

# 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. The following summary includes the activities of Japanese National Committee for the International Hydrological Programme (IHP) of UNESCO undertaken during July 2006 to May 2008.

### 1. ACTIVITIES UNDERTAKEN IN THE PERIOD JULY 2006 – MAY 2008

#### 1.1 Meetings of the IHP National Committee

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

The new composition of the Japanese IHP National Committee has been decided as follows:

Members of the IHP National Committee as of May 2008.

	Name	Position	E-mail
Chair *	TAKEUCHI Kuniyoshi	Director, ICHARM	kuni.t@pwri.go.jp
*	NAKANISHI Hisae	Prof., Nagoya Univ.	nakanishi@gsid.nagoya-u.ac.jp
*	YAMAGATA Toshio	Prof., Univ. of Tokyo	yamagata@eps.s.u-tokyo.ac.jp
	UYEDA Hiroshi	Prof., HyARC, Nagoya Univ.	uyeda@rain.hyarc.nagoya-u.ac.jp
	OKI Taikan	Prof., IIS, Univ. of Tokyo	taikan@iis.u-tokyo.ac.jp
	KURAJI Koichiro	Lecturer, Univ. of Tokyo	kuraji_koichiro@uf.a.u-tokyo.ac.jp
	KOIKE Toshio	Prof., Univ. of Tokyo	tkoike@hydra.t.u-tokyo.ac.jp
	SHIMIZU Yoshihisa	Prof., Kyoto Univ.	shimizu@biwa.eqc.kyoto-u.ac.jp
	JINNO Kenji	Prof., Kyushu Univ.	jinno@civil.kyushu-u.ac.jp
	TAKARA Kaoru	Prof., DPRI, Kyoto Univ.	takara@flood.dpri.kyoto-u.ac.jp
	TANAKA Tadashi	Prof., Univ. of Tsukuba	tadashi@geoenv.tsukuba.ac.jp
	TERAKAWA Akira	Deputy Director, ICHARM	terakawa@pwri.go.jp
	NAKAYAMA Mikiyasu	Prof., Univ. of Tokyo	nakayama@k.u-tokyo.ac.jp
	WATANABE Tsugihiro	Prof., RIHN	nabe@chikyuu.ac.jp

#### Notes:

- \* Member of the Japanese National Commission for UNESCO;
- ICHARM: The International Centre for Water Hazard and Risk Management (UNESCO Category II Centre);
- RIHN: Research Institute for Humanity and Nature;
- HyARC: Hydrospheric Atmospheric Research Center, Nagoya University;
- IIS: Institute for Industrial Sciences, University of Tokyo; and
- DPRI: Disaster Prevention Research Institute, Kyoto University.

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

c/o Mr. AKIYAMA Kazuo  
Japanese National Commission for UNESCO  
Ministry of Education, Culture, Sports, Science and Technology (MEXT)  
3-2-2 Kasumigaseki, Chiyoda-ku, Tokyo 100-8959, Japan  
E-mail: akiyamak@mext.go.jp  
TEL: +81-(0)3-6734-2595 / FAX: +81-(0)3-6734-3679  
[http://flood.dpri.kyoto-u.ac.jp/ihp\\_japan/index.htm](http://flood.dpri.kyoto-u.ac.jp/ihp_japan/index.htm)

##### 1.1.2 Status of IHP-VI activities

Various activities relating to IHP-VI Themes have been implemented during 2002-2007 as follows.

#### Theme 1: Global changes and water resources

- Climate change research especially using “Earth Simulator”: MEXT Kyosei-Project (RR2002, 2002-2006) and Kakushin Project (2007-2011).
- Global Earth Observation System of Systems (GEOSS) and Asian Water Cycle Initiative (AWCI)
- GWSP-Asia
- Research on “virtual water”
- Collaboration with IHP-LAC for Rio de La Plata Basin Workshops

#### Theme 2: Integrated watershed and aquifer dynamics

- Groundwater research such as GRAPHIC

- GWES (Groundwater in Emergency Situations)
- Collaboration with Mongolian UNESCO Chair on

**Theme 3: Land-habitat hydrology**

- Ecohydrology symposia and sessions at AOGS meetings

**Theme 4: Water and society**

- Seventeen CREST (Core Research for Evolutional Science and Technology) research projects supported by the JST (Japanese Science and Technology Agency)
- Water hazards and disaster reduction research by universities, institutions and ICHARM

**Theme 5: Water education and training**

- Nagoya University Training Courses and a Doctor degree course in Graduate School of Science
- ICHARM Training Programmes and a one-year Master Degree Program on water-related risk management with the National Graduate Institute for Policy Studies (GRIPS) supported by JICA.

Other regional and cross-cutting themes activities includes:

- (1) **Catalogue of Rivers:** The format of the Catalogue of Rivers for Southeast Asia and the Pacific, Vol. 6 was discussed by Dr. Chikamori with the former editors Prof. Takara and Dr. Tachikawa. It was presented at the 15th Session of IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific (SEAP) in Manila, the Philippines, on 22-23 November 2007. The information of previous five volumes locates at: [http://flood.dpri.kyoto-u.ac.jp/ihp\\_rsc/riverCatalogue/index.html](http://flood.dpri.kyoto-u.ac.jp/ihp_rsc/riverCatalogue/index.html)
- (2) **Asian Pacific FRIEND:** Prof. Takeuchi, Prof. Takara and Dr. Chikamori attended the Asian Pacific FRIEND Technical Sub-Committee (TSC) on 21 November 2007 at the occasion of the 15th Session of RSC in Manila, the Philippines. Prof. Takara has submitted a report of the current status of rainfall IDF (intensity-duration-frequency) analysis and practice in Japan and in the region in March 2008, based on an action item decided at the TSC.
- (3) **Hydrology for Environment, Life and Policy (HELP):** Dr. Koichiro Kuraji (Univ. of Tokyo), Dr. Junpei Kubota (RIHN) and Ms. Hirakawa (Hiroshima Univ.) participated in the Workshop on Integrated Catchment Management (ICM) in the Motueaka River basin held in Nelson, New Zealand on 7-11 November 2005. This workshop is a Pacific regional meeting of UNESCO-IHP-HELP. The follow-up activities are continued.
- (4) **Prediction in Ungauged Basins (PUB) by IAHS:** Prof. Takeuchi (ICARM, formerly the Univ. of Yamanashi), Dr. Tachikawa (Kyoto Univ.) and others are conducting PUB research and formed PUB-Japan to organize a number of PUB sessions.
- (5) **International Flood Initiative (IFI) and International Programme on Landslides (IPL):** ICHARM is playing a role of the Secretariat of IFI. IFI was launched at a Session organized by UN agencies, ICSU, WFO and the International Consortium on Landslides (ICL) at the World Conference on Disaster Reduction (WCDR) in Kobe, Japan in January 2005. Since then both IFI and IPL are promoted continuously and actively. IPL could also have a linkage with the International Sedimentation Initiative (ISI).

### 1.1.3 Decisions regarding contribution to/participation in IHP-VII

The Japanese National Committee for IHP has sent comments on IHP-VII Draft Plan to the UNESCO-IHP Secretariat. Japan has indicated their intention to contribute to the following Themes and Focal Areas (FA) in the Updated Draft Strategic Plan for the 7<sup>th</sup> Phase of the IHP (2008-2013), IHP/Bur-XL/11, Paris, 2 May 2007. After that the IHP National Committee also had a working group meeting on 15 December 2007 in Tokyo to further discuss actions for IHP-VII. Additionally proposed FAs are indicated by asterisks (\*):

**THEME 1: Adapting to the Impacts of Global Changes on River Basins and Aquifer Systems**

- FA 1.1 – Global changes and feedback mechanisms in hydrological processes in stressed systems
- FA 1.2 – Climate change impacts on the hydrological cycle and consequent impact on water resources\*
- FA 1.3 – Hydro-hazards, hydrological extremes and water-related disasters
- FA 1.4 – Managing groundwater systems' response to global changes
- FA 1.5 – Global change and climate variability in arid and semi-arid regions\*

**THEME 2: Strengthening Water Governance for Sustainability**

- FA 2.1 – Cultural, Societal, and scientific responses to the crises in water governance\*
- FA 2.2 – Capacity development for improved governance; enhanced legislation for wise stewardship of water resources\*

**THEME 3: Ecohydrology for Sustainability**

- FA 3.1 – Ecological measures to protect and remediate catchments process
- FA 3.4 – Groundwater-dependent ecosystems identification, inventory and assessment\*

#### THEME 4: Water and Life Support Systems

FA 4.3 – Achieving sustainable urban water management

FA 4.4 – Achieving sustainable rural water management\*

#### THEME 5: Water Education for Sustainable Development

FA 5.1 – Tertiary water education and professional development

FA 5.2 – Vocational education and training of water technicians

FA 5.3 – Water education in schools

FA 5.4 – Water education for communities, stakeholders and mass-media professionals

The following contributions are expected to each Theme and FA.

##### FA 1.1:

- Global water cycle assessment: IHP contribution to GEOSS [Univ. of Tokyo]
- Interaction between hydrological cycle and physical/biochemical oceanography by cooperation between IHP and IOC [Nihon Univ., JAMSTEC, Univ. of Tokyo, Kyoto Univ.]

##### FA 1.2:

- Second Phase of PUB project in cooperation with IAHS [Kyoto Univ.]
- Climate change impacts on water-related disaster risk [MEXT Kakushin Program, Kyoto Univ.]

##### FA 1.3:

- Improving the predictability of hydrological extremes in ungaged or poorly gaged basins using new measurement technology and promoting the local use of satellite information for improved river basin management in partnership with GEOSS
- Case studies on human security and water-related disasters
- Best practices on water risk management
- Provide ICHARM coordination as focal point for possible networking activities
- Hydro-hazards and their impact on society
- Flood management [MEXT Kakushin Program, ICHARM, PWRI, IFNet, Kyoto Univ.]

##### FA 1.4:

- Groundwater resources assessment under the pressure of humanity and climate change (GRAPHIC) [Research Institute for Humanity and Nature (RIHN)]

##### FA 1.5:

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

##### FA 2.1:

- Community-based integrated river basin management as a HELP follow-up [Univ. of Tokyo, Kyoto Univ.]

##### FA 2.2:

- Relative impact evaluation in water resources dynamics and social system with large development in river basins [Kyoto Univ.]

##### FA 3.1:

- Participation in ecohydrology research development
- Effect of forest devastation on water resources and environmental issues [Univ. of Tsukuba, Kyoto Univ., Kyushu Univ., Univ. of Tokyo, Tokyo Univ. of Agriculture and Technology]

##### FA 3.4:

- 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.]

##### FA 4.3:

- Hydrogeological and sociological survey on development processes of East-Asian cities co-existing with floods [Kyoto Univ.]
- Vulnerability assessment of urban groundwater resources in Asia and Oceania [Geological Survey of Japan]

##### FA 4.4:

- Development of a new flood management method utilizing paddies into river management against global warming [National Institute for Rural Engineering (NIRE), Univ. of Tsukuba, Univ. of Tokyo]

##### Theme 5:

- Nagoya University Ph.D. program
- Nagoya University IHP Training Course in cooperation with a number of Japanese universities

- ICHARM 1-year Master degree program on disaster prevention policy in cooperation with the National Graduate Research Institute for Policy Studies (GRIPS) supported by JICA
- ICHARM training course on flood hazard mapping
- Capacity building and education for observers for continuous monitoring of terrestrial environments in Asia [Univ. of Tsukuba]

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

### 1.2.1 National/local scientific and technical meetings

- (1) ICHARM Inauguration Symposium: "Alliance for Localism" was held at the United Nations University (UNU), Tokyo, Japan on 14 September 2006. Mr. Kazuo Kitagawa, the Minister of Land, Infrastructure and Transport of Japanese Government gave a message. Several representatives gave keynote speeches such as from US Army Corp of Engineers, UN-ISDR, WMO, UNESCO, Brazil, and DPRI of Kyoto University.
- (2) IHP Training Course Working Group Meeting was held in Tokyo on 26 March 2007. The course for FY 2006 was reported; the plan of the 2007 course was explained and discussed.
- (3) The JFIT Annual Review Meeting on Science Sector Activities of UNESCO Office Jakarta was held in the conference room of the UNESCO Jakarta Office from 23 to 24 May 2007. Prof. Takeuchi, Prof. Iwatsuki (MAB), Mr. Akiyama attended. The status and progress of the UNESCO science programmes in the region were reported and evaluated. A new JFIT for solving global issues and its future perspective is also discussed.
- (4) Signing Ceremony of the Memory of Understanding between the University of Tsukuba, the Institute of Geo-ecology, Mongolian Academy of Sciences (Mongolia) and the UNESCO for the establishment of UNESCO Chair on Sustainable Groundwater Management in Mongolia (614): on 22 June 2007 at the University of Tsukuba. The purpose of the Chair shall be to promote an integrated system of research, training, information and documentation in the field of groundwater management. Prof. Tadashi Tanaka, Director of Terrestrial Environment Research Center, Graduate School of Life and Environmental Sciences, University of Tsukuba will be the Co-Chairholder. The UNESCO Chair will serve as a means of facilitating collaboration between high-level, internationally recognized researchers and teaching staff of the University and other institutions in Mongolia and Japan and neighboring East Asian countries such as China and the Republic of Korea.
- (5) The 26<sup>th</sup> IHP National Committee meeting was held at MEXT to discuss various issues relating to the 18<sup>th</sup> Session of IHP Intergovernmental Council (June 2008) and IHP-VII (2008-2013) on 30 May 2008.

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

#### **Regional Steering Committee (RSC) for IHP in Southeast Asia and the Pacific (SEAP):**

- (1) The 14<sup>th</sup> RSC was held on 19-20 October 2006 in Bangkok, Thailand in conjunction with the International Symposium on Managing Water Supply for Growing Demand on 16-20 October and with APHW2006 conference on 16-18 October at the same place. From this meeting Mongolia became an official member of RSC. The cost for some participants from Asia and the Pacific was financially supported by JFIT. The maintenance of the current governance system of RSC were decided in the RSC. The RSC adopted a resolution for encouraging Lao PDR and Myanmar to officially participate in the RSC in the near future. Prof. Takara was re-elected as the Secretary of RSC-SEAP.
- (2) The 15<sup>th</sup> RSC was held on 22-23 November 2007 in Manila, the Philippines in conjunction with the International Conference on Hydrology and Water Resources Management for Hazard Reduction and Sustainable Development (HRSD 2007) on 19-23 November 2007. The RSC adopted two resolutions for promoting flood research, Asian Pacific FRIEND and Catalogue of Rivers. It is decided that RSC meetings would be held in Mongolia in 2008 and in China in 2009. New RSC Chairman was elected: Prof. Leonardo Liongson, Professor, the University of Philippines. See <http://hrsd-2007.pnc-unesco-ihp.upd.edu.ph/>

### 1.2.3 Research/applied projects supported or sponsored

- (1) The MEXT bestowed Prof. Takara, Kyoto University on a Grant-in-Aid for Scientific Research for FY 2004-2006 in order to promote a climate- and disaster-related international cooperative research in East Asia. This fund was used in part for meetings related to UNESCO-IHP such as RSC meetings.
- (2) A MEXT Grant-in-Aid for Scientific Research was awarded to “Downscaling of Global Earth Observation Products to Locally Useful Information” led by Prof. Kuniyoshi Takeuchi, University of Yamanashi for FY2004-2006 to promote the research on PUB, Predictions in Ungauged Basins, an IHAS-initiated science program supported by IHP IGC Resolution XV-7.
- (3) A MEXT Special Coordination Fund for Promoting Science and Technology (Leadership for international scientific cooperation) was awarded to “Leadership on the Hydrological Science for Mitigating World Water Issues” led by Prof. Taikan Oki, University of Tokyo for FY2004-2006. The fund was used to promote international activities including PUB and other IHP-related initiatives.

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

The Japanese IHP National Committee has been closely collaborating with:

- (1) Some committees in the Science Council of Japan (SCJ),
- (2) The national government and its branches relating to hydrology and water resources administration,
- (3) Nagoya University for IHP Training Courses and graduate school. Other universities and research institutes,
- (4) The Japan Water Forum (JWF),
- (5) World Meteorological Organization (WMO), and
- (6) International NGOs/NPOs such as the International Association of Hydrological Sciences (IAHS), the International Water Resources Association (IWRA) and the International Consortium on Landslides (ICL).

#### 1.2.5 Other initiatives

- 1) The 3<sup>rd</sup> Asian Water Cycle Symposium (2-4 Dec. 2007) was held at Oita Kokusai Koryu Kaikan (Oita International House), Beppu, Oita Prefecture, Japan [Prof. Koike].
- 2) The 1<sup>st</sup> Asia-Pacific Water Summit was held in Beppu, Oita Prefecture, Japan on 3-4 December 2007, with the participation of top-level decision makers from the Asia-Pacific region. ICHARM has organized a session as a leading agency for water-related disaster management and compiled a proposition document [ICHARM, Prof. Takeuchi].
- 3) The 3<sup>rd</sup> Asian Water Cycle Symposium (2-4 Dec. 2007) was held at Oita Kokusai Koryu Kaikan (Oita International House), Beppu, Oita Prefecture, Japan [Prof. Koike].
- 4) Japan PUB meeting was held in Kyoto on 3-4 March 2008 [Prof. Takeuchi, Dr. Tachikawa].

### 1.3 Educational and training courses

#### 1.3.1 Contribution to IHP courses

Seventeen UNESCO IHP Nagoya Training Courses have been held since 1991. Topics of the course were relevant to Water Resources for Sustainable Development, Hydrology and Water Resources under Vulnerable Environment, and Water Interactions (Systems at Risk and Social Challenges). About ten participants from East and Southeast Asian countries took lectures and practices every year in the training course. A few students of IHP special program for foreign students in Nagoya University (see (1) below) participated in the course every year. In late years, some of trainees are participating in the course at their own expenses. The training course is expected to be continued with strong requests of East and Southeast Asian countries. Activities of the UNESCO IHP Nagoya Training Course are introduced on the website, <http://www.ihpnagoyaforum.org/>. Based on these experiences, the training course will be further renewed to fit to the themes of IHP Phase VII (2008-2013).

- (1) Doctor of Science degree on atmospheric and hydrospheric science:

The Graduate School of Science and the Graduate School of Environmental Studies of Nagoya University accepts students from Asia and the Pacific region, with the financial support from the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT).

(2) IHP Training Courses:

The Hydrospheric Atmospheric Research Center (HyARC) of Nagoya University offers IHP Training Courses for both foreign students of Graduate School of Science, Nagoya University and trainees chosen by UNESCO Regional Science Bureau for Asia and the Pacific in Jakarta. The training courses are financed by the Japanese Fund-in-Trust (JFIT) for IHP.

- a) The 16<sup>th</sup> Training Course was held with a theme *Oceanography Basics*, from 26 November to 9 December 2006, at the Hydrospheric Atmospheric Research Center (HyARC), Nagoya University, Nagoya, Japan. The course comprised a series of lectures and practice sessions in English. It also included an overnight field observation cruise in Ise Bay on a training vessel Sei-Sui Maru of Mie University, and a technical tour to the Center for Marine Environmental Studies, Ehime University. Nine participants were 7 from the Philippines, Vietnam, Indonesia, Myanmar, Sri Lanka, Papua New Guinea recommended by the UNESCO Jakarta Office and 2 from the Special Graduate School at Nagoya University.
- b) The 17<sup>th</sup> IHP Training Course with the theme “Numerical Prediction of High-Impact Weather Systems” was held in Nagoya, Tokyo and Yokohama, Japan, on 2-15 December 2007. Expected participants are eight from Indonesia (2), Laos, Malaysia, Nepal, Vietnam, the Philippines, and Thailand supported by UNESCO Jakarta Office; two from Malaysia and Laos with self-support; and three from China, Bangladesh and Nepal attending the Special Graduate School Course at Nagoya University.

### 1.3.2 Organization of specific courses

ICHARM has been providing a training course on flood hazard mapping (5 weeks every year) since 2004. In November 2007, 16 trainees participated from 8 countries in Asia Pacific region. New one-year Master Degree Program (Disaster Prevention Policy Programme, water-related risk management course) was initiated in October 2007 in cooperation with the National Graduate Research Institute for Policy Studies (GRIPS), supported by JICA. 10 practical engineers from 5 countries are attending the course for the first year.

### 1.3.3 Participation in IHP courses

N/A

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

**(1) 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 chairman of the Japanese National Committee for UNESCO-IHP, was assigned as the founding Director of ICHARM. ICHARM was established as the core of 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 related disasters at the initial stage. It is important to cooperate with existing UNESCO water Centers such as IHE in the Netherlands, IRTCES in China, HTC in Malaysia and RCUWM in Iran, etc. The outline of ICHARM is as follows.

- 1) Objectives: The objective of the Centre is to function as the world centre of excellence to provide and assist implementation of best practicable strategies to localities, nations, regions and the globe to manage the risk of water related disasters including flood, drought, landslide, debris flow, storm surge, tsunami and water contamination. The Centre conducts research, capacity building and information networking activities in an integrated manner for preventing and mitigating the impacts of water related disasters and thus to achieve sustainable and integrated river basin management.
- 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 be operated under the responsibility of its Chief Executive, with the advice from the Advisory Board.

## **(2) ICHARM Inauguration Symposia:**

- "Towards Global Water Disaster Reduction - Cooperating through ICHARM (International Centre for Water Hazard and Risk Management) -" was held at the United Nations University (UNU), Tokyo, Japan on 10 May 2006.
  - "Alliance for Localism" was held at the United Nations University (UNU), Tokyo, Japan on 14 September 2006. Mr. Kazuo Kitagawa, the Minister of Land, Infrastructure and Transport of Japanese Government gave a message. Several representatives gave keynote speeches such as from US Army Corp of Engineers, UN-ISDR, WMO, UNESCO, Brazil, and DPRI of Kyoto University.
- (3) The 5<sup>th</sup> Workshop on Rio de La Plata Basin** was held at Itaipu Binacional, Brazil on 11-14 March 2008, organized by UNESCO-IHP LAC, UN Water Decade, UNEP GEMS/Water, ICHARM and Japan Water Forum. Scientific outcomes of the meeting will be published as UNESCO-IHP publication series by UNESCO Montevideo Office with Japanese cooperation [Dr. Yamashiki (Nihon Univ.)].

## **1.5 Publications**

1. «Hydrology 2020: An Integrating Science to Meet World Water Challenges», T. Oki, C. Valeo and K. Heal (Eds.), IAHS Publication No. 300, 190 +xxxii pp., 2006.
2. «Oceanography Basics» -The Textbook for Sixteenth IHP Training Course in 2006-, (Ed.)Akihiko Morimoto, Hydrospheric Atmospheric Research Center, Nagoya University and United Nations Educational Scientific and Cultural Organization, 2007, 155 pp.
3. «Numerical Prediction of high-Impact Weather Systems» -The Textbook for 17<sup>th</sup> IHP Training Course in 2007-, Tsuboki, K. and Sakakibara, A. (Eds.), Hydrospheric Atmospheric Research Center, Nagoya University and United Nations Educational Scientific, November 2007, 273 pp.
4. «IHP», Newsletter on IHP activities of Japan, No.19, May 2008 (in Japanese).

## **1.6 Participation in international scientific meetings**

### **1.6.1 Meetings hosted by the country**

- (1) ICHARM meetings stated above and ICHARM First Advisory Board meeting in Tsukuba on 15 September 2006.
- (2) Japan is managing PUB (Prediction in Ungaged Basins) activities of IAHS. Asian PUB is developing quite well under Dr. Yasuto Tachikawa's initiative. Domestic PUB meetings were held in Mie Prefecture on 8-10 November 2006 and in Kyoto on 3-4 March 2008.
- (3) The 2<sup>nd</sup> Asian Water Cycle Symposium took place at the University of Tokyo on 9-10 January 2007 with 165 participants. 18 Asian countries (Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, Korea, Laos, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, Uzbekistan, and Vietnam) adopted the basic plans, sharing the same goals to solve water-related issues, such as water damages (flood, landslide, drought), water shortage, water quality, river and water management, and effects on the climate changes. The meeting designated demonstration river basin per each country and a basic outline for standardization of a target river basin, data policy, and data collection schedule.
- (4) A Post-GAME project, MAHASRI led by Dr. Jun Matsumoto (Univ. of Tokyo) is now activated with many participants from Asian countries. They are collaborating with IHP FRIEND as well as with PUB.

- (5) GWES (Groundwater in Emergency Situation) Working Group meeting, chaired by Dr. Vrba, was held at the International Conference Center in Tsukuba on 18-19 July 2007, hosted by ICHARM. The discussion was on the contents of the guideline under preparation, and it was decided to include Japanese case study, which is to be prepared by Prof. Tanaka, Tsukuba Univ. [ICHARM, Prof. Tadashi Tanaka (Univ. Tsukuba)].
- (6) ICHARM and NARBO (Network of Asian River Basin Organizations) secretariat participated in the Regional Consultation Meeting for Candidate Water Knowledge Hubs held at the Singapore Public Utility Board on 29-30 October 2007. 26 representatives from 14 organizations discussed for establishing a novel network, called "water knowledge hubs", to share knowledge and experience on water management among Asia-Pacific countries. The meeting was a part of the preparation process for the Asia-Pacific Water Summit (December 2007). Dr. Wouter Lincklaen Arriens, Lead Water Resources Specialist of ADB (Asian Development Bank) and Dr. Jan Luijendijk, Professor of UNESCO-IHE, led the meeting. The two-day meeting concluded that ICHARM would be a candidate water knowledge hub on water related disaster management in the region.
- (7) The 3<sup>rd</sup> Asian Water Cycle Symposium took place in Beppu, Oita, Japan on 2-4 December 2007 with 84 participants. An implementation plan is adopted and now on going with participation of 17 countries each of which is providing a demonstration research basin in the country. See further at <http://monsoon.t.u-tokyo.ac.jp/AWCI/>.
- (8) GWSP-Asia (Global Water System Project) Working Group activities includes discussion on data collection and future research direction [<http://www.chikyu.ac.jp/USE/GWSP/GWSPasia.htm>; Dr. Makoto Taniguchi (RIHN)].
- (9) The 4<sup>th</sup> International Symposium on Flood Defence was held in Toronto, Canada on 6-8 May 2008. ICHARM organized a session on flood disaster risk reduction strategy as the Secretariat of IFI, which is jointly promoted by international organizations such as UNESCO, WMO, ISDR, UNU, IAHS, and IAHR.

#### 1.6.2 Participation in meetings abroad

Japan has played important roles in the IHP Intergovernmental Council (IGC) as a member. In particular, Prof. Kuniyoshi Takeuchi had been the Chairperson of the Council and Bureau of IHP from 1998 to 2000. Japan participated in the establishment of the Regional Steering Committee (RSC) for Southeast Asia and the Pacific in 1993. The first RSC chairperson was Prof. Yutaka Takahasi (Univ. of Tokyo), who used to be the Vice Chairperson of the IGC (1990-1991) elected from the Group IV, Asia and the Pacific. Since the establishment of RSC, at least a couple of Japanese National IHP Committee members have attended and participated actively in all of the annual meetings of the RSC. Prof. Takeuchi had served as the RSC Secretary (1993-1999) and the Chairman of the Technical Sub-Committee (TSC) for Asian Pacific FRIEND (APF) Phase I (1997-2001) in the framework of the RSC, while Prof. Takara is playing a role of the RSC Secretary (1999- ) and a member of TSC-APF Phases I (1997-2001) and II (2002- ).

- (1) ICHARM participated in the 1<sup>st</sup> UNESCO Water-Related Centres meeting held in Delft, the Netherlands on 11-13 June 2007. Outline of each centre was introduced and some discussion was done on common image, networking and review process as assessment. Centres agreed with the roles and duties expected to them, as well as how to be evaluated [Prof. Takeuchi (ICHARM)]
- (2) A PUB session was organized on 16 October 2006 in cooperation with APHW2006 meeting as well as IHP RSC meetings in Bangkok, Thailand. Prof. Takeuchi, Dr. Tachikawa and others who visited Myanmar to investigate the Irrawaddy River basin and water resources management in Myanmar on 9-15 October 2006.
- (3) International Symposium on Managing Water Supply for Growing Demand was organized as an IHP-related activity on 16-20 October 2006 in cooperation with APHW2006 conference on 16-18 October 2006 at the same place.
- (4) UK-Japan Workshop on Flood and Coastal Defence: Risk Management under Climate and Social Change was held at the University of Newcastle upon Tyne, UK, on 21-24 February 2007 with a support of UK Foreign and Commonwealth Office Global Opportunity Fund. Attended are Prof. Enda O'Connell, Dr. J. Bathurst, Prof. I. Cluckie (Bristol), Prof. R. Falconer (Cardiff), Prof. K. Shiono (Loughborough) and others from UK, and Prof. Takara, Dr. Tachikawa, Dr. Sayama and others from Japan.
- (5) PUB Sessions at IUGG, Perugia, Italy on 9-14 July 2007. A PUB database management system for the Mae Chaem basin in Thailand which was established by the RID Thailand and ICHARM was introduced. Its web site is <http://www.icharm.pwri.go.jp/html/network/index.html>
- (6) A PUB Session was convened by Dr. Tachikawa at the 4<sup>th</sup> Meeting of AOGS in Bangkok,

Thailand on 31 July 2007.

- (7) The 5<sup>th</sup> meeting of GRAPHIC (Groundwater Resources Assessment under the Pressure of Humanity and Climate Change) was held in Colorado, USA, on 17-19 September 2007. [Dr. Makoto Taniguchi (RIHN); <http://www.chikyu.ac.jp/USE/GRAPHIC/GRAPHIC.htm>].
- (8) The International Conference on Hydrology and Water Resources Management for Hazard Reduction and Sustainable Development (HRSD 2007) was held in Manila, the Philippines, on 19-23 November 2007 as an IHP-related event. <http://hrsd-2007.pnc-unesco-ihp.upd.edu.ph/>
- (9) The 5<sup>th</sup> Workshop on Rio de La Plata Basin at Itaipu Binacional, Brazil on 11-14 March 2008, organized by UNESCO-IHP LAC, UN Water Decade, UNEP GEMS/Water, ICHARM and Japan Water Forum [Dr. Yamashiki (Nihon Univ.)].

## **1.7 Other activities at regional level**

### **1.7.1 Institutional relations/cooperation**

N/A

### **1.7.2 Completed and ongoing scientific projects**

N/A

## **2. FUTURE ACTIVITIES**

### **2.1 Activities planned until December 2009**

- (1) Participation in the 9<sup>th</sup> IHP/IAHS George Kovacs Colloquium, Paris, 6-7 June 2008 [Prof. Takara].
- (2) Participation in the GRAPHIC meeting on groundwater and climate change in Uganda in June 2008 [Dr. Taniguchi].
- (3) Asian Pacific FRIEND Workshop in Hanoi, Vietnam in 2008 (to be confirmed) [Prof. Takara].
- (4) The 16<sup>th</sup> Session of the IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific will be held in Ulan Bator, Mongolia on 29 September to 3 October 2008.
- (5) ICHARM 2<sup>nd</sup> Advisory Board meeting in Tsukuba in October 2008.
- (6) HydroChange 2008 in Kyoto, October 2008.
- (7) IAH (International Association of Hydrogeologists) meeting in Toyama, Japan in October 2008 including GRAPHIC discussion [Dr. Taniguchi].
- (8) The 4<sup>th</sup> International Conference of Association of Asia Pacific Hydrology and Water Resources (APHW2008) will be in Beijing on 3-5 November 2008. A PUB Session will also be convened.
- (9) The 1<sup>st</sup> World Landslide Forum will be held at UNU, Tokyo on 18-21 November 2008. ICHARM and other UNESCO-related organizations will attend it as well as a pre-event on 17 November.
- (10) The 18<sup>th</sup> IHP Training Course with the theme "Satellite Remote Sensing of Atmospheric Constituents" will be held in 2008. See details at <http://www.ihpnagoyaforum.org/>.
- (11) The 17<sup>th</sup> Session of the IHP Regional Steering Committee (RSC) for Southeast Asia and the Pacific will be held in China in 2009.
- (12) The 19<sup>th</sup> IHP Training Courses will be hosted by Kyoto University in 2009.

### **2.2 Activities foreseen for 2010-2011**

- (1) Participation in RSC-SEAP activities including Asian Pacific FRIEND and the Catalogue of Rivers.
- (2) The 20<sup>th</sup> anniversary of UNESCO IHP Training Course: Special lectures and meetings on "Adaptation to the impacts of global changes on river basins and aquifer systems" (to be confirmed).
- (3) The 21<sup>st</sup> IHP Training Course: Ecohydrology for sustainability" (to be confirmed).
- (4) Implementation of projects related to IHP-VII.
- (5) The 2<sup>nd</sup> Asia Pacific Water Summit, Dates and place T.B.D.
- (6) Research on HELP basins.
- (7) Collaboration with UNESCO-MAB and UNESCO-IOC activities.

(8) The 5<sup>th</sup> International Conference of Association of Asia Pacific Hydrology and Water Resources (APHW2010). Dates and place T.B.D.

### **2.3 Activities envisaged in the long term**

- (1) Participation in IHP-VII projects and RSC activities.
- (2) Nagoya University IHP Training Courses.
- (3) Information dissemination through a web page of the National Committee.
- (4) University of Tsukuba UNESCO Chair in Mongolia.