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ICHARM

Newsletter

INTERNATIONAL CENTRE FOR WATER HAZARD AND RISK MANAGEMENT
under the auspices of UNESCO

Message from Director

Happy New Year!

The year 2009 is the year of the Ox, a symbol of slow but steady move. ICHARM will continue a steady and strong move forward if the steps are not necessarily very fast. Based on the previous achievements as well as the commitments, ICHARM has started another busy year in high spirit for its mission. Our biennium action plan 2008-2010 is on [our webpage](#).

Among the commitments, the Integrated Flood Analysis System (IFAS) is one of ICHARM's top priority areas. As described in the previous issue of ICHARM Newsletter, the project is the symbol of ICHARM's localism commitment, promoting the local ownership of flood forecasts. Here is a brief description for the readers who are not yet familiar to the project:

IFAS is a hydrological simulation system to use globally available data as the default input to make flood forecasts available anywhere in the world, including basins with no ground observations. Also, in this system, local flood forecasts can be further improved by using locally-measured ground observations. This feature of the system will help develop a sense of local ownership of flood forecasts through the self-learning of the usefulness of models and data provided by the system, and eventually lead to a locally-managed early warning system which is efficient and effective.

On 10 November 2008 in Geneva, I had an opportunity to present the project during a science lecture at the WMO 13th Commission of Hydrology. It seemed widely welcomed with strong interest. I was pleased to receive quite a few positive reactions. Similar reactions were also noticed at the International Conference on Water Scarcity, Global Changes and Groundwater Management Responses, which was held in Irvine, California, on 1-5 December 2008 and jointly organized by the US IHP National Committee and University of California, Irvine.

Another commitment is to produce a set of flood preparedness indicators. This will serve as a basic tool to assess and monitor the status of local flood preparedness. The indicators will be one of the most important components in ICHARM's tool development for flood risk assessment, and make a considerable contribution to

ICHARM's challenge to localism.

ICHARM is also committed to the quality improvement of its Master's Degree course in water-related disaster management. This year, the students started their thesis work as early as last December so that they can learn more proactively about their own interests during lessons. ICHARM will start another short-term flood-preparedness training course this year. This is an extension of the previous hazard mapping course with new focus on capacity development of institutions rather than individual personnel. We believe that institutional capacity development is one of our most important challenges to enhance flood preparedness at the national and regional levels.

In the area of information networking, ICHARM is coordinating the Water and Disaster session at the 5th World Water Forum. Also, as the secretariat of the International Flood Initiative (IFI), ICHARM is planning to organize a flood session at the 2nd Global Platform for Disaster Risk Reduction of ISDR.

Requests to ICHARM are increasing in number and variety, and we will faithfully respond to them as much as we can.

Kuniyoshi Takeuchi
Director of ICHARM



Activities of ICHARM

Research and Training activities at ICHARM

Since its establishment on 6 March 2006, ICHARM has been pursuing a course of excelling in three areas of activities, namely, research, training, and information networking.

A. W. Jayawardena

Research and Training Advisor

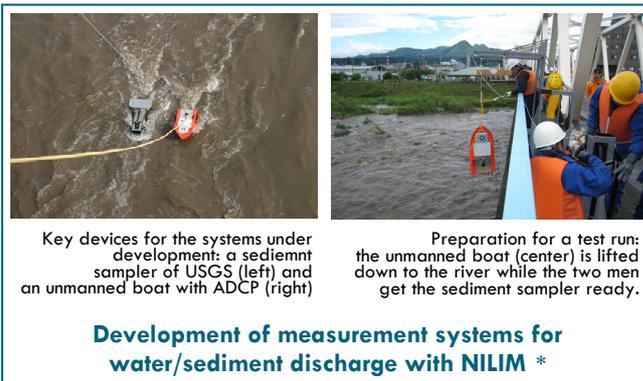


A.W. Jayawardena has been teaching in the Department of Civil Engineering, the University of Hong Kong for over 25 years. He is a Fellow of the Hong Kong Institution of Engineers and the Institution of Civil Engineers, U.K. He has served as a member of the Engineering Panel of the Hong Kong Research Grants Council, University Grants Committee, HKSAR, China, and a member of the International Panel to evaluate UNESCO's contribution to the World Water Assessment Programme

Research

Research primarily aims at water-related hazard mitigation that encompasses hydrological and hydraulic modeling and analysis, flood inundation analysis, catchment-scale water quality modeling and analysis constitutes the core areas of activity.

More specifically, the current research projects include the use of satellite observed rainfall data in hydrological models applicable to areas that have sparse or no ground measured data, interfacing hydrological model outputs with GIS such as Google Earth for displaying inundation areas as a function of time, flood hazard mapping using a 2-D hydrodynamic model that uses finite elements in space, depth-area-duration analysis of radar-measured and ground-measured heavy rainfall data, development of tsunami hazard mapping and guidelines for coastal forestation aimed at tsunami disaster reduction, assessment of the impact of climate change on flood disaster risk and adaptation measures for vulnerable areas, development of an automatic measurement system for water/sediment discharge, development of a manual for satellite-based data processing and related educational material, development of enhancements for the Water and Energy Transfer Process (WEP) model for material cycle studies, hydroinformatics, and non-linear time series analysis including the study of chaos. ICHARM is also contributing to the World Water Assessment Programme (WWAP) including participating in the preparation of the 3rd World Water Development Report (WWDR). On the knowledge dissemination front, ICHARM is also contributing through scientific publications. Since its establishment, ICHARM research staff have authored or co-authored no less than 23 peer reviewed papers in reputed international journals, and presented findings in several reputed international scientific conferences.



Key devices for the systems under development: a sediment sampler of USGS (left) and an unmanned boat with ADCP (right)

Preparation for a test run: the unmanned boat (center) is lifted down to the river while the two men get the sediment sampler ready.

Development of measurement systems for water/sediment discharge with NILIM *

*NILIM= National Institute for Land and Infrastructure Management

Training

The major activity on the training front is the one-year Master's Degree Programme in collaboration with the National Graduate Institute for Policy Studies (GRIPS) and Japan International Cooperation Agency (JICA), which started in October 2007. The first batch of 10 students (Bangladesh-2, China-3, Nepal-1, India-1 and Japan-3) graduated in September 2008, and the second batch of 8 students (Bangladesh-2, China-2, Ethiopia-1, Indonesia-1, Nepal-1, and Thailand-1) started their studies in October 2008. Short-term training activities include a "Flood Hazard Mapping" course attended by 78 government personnel from 9 countries (Cambodia, China, Indonesia, Lao DPR, Malaysia, Philippines, Thailand, Sri Lanka and Vietnam) during the period from 2004-2008, the "Comprehensive Tsunami Disaster Prevention" course attended by 11 government personnel from India, Indonesia, Maldives, and Sri Lanka during June-July 2008 through the sponsorship of the United Nations International Strategy for Disaster Reduction (UN-ISDR) and JICA, and contribution to the "River and Dam Engineering" training course every year since 1973. ICHARM has also contributed to the follow-up activities through the "East & Southeast Asia Regional Seminar on Flood Hazard Mapping", first held in Kuala Lumpur, Malaysia, during 7-9 February 2007 and for the second time in Guangdong, China, during 30 January to 1 February 2008, each of which was attended by over 50 participants from the region. In short, ICHARM is committed to programmes in the pursuit of knowledge and capacity development.



Flood Hazard Mapping Training Course

Research Projects

► The "Debris-flow dewatering brakes" project in the Philippines completed

Disaster Prevention Research Team



(From downstream)



(From upstream)

Debris-flow dewatering brake

Technology transfer for the benefit of communities in developing countries is an important part of ICHARM's activities. The implementation of "debris-flow dewatering brakes" in the Philippines is one such example (see a related article in the ICHARM Newsletter No. 10 for more information). The trial implementation of a dewatering brake finally completed successfully in December 2008 under the initiative of ICHARM. To disseminate this simple, effective technology to the entire Philippines and other countries, ICHARM is planning to introduce it through seminars and other opportunities in the near future.

► ICHARM Surveyed Glacial Lake Outburst Flood Impacts in High Himalaya

International Technical Exchange Team

ICHARM sent an investigation team to a Nepalese Himalayan region in September 2008 to investigate glacial lake outburst flood (GLOF) impacts on local areas. Melting glaciers contribute to the development of glacial lakes, which may eventually burst due to a variety of reasons and cause enormous damage to communities residing in the downstream areas. ICHARM includes GLOF issues in its priority agenda, understanding that the issues are highly susceptible to ongoing global climate changes. ICHARM has started research on the issues to contribute to updating scientific norms and filling current knowledge gaps in GLOF impact assessment and mitigation measures.

The survey team comprised of local geologists and other experts was led by Research Specialist Rabindra Osti and successfully conducted a two-week-long investigation at an altitude of as high as 4800 m in High Himalaya. The team particularly focused on the Tam Pokhari glacial lake outburst flood in Mt. Everest region, which caused considerable damage to the downstream areas in September 1998. Osti and his team members walked around the lake and along the Inkhru River originating from the glacial lake and assessed GLOF impacts on the area. They observed and analysed dam failure conditions, GLOF marks, associated erosion, deposition depths and geomorphological changes as well as other geological features of the area. The team also interviewed local people to understand problems they are facing and their perception on GLOF.



Investigating the moraine dam breached portion



Measuring a GLOF deposited sediment mass

► JOINT WORKSHOP OF JAPAN AND VIETNAM FOR DISASTER PREVENTIONS and

Investigation of Coastal Erosion in Nam Dinh Province

International Technical Exchange Team

The Joint Workshop of Japan and Vietnam for Disaster Preventions was held on 19 November, 2008 at Hanoi, Vietnam. Shigenobu Tanaka, team leader of the International Technical Exchange Team, was sent to attend the workshop. It was the first workshop in which the two countries had discussions and exchanged ideas and opinions about water-related disasters and their countermeasures. It is expected that both countries will closely cooperate for the implementation of effective countermeasures for such disasters in Vietnam. Tanaka, who also had worked as the Head of the Coastal Engineering Department of the Public Works Research Institute, gave a presentation on disaster situations due to coastal erosion as well as countermeasures taken in Japan to cope with such situations. After the workshop, advised by Dr. Dao Xuan Hoc, vice minister of Vietnam's Ministry of Agriculture and Rural Development, he visited the coast of Nam Dinh Province, one of the most severely eroded coasts in Vietnam. The picture right shows a sinking church at a coastal site. It was relocated there from the original site in 1890. The church has actually been re-relocated to a safer place and currently stands inside the embankment.



A church relocated and built in 1890 is sinking due to coastal erosion in Nam Dinh Province, Vietnam.

Training

Reports from Past Participants

We have recently heard from people who were involved in ICHARM training programs. We would like to share their interesting reports in this section.

Dr. Teuku Alvisyahrin is an ex-trainee of the "UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course," conducted by ICHARM in June 2008. He is a university lecturer in the Faculty of Agriculture of Syiah Kuala University in Indonesia. Recently, we have received the first activity report from him after he returned home.



Activities after ICHARM Comprehensive Tsunami Disaster Prevention Training 2008

Upon returning from the Comprehensive Tsunami Disaster Prevention Training, which was organized by ICHARM and held in June-July 2008 in Tsukuba, Japan, I participated in a roundtable meeting with my colleagues at the **Tsunami and Disaster Mitigation Research Center (TDMRC)** of Syiah Kuala University in Banda Aceh, Indonesia, to share my experience in the training and update them with the current state of tsunami disaster management strategies employed in Japan. Community-based disaster risk reduction management (CBDRM), notably the lifeline of Japan's success story in tsunami disaster risk reduction, stimulated an intense discussion among TDMRC members looking to adopt a similar strategy for Aceh.

In order to increase people's awareness in disaster prevention and risk reduction, I helped organize a disaster education EXPO held in August 2008 in conjunction with the inauguration of the new TDMRC building in Meuraxa, Banda Aceh. The event was attended by 20 local, national, and international non-governmental organizations (NGOs), such as the Indonesian Red Cross, Indonesian Meteorological Agency, United Nations Development Program, American Red Cross as well as governmental institutions involved in disaster prevention initiatives. One of the highlights in the EXPO was the introduction of disaster risk reduction games to kids as a part of important disaster early-education for the community. Disaster awareness training was also held for 40 principals of elementary schools around the Banda Aceh municipality and Aceh Besar District. The training included preliminary discussions on the integration of disaster education in the school curriculum.

I had the honor of chairing the 3rd Annual International Workshop and Expo on Sumatra Tsunami Disaster and Recovery organized by TDMRC in December 2008. The workshop brought some 250 tsunami disaster experts, researchers, and disaster management policy makers and practitioners from around the world to Syiah Kuala University, Banda Aceh. It was a great opportunity for the participants to update their knowledge of the post-2004 tsunami rehabilitation and reconstruction efforts in Aceh, and to listen to informative presentations on the latest state of science and strategies pertinent to tsunami disaster management initiatives. The participants also had the pleasure of welcoming an ICHARM research team represented by Dr. Dinar Istiyanto, who is currently working as research specialist at ICHARM.

Recently, TDMRC has received a request from the RESTORE Project of the University of Waterloo, Canada, to conduct a training based on lessons learnt from the 2004 tsunami disaster and recovery in Aceh for 23 senior faculty members from three universities and two senior staff members from a governmental institution in Sri Lanka. It is scheduled to be held in February 2009 in Banda Aceh. It is TDMRC's first international training as an organizer, and I am honored to serve as a member of its steering committee of this very important event. The committee members, including me, hope to emulate a format similar to that of ICHARM's Comprehensive Tsunami Disaster Prevention Training in the coming training for Sri Lankan scientists.



Disaster Games for Kids
(Aug. 2008)



Keynote by Prof. Tanaka of
Kobe Univ. (Dec. 2008)



AIWEST-DR 2008 Participants



Hyogo Building (Dec. 2008)

Ms. Toyomi Tsuruta is an ex-coordinator of the 2006 Flood Hazard Mapping Training Course, conducted by ICHARM. She is now in Costa Rica helping the country strengthen its disaster preparedness as a member of the Japan Overseas Cooperation Volunteers (JOCV). She contributes to ICHARM newsletter reporting on her activity in Costa Rica.



Issues in Community-Based Flood Mitigation in Costa Rica

A year and a half have passed since I started working in strengthening local capacity for disaster prevention in Costa Rica as a Japan Overseas Cooperation Volunteers (JOCV). I am honored to be given the second opportunity to write about my experience for the ICHARM newsletter.

What I have realized while working in this country is that the concept of “community disaster prevention” or “self help” and “mutual help” are not yet common. Even though the Cañas river basin, where I live and work, has been repeatedly damaged by floods, people commonly believe that “the government” has the prime responsibility to attend disasters when “they have happened”. In order to let the locals realize that there are many things that they themselves can prepare to reduce flood damage, I have carried out several workshops in the communities on the subjects of provision of emergency bag or sandbag preparation and so on.

The Cañas river basin is also a pilot site of the JICA’s technical cooperation project, Project on Capacity Development for Disaster Risk Management in Central America “BOSAI”, since 2007. In that scheme JICA and National Commission for Emergencies (CNE) in Costa Rica have been constructing early warning system, and now the sirens have been installed in the flood prone communities,

which both municipality and residents long wanted. However, it will be of no use if the residents do not know reacting appropriately when they hear the alarm sound. We’ll have to continue visiting the communities to make them realize that it is ultimately their responsibility to protect their lives and properties from disasters.

There’s no panacea for disaster prevention. Japanese culture of BOSAI (disaster prevention) is based on hundred years’ history of suffering from and fighting against natural disasters. We have to keep working on the problems here patiently with a long-term perspective in order to ferment the culture of BOSAI in this country.



Workshop on provision of emergency bag



The most frequently and heavily flood-damaged community, Bebedero

Report on JICA Training "The 5th Flood Hazard Mapping in East/Southeast-Asian Region, 2008"

A five-week-long JICA training course, entitled “The 5th Flood Hazard Mapping in East/Southeast-Asian Region,” was held from 28 October through 28 November in 2008. This training is organized by ICHARM as a five-year programme, and the year 2008 was the final year of the training.

The training is designed for engineers and administrative officials working for organizations responsible for flood control and river management in East and Southeast Asian countries. A total of 10 trainees from Cambodia, China, Laos, Malaysia, the Philippines, Thailand, and Vietnam participated in the 2008 course. Eight more students joined the course from the one-year Master’s course, which is also currently ongoing at ICHARM.

Lectures and practical exercises, including GIS operation and inundation analysis, were given by professors invited from universities and UNESCO-IHE, other experts from JAXA, and ICHARM researchers. To learn flood management in Japan, they took a field study trip to the Chubu Region in the main land of Japan, and observed a *Kasumitei* (a discontinuous levee along the Toyo River), the *Kiso-Sansen* National Park, and a river improvement project site along the Miya River. In Ise City of Mie Prefecture, which is one of the trip destinations, they attended lectures given by the deputy mayor of Ise City, the vice principal of Ominato Elementary School, and a community leader of Ominato District. The trainees were very impressed to know that the basic concepts of disaster management – “self-help”, “mutual support” and “public assistance” – were deeply instilled into the residents’ groups.

As the final output of this course, each trainee developed an action plan for disaster management for his/her country. They are supposed to report the action plans at their organizations in their home country.

Although the 2008 training course completed the five-year programme,

ICHARM is getting ready to launch a new training course in the field of flood management as a three-year programme under the title of “Local Disaster Management Plan by using Flood Hazard Map.” The course is designed so that trainees can learn disaster management by combining hazard maps with flood forecasting and warning. The target population is those working at organizations



Discussion and presentation by participants



Group photo at the Closing Ceremony

Conferences and Meetings

4th APHW and 3rd GEOSS-AWCI ICG meeting

- Beijing, China (3-5 November)

The 4th Conference of the Asia Pacific Association of Hydrology and Water Resources (APHW) was held during 3-5 November 2008 in Beijing, China. About 300 researchers from 25 countries in the Asia-Pacific Region attended the conference. ICHARM convened two of the seven special sessions. One of the two sessions was on “catchment-scale water and material cycle studies with WEP and its future potential”. It was jointly convened by ICHARM, the Chinese Institute of Water Resources and Hydropower Research (IWHR), and the Korean Institute of Construction Technology (KICT). Kazuhiko Fukami, team leader of the Hydrologic Engineering Research Team, and Dr. Yangwen Jia of IWHR served as the co-conveners. Research Specialist Hemantha Rajapakse presented the implementation of material-cycle components to the basin-wide physically-based distributed hydrologic model, or the WEP model. Through seven presentations at this special session, it was confirmed that the promising future of WEP would be further enhanced through internationally cooperative studies and implementations of the model.

The other special session convened by ICHARM was on “best practices in water related disaster mitigation and management.” Research and Training Adviser A. W. Jayawardena served as the chair of the session, and also introduced overall ICHARM activities. Researcher Hironori Inomata presented two research topics on a statistical downscaling of GCM outputs on precipitation and on a self-correction method for satellite-based precipitation data. Fukami also presented two research topics on flood-flow observation by using non-contact current meters and on flood-flow characteristics observed by using acoustic Doppler current profilers (ADCP).

Many research topics related to the Global Earth Observation System of Systems-Asian Water Cycle Initiative (GEOSS-AWCI) were also introduced in other special sessions. In one of those sessions, Fukami delivered another presentation on the development of the Integrated Flood Analysis System (IFAS) as an implementation tool for Global Flood Alert System (GFAS)-Streamflow.

The 3rd International Coordination Group Meeting for GEOSS-AWCI on 6 November 2008 immediately after the 4th APHW conference. Fukami also participated in this meeting and served as a co-chair of the Flood Working Group. The meeting reached the agreement that each member country would further proceed with the demonstration projects and plan capacity-building seminars to implement them.



Presentation by Fukami on GFAS-Stream flow with IFAS

13th session of the Commission for Hydrology (CHY-XIII) of WMO

- Geneva, Switzerland (4-12 November)



Scientific lecture by Takeuchi

The 13th Session of the Commission for Hydrology (CHY-XIII) of the **World Meteorological Organization (WMO)** was held during 4-12 November 2008 in Geneva, Switzerland. Director Kuniyoshi Takeuchi, Deputy Director Akira Terakawa and Kazuhiko Fukami, team leader of the Hydrologic Engineering Research Team, attended the CHY-XIII as members of the Japanese delegation. Takeuchi made a scientific lecture titled “Local Ownership of

Flood Forecasts through IFNet/GFAS” on 10 November in the main hall, which led the session to adopt the Resolution 4 (CHY-XIII) of the “Hydrological Forecasting and Flood Management” to support the operationalization of GFAS (Global Flood Alert System) by testing and validating global precipitation products and information, suitable for various geographical regions.

Result Management Council of the Global Facility for Disaster Reduction & Recovery

-Copenhagen, Denmark (11 November)

The Results Management Council of the Global Facility for Disaster Reduction and Recovery was held on 11 November 2008 in Copenhagen, Denmark. The council was organized by the World Bank. Kazuhiko Fukami, team leader of the Hydrologic Engineering Research Team, as an observer and delivered a presentation on the Integrated Flood Analysis System (IFAS), a free software package to implement GFAS-Streamflow proposed by the International Flood Network (IFNet). Many of the council members expressed strong interest and expectations for the implementation and capacity building of early warning systems for flood disaster management through IFAS.

Regional Workshop on Developing Partnerships for Water and Climate Change Adaptation

- Selangor, Malaysia (1-5 December)

The Regional Workshop on Developing Partnerships for Water and Climate Change Adaptation was held during 1-5 December 2008 in Selangor, Malaysia. The main organizer of this workshop was the National Hydraulic Research Institute of Malaysia (NAHRIM) and the Network of Asian River Basin Organizations (NARBO). The workshop participants were mainly from the member countries of the KnowledgeHubs, which is the APWF’s network of the regional water knowledge hubs. Researcher Hironori Inomata attended the workshop and presented ICHARM’s overall activities and research topics on climate change. Through the workshop, each participant shared valuable information about problems and challenges on climate change in each country and established closer partnerships. On the final day of the workshop, each country proposed an action plan for climate change adaptation. Many countries expressed strong expectations for Japan to provide further cooperation for them. For more information, visit the [NAHRIM website](#).



Group Discussion

15th Session of Asia-Pacific Regional Space Agency Forum APRSAF

- Hanoi, Vietnam (9-12 December)

The 15th Session of Asia-Pacific Regional Space Agency Forum (APRSAF-15) was held during 9-12 December 2008 in Hanoi, Vietnam. Kazuhiko Fukami, team leader of the Hydrologic Engineering Research Team, made a report on the activities of Flood Working Group of the Sentinel Asia Project of APRSAF, such as the implementation of IFNet/GFAS on a Web-GIS system on the Digital Asia. At the step-2 phase, the Flood WG will be engaged also in applications of satellite-based rainfall data to flood forecasting in developing countries. In the plenary meeting, it was recommended that the step-2 activities of the Sentinel Asia should be promoted, that a new activity "Space for Application for Environment (SAFE) should be initiated, and that the development of APRSAF's satellite should be promoted.

2nd international Symposium on Shallow Flows (ISSF2008)

- Hong Kong (10-12 December)

The 2nd international Symposium on Shallow Flows, one of the conferences of the American Society of Civil Engineers, was held in Hong Kong during 10-12 December 2008. Several topics related to river flow and turbulence flow were discussed in the symposium. Research and Training Adviser A. W. Jayawardena and Research Specialist Atsuhiko Yorozyua of the Hydrologic Engineering Research Team participated to present their research results at the conference. Jayawardena made a presentation on low flow characteristics, which is related to water resources, while Yorozyua made a presentation on flow characteristics during flooding, which is related to flow measurements.

3rd Annual International Workshop & Expo on Sumatra Tsunami Disaster and Recovery

- Banda Aceh, Indonesia (17-19 December)

The 3rd Annual International Workshop & Expo on Sumatra Tsunami Disaster and Recovery (AIWEST-DR) was held during 17-19 December 2008 in Indonesia. AIWEST-DR was jointly organized by the Tsunami and Disaster Mitigation Research Center (TDMRC) of Syiah Kuala University of Indonesia and Kobe University of Japan. About a hundred participants from Japan, the Netherlands, the USA, Bangladesh and Indonesia attended the workshop at Banda Aceh City. Oral as well as poster presentations covered a wide variety of topics including disaster management, disaster preparedness and education, disaster engineering, and simulation and numerical modeling. Dinar Istiyanto, research specialist of the International Technical Exchange Team, delivered a presentation based on his paper entitled "Sustainable Tsunami Disaster Risk Reduction and Utilization of Tsunami Hazard Map (THM)." In the end, all the participants were in agreement

that in the future the workshop should be arranged to encourage more active involvement of local governments in finding solutions for building a future society that has strong resilience to tsunami and similar disasters. On the last day of the workshop, a historic tour took the participants to several memorial places related to the Sumatra tsunami disaster in Banda Aceh City. Along with this, they were also given a chance to see the reconstruction progress in several parts of the city.



Dinar presented his paper in the workshop.

International Workshop on Typhoon and Flood Research

- Taipei, Taiwan (18-19 December)

Deputy Director Akira Terakawa was invited to make a presentation at the International Workshop on Typhoon and Flood Research. The workshop was organized by the Atmospheric Science Department of the National Taiwan University and the Taiwan Typhoon and Flood Research Institute Preparatory Office as a part of the preparatory activities for setting up a new institute in the **National Applied Research Laboratories** in Taipei. In the presentation, Terakawa introduced the outline of ICHARM activities, focusing on the explanation of the recently developed Integrated Flood Analysis System (IFAS). The system is to be disseminated as a flood forecasting tool by making use of satellite-based rainfall information. ICHARM will promote mutual collaboration with the new center, scheduled to be established in January 2009.

Visitors to ICHARM

Dr. Joan Pope visited PWRI

Joan Pope, lead technical director and program director for the **Civil Works Research and Development in the US Army Corps of Engineers (USACE)**, visited Tsukuba on 12 November 2008. After a courtesy visit to Chief Executive of PWRI Tadahiko Sakamoto, Dr. Pope was given a briefing on the outline of PWRI activities from Satoshi Ueda, director of the Planning and Research Administration Department. Then she gave us a lecture on the outline of research activities of USACE, which was followed by several presentations of PWRI researchers from the Construction Technology Research Department, Water Environment Research Group, Hydraulic Engineering Research Group and ICHARM. ICHARM and the Institute of Water Resources of USACE concluded an MOU for mutual collaboration in 2007, and Dr. Pope's visit to PWRI was a good opportunity to deepen understanding of both sides' activities.



Dr. Pope (right) and Chief Executive Sakamoto

New Publications

Publications since ICHARM Newsletter Volume 3. No.2 (ISSUE No. 9)

Refereed publications

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Jayawardena, A. W. (2009): How global is "global warming"? Poster paper presented at the Environment and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE) Conference held in Bangkok, Thailand, January 5-7, 2009. Abstract on p151

Jayawardena, A. W., Xu, P.C., and Li, W. K. (2008): Rainfall data simulation by hidden Markov model and discrete wavelet transformation, Stochastic Environment Research and Risk Assessment (SERRA), DOI: 10.1007/s00477-008-0264-0

Rabindra Osti and Shinji Egashira (2008) Method to improve the mitigative effectiveness of a series of check dams against debris flows, Hydrol.Process. 22, 4986-4996, DOI: 10.1002/hyp.7118

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Masayuki Watanabe, Junichi Yoshitani, Tomoyuki Noro, and Yoganath Adikari (2008) "Debris-flow Dewatering Brake": An Efficient Tool to Control Upstream Debris-flow to Secure Road Transportation and Community Safety, Proceedings of The First World Landslide Forum, Tokyo, Japan, November 18-21, 2008, pp 661-663

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Rajapakse, H., Inomata, H., and Fukami, K. (2008): Effects of surplus fertiliser loading on stream and subsurface water quality in Yata River Basin, Japan: An integrated, 4th Asia Pacific Association of Hydrology and Water Resources (APHW), Beijing, 3-5 November, 2008

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Coming Events

"3rd East & Southeast Asia Regional Seminar on Flood Hazard Mapping 2009"

ICHARM will hold the 3rd follow-up seminar of the "Flood Hazard Mapping Training Course" on 17-19 February, 2009 in Manila, Philippines.

In this seminar, ex-trainees will report on the current situations of Flood Hazard Map (FHM) development in their countries and their activities after completing the training course. They also discuss how to make and disseminate FHMs effectively in their countries. The seminar will help their future activities related to FHMs.

Taking a retrospective look at the "Flood Hazard Mapping Training Course", which came to end in 2008, ICHARM and the participants will have an extensive discussion on the needs and perspectives for FHMs and flood management in Asian countries.

The results of this seminar will be reported at the ICHARM website.

"5th World Water Forum"

The World Water Forum (WWF) is the world's largest water-related event held every three years. It is an open, all-inclusive multi-stakeholder process, aiming at raising the importance and understanding of water issues and proposing concrete solutions to address global challenges. As one of its information networking activities, ICHARM is acting as a key player of the 5th WWF to be held in March 2009 in Istanbul, Turkey, specifically as a coordinator for the topic entitled "Managing Disasters". Four sessions with the following titles are planned to be organized under this topic:

1. Dialogue session
2. Technologies for water-related disaster management
3. Risk management under changing situations
4. Emergency water management during and after disasters/conflicts

For more information on the topic and the 5th WWF, visit the 5th WWF website at <http://www.worldwaterforum5.org/>.

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