and commitment in the field of water management by the UNESCO IHP regional steering committee for Southeast Asia and the Pacific on 20 and 21 October 2015 in Medan, Indonesia
- (55) Joint International Flood Initiative (IFI) and International Drought Initiative (IDI) session during the international symposium in conjunction with the 23rd Session of the IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific on 21 October 2015 in Medan, Indonesia
- (56) The 10th Integrated Workshop of the UNESCAP/WMO Typhoon Committee session on 26-29 October 2015 in Malaysia
- (57) International Geographical Union Conference on 17-21 August 2015 in Moscow, Russia  
Hazard and risk commission session (Anthropogenic influence on natural hazards and risk)  
Hazard and risk commission session (Natural hazards and risks in Arctic and cold region environment)
- (58) The Expert Group Meeting on Regional Strategies towards Building Resilience to Disaster in the Asia and Pacific hosted by UNESCAP on 26-28 October 2015 in Bangkok, Thailand
- (59) The Sixth Meeting of High-level Experts and Leaders Panel on Water and Disasters (HELP) on 17 November 2015 at the UN headquarters in New York, USA
- (60) The 2nd United Nations Special Thematic Session on Water and Disasters on 18 November 2015 at the UN headquarters in New York, USA
- (61) The final session of the United Nations Secretary General's Advisory Board on Water and Sanitation (UNSGAB) on 19 November 2016 at the UN headquarters in New York, USA
- (62) The special session to enhance existing UNESCO activities of the International Flood Initiative (IFI) and the International Drought Initiative (IDI) organized by the UNESCO Jakarta Office during the 21st International Congress on Modelling and Simulation (MODSIM) on 29 November – 4 December 2015 in Queensland, Australia
- (63) The JICA side event and UNESCO side event at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) on 30 November and 2 December 2015 respectively in Paris, France
- (64) The workshop for the UNESCO project "Enhancing natural Hazards resilience in South America (ENHANS)" on 10-11 December 2015 in Montevideo, Uruguay
- (65) The IFAS training session "Training Workshop on Warning Systems and Geographical Information Systems (GIS) Courses" hosted by UNESCO Cairo Office in Cairo, Egypt on 15-16 December 2015
- (66) Signing Memorandum of Understanding to establish a framework for research cooperation and related activities with the Research Center for Reinforcement of Resilient Function, National

- Research Institute for Earth Science and Disaster Prevention (NIED) on 16 December 2015 in Tsukuba, Japan
- (67) The workshop “Meaning and Characterizing River Morphology for Hindcasting and Forecasting River Responses to Major Floods” as part of UNESCO Pakistan Project (Phase II) on 21-22 December 2015 in Islamabad, Pakistan
  - (68) ADB (TA8456) follow-up training (2) for RRI model and storm surge model on 25-28 January 2016 at the Department of Meteorology and Hydrology (DMH)
  - (69) ADB (TA8456) Workshop on Flood Hazard Mapping in Three Target Cities on 25 to 28 January 2016 in Yangon, Mandalay, and Mawlamyine
  - (70) The Second Open-ended Intergovernmental Expert Working Group by UNISDR on 9-11 February 2016 at the United Nations Geneva Office in Geneva, Switzerland
  - (71) The 48<sup>th</sup> Session of the UNESCAP/WMO Typhoon Committee session on 21-27 February 2016 in Hawaii, USA
  - (72) The first Governing Board meeting of the Regional Training Sector for Water Resources and Irrigation (RCTWS), a UNESCO Category II center on 27 February 2016 in Cairo, Egypt
  - (73) Asian Water Cycle Symposium (AWCS2016) co-organized with Asian Water Cycle Initiative, Tokyo, Japan, 1-2 March 2016
  - (74) The 2nd Collaboration Dialogue Workshop between Indonesia and Japan on Water and Disaster Management on 7 March 2016 in Jakarta, Indonesia
  - (75) Field Survey on fluvial topography and floods around the Tonle Sap Lake on 8-11 March 2016 in Cambodia
  - (76) The Workshop on Practical Application of Rainfall Runoff Inundation (RRI) Model on 14-18 March 2016 at the San Roque Dam, San Manuel, Pangasinan in the Philippines
  - (77) ADB (TA8456) follow-up training (3) for RRI model and storm surge model on 30 March to 6 April at the Department of Meteorology and Hydrology (DMH)
  - (78) ADB (TA8456) Final workshop on 23 May at the Department of Meteorology and Hydrology (DMH)

### **1.3 Educational and training courses**

#### **1.3.1 Contribution to IHP courses**

The UNESCO IHP Japan Training Course (TC) was initiated as UNESCO IHP Nagoya Training Course by Nagoya University in 1991 and has been held every year since then. Topics of the course are selected to fit the IHP themes. The host or convener body is the Hydrospheric Atmospheric Research Center (HyARC), Nagoya University (Note that the HyARC has been reorganized as the ISEER (Institute for Space-Earth Environmental Research, Nagoya University) since 1 October 2015). After the 19<sup>th</sup> TC, the Water Resources Research Center, Disaster Prevention Research Institute (DPRI), Kyoto University joined as a co-convener both Nagoya University and Kyoto University are taking the convener role alternatively. This made the TC have wider scope including water resources and disaster prevention. About ten participants from East and Southeast Asian countries selected by UNESCO Jakarta Office take lectures and practices every year in the training course.

An important development of TC is information dissemination on website. The broadcasting of the lectures to universities in Asia via the Internet was successfully performed with help of Keio University and collaboration with EST (Engineering, Science, and Technology) programme. When the visiting participants and some graduate school students join the TC's, the number is limited as only 10-20. The lectures are now available via the Internet, and many participants at remote sites can join the TC. The lectures are also open to graduate school students staying at universities in Japan. Since the TC is a good opportunity for graduate school students to learn various kinds of hydrology, water resources and disaster-related issues with trainees from abroad, the conveners of TC encourage graduate students to join the TC.

#### **1.3.2 Organization of specific courses**

ICHARM has been conducting a one-year master's program, "Water-related Disaster Management Course of Disaster Management Policy Program," since 2007 in collaboration with JICA and the National Graduate Research Institute for Policy Studies (GRIPS). 19 students in the class of 2011 graduated on 14 September 2012, 12 students in the class of 2012 graduate on 17 September 2013, 12 students in the class of 2013 graduate on 12 September 2014, and 13 students in the class of 2014 graduate on 16 September 2015 with a master's degree in disaster management. The class of 2015 started the program on 6 October 2015 with 13 students from ten countries. The doctoral program in disaster management started in October 2010 in collaboration with GRIPS. One student in the class of 2010 graduated on 17 September 2013, one student in the class of 2011 on 12 September 2014, and two students in the class of 2012 on 16 September 2015 with a doctoral degree. Three students in the class of 2013, one student in the class of 2014, and two students in the class of 2015 participated from four countries.

ICHARM has been providing a short-term training course with JICA as Capacity Development for Flood Risk Management. This training program was launched in FY2012 and designed to provide opportunity for meteorologists, river administrators and disaster management officers in flood-vulnerable developing countries to learn the use of the Integrated Flood Analysis System (IFAS), developed and upgraded by ICHARM. The other important purposes are to learn about disaster management and evacuation plans and flood response cases in Japan, and to develop an action plan for local flood management of flood-vulnerable areas in the participants' countries. These training activities aim to enhance individual flood-coping capacities and eventually to contribute to flood damage mitigation in the countries.

#### **1.4 Cooperation with the UNESCO-IHE Institute for Water Education and/or international/regional water centres under the auspices of UNESCO**

- The 24<sup>th</sup> IHP Training course textbook, "Forest Hydrology-Conservation of Forest, Soil, and Water Resources", HyARC, Nagoya Univ., December 2014.
- The 25<sup>th</sup> IHP Training course textbook, "Risk Management of Water-related Disasters under Changing Climate", Water Resources Research Center, DPRI, Kyoto Univ.
- An IHE representative (Mr. Biswa Bhattacharya, Senior Lecturer in Hydroinformatics) was invited to Kyoto, Japan to attend: Global Alliance of Disaster Research Institutes (GADRI) Workshop on 13 October 2015 and The First International Symposium on Flash Floods in Wadi Systems (ISFF) on 14-15 October 2015, held in Uji Campus, Kyoto University.

#### **1.5 Participation in international scientific meetings**

##### **1.5.1 Meetings hosted by the country**

- The 3<sup>rd</sup> UN World Conference on Disaster Risk Reduction in Sendai, 14-18 March 2015 [Takeuchi, Takara, Koike]
- The 2<sup>nd</sup> Global Summit of Research Institutes for Disaster Risk Reduction, Uji Campus, Kyoto University, 19-20 March 2015.
- UNESCO International Symposium: Scientific, Technological and Policy Innovations for Improved Water Quality Monitoring in the Post-2015 SDGs Framework, Kyoto-Otsu, Japan, 15-18 July 2015 [Yamashiki, Takara, Tsujimura]
- Global Alliance of Disaster Research Institutes (GADRI) Workshop "Round Table Discussion: Towards an Integrated Disaster Risk Research Platform for Hydro-Meteorological Hazards" organized by DPRI, Kyoto University on 13 October 2015.
- The First International Symposium on Flash Floods in Wadi Systems (ISFF): Disaster Risk Reduction & Water Harvesting in the Arab Region, Uji Campus, Kyoto University, on 14-15 October 2015.

### 1.5.2 Participation in meetings abroad

- FRIEND-Water2014, the 7<sup>th</sup> Global FRIEND-Water Conference, Montpellier, France, 7-0 October, 2014.
- IGU 2014 organized by IGU Commission Hazard and Risk, Jagiellonian University, Krakow, Poland, 18-23 August 2014 [Haruyama].
- IAEA/UNESCO Technical Meeting on Groundwater Contamination following the Fukushima Nuclear Accident, IAEA Headquarters, Vienna, 8-10 September 2014 [Tsujimura]
- The 7<sup>th</sup> World Water Forum 2015, 12-17 April 2015, Daegu and Gyeongju, Korea [Takeuchi, Koike, Tachikawa]
- The 15<sup>th</sup> IWRA World Water Congress "Global Water, a resource for development : opportunities, challenges and constraints" in Edinburgh, Scotland, UK, 25-29 May 2015 [Takara, Nakayama]
- The World's Large Rivers Initiative (WLRI) Meeting, Vienna, Austria, 25-26 June 2015 [Nakayama]
- The 26<sup>th</sup> IUGG General Assembly in Prague, Czech Republic, 22 June - 2 July 2015 [Taniguchi, Tsujimura]
- The 12<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS2015) and the 7<sup>th</sup> APHW in Singapore, 1-7 August 2015 [Takara, Nakayama, Kawamura, Tsujimura, Sayama]
- The 42<sup>nd</sup> IAH (International Association of Hydrogeologists) Congress in Rome, Italy, 13<sup>th</sup> – 18<sup>th</sup> September 2015 [Taniguchi, Tsujimura ]
- Asian G-WADI (Global Network on Water and Development Information for Arid Lands) and International Draught Initiative (IDI) held 6th Asian G-WADI and 1st IDI Expert Group Meeting, 13th – 16th June 2015, Tehran, Iran [Tsujimura, Koike]
- The 23<sup>rd</sup> Session of the IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific held at Medan, Indonesia on 19-22 October 2015 [Takara, Koike, Tachikawa, Kawamura, Tsujimura, Sayama]
- Joint International Flood Initiative (IFI) and International Drought Initiative (IDI) session during the international symposium in conjunction with the 23rd Session of the IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific on 21 October 2015 in Medan, Indonesia [Koike]

## 2. FUTURE ACTIVITIES

### 2.1 Activities planned until December 2016

- The 26<sup>th</sup> IHP Training Course with the theme “Coastal Vulnerability and Freshwater Discharge” will be held at HyARC, Nagoya Univ., 27 November to 10 December, 2016.
- The 24<sup>th</sup> Session of the IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific will be held at Mongolia on 24-28 October 2016.
- International Summer Program on Sustainable Water Management in an Era of Big Data will be held at The University of Tokyo and ICHARM, 25 July – 5 August, 2016.

### 2.2 Activities foreseen for 2017-2018

- The 3<sup>rd</sup> Global Summit of Research Institutes for Disaster Risk Reduction will be held in Kyoto University, January 2017.

### 2.3 Activities envisaged in the long term

- The 26<sup>th</sup> IHP Training Course with the theme “Coastal Vulnerability and Freshwater Discharge” will be held at HyARC, Nagoya Univ., 27 November to 10 December, 2016.
- Participation in IHP-VIII projects and RSC activities.
- Information dissemination through a web page of the National Committee.

<http://hywr.kuciv.kyoto-u.ac.jp/ihp/japan/index.html>

- Information dissemination through a web page of the IHP RSC for Southeast Asia and the Pacific.

<http://hywr.kuciv.kyoto-u.ac.jp/ihp/rsc/index.html>

- Activities relating to “Sustainability Science” that is a key promotion by the Japanese Commission for UNESCO.