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United Nations
Educational, Scientific and
Cultural Organization

Message from Director

The Sendai framework and the role of science and technology

The 3rd UN World Conference on Disaster Risk Reduction was held in Sendai, Japan, in March 2015 and adopted the Sendai Framework for Disaster Risk Reduction 2015-2030, new global targets for substantial reductions in human and economic damage worldwide due to disasters such as extreme climate by 2030. It is a product of the collective efforts made by the representatives of the 187 member states with 25 heads of state after intensive negotiations and discussions until the final day. As UN Secretary-General Ban Ki-moon stated at the closing ceremony, this powerful result will create a great momentum for international conferences scheduled later this year: the UN Summit in September to discuss next sustainable development goals, the COP21 in Paris in November, and the International Conference on Financing for Development in Addis Ababa in July to discuss funding projects planned at those two meeting.



A unique feature of the Sendai framework is its emphasis on the role of science and technology. It addresses "Understanding disaster risk" as the first of the four priorities listed for action to promote the collection, analysis, management and use of data, the assessment of disaster risk including complex disasters, the use of geospatial information, and disaster-related education, dissemination and awareness raising. Since fall 2012, the Science Council of Japan has started the preparation to develop a science-based disaster management framework in collaboration with international organizations, and held the Tokyo Conference on International Study for Disaster Risk Reduction and Resilience in January 2015.

The conference was attended by 400 participants from 27 nations in the presence of His Imperial Highness the Crown Prince of Japan. They concluded that it is important that governments and citizens share scientific findings and implement evidence-based policy to consolidate disaster risk reduction and sustainable development. The meeting adopted the Tokyo Statement, which also calls for enhanced cooperation between disaster risk reduction and other areas such as Earth environment, health and Earth observation. The Tokyo Action Agenda was also drafted on specific actions and proposals to implement the ideas of the statement. These outcome documents and a short film were presented at the Sendai meeting as an input from the Science and Technology Major Group.

It was fortunate and honorable for ICHARM to play a central role in these globally important opportunities. As a leading research institute in water-related disasters, we now reaffirm our commitment to implementation of these new goals and produce tangible results.

April 30, 2015
Toshio Koike
Director of ICHARM

「仙台防災枠組」と科学技術の役割

世界中の異常気象などの災害による人的、経済的被害を2030年までに著しく低減する目標を定めた「仙台防災枠組」が、2015年3月に仙台で開催された第3回国連世界防災会議にて採択されました。同枠組みは、25カ国の首脳に参加の下、187カ国の代表団による最終日間隔までの懸命な交渉と協議によってまとめられました。国連の潘事務総長が閉会式で述べておられるように、この会議の強力な成果は、9月に国連サミットで議論される持続可能な開発目標、11月にパリで開催される国際的気候変動体制、これらの計画実施に必要な開発融資を議論する7月のアジスアベバでの会議に勢いを生むことになるでしょう。

この「仙台防災枠組」の特徴の1つが、科学技術の役割を重視していることです。行動のための4つの優先事項の第一が「災害リスクの理解」であり、データの収集・分析・管理・活用、複合災害を含めた災害リスク評価、地理空間情報の活用、防災教育や普及啓発が盛り込まれています。科学技術重視の新たな防災枠組みを作成するために、日本学術会議では2012年秋より準備を開始して、国際的な調整を図りながら、2015年1月に「防災・減災に関する国際研究のための東京会議」を開催しました。

皇太子殿下ご臨席のもと、27カ国より400名あまりの参加を得て開催された同会議では、防災・減災と持続可能な開発の推進のために、政府や市民らが科学的に得られる知識を共有し、根拠のある政策が進められていくことが重要との認識が共有されました。その上で、防災・減災と地球環境、健康、地球観測との連携強化などを明記した「東京宣言」が採択され、具体的な行動や提案を含む「東京行動指針」の案がまとめられました。これら成果文書と会議内容をまとめたビデオを制作して、仙台会議にて国際科学技術コミュニティからの提案として発表いたしました。

このプロセスの中で、ICHARMが中心的役割を果たせたことは幸いであり、また水災害分野のリーディング研究機関として、「仙台防災枠組」、「東京宣言」、「東京行動指針」を具体的な成果につなげるよう努力いたす所存です。

Special Event

3rd UN World Conference on Disaster Risk Reduction in Japan

ICHARM は、去る3月14日～18日にかけて仙台市で開催された「第3回国連防災世界会議」において、ワーキングセッションやパブリックフォーラムへの参加、パネル展示を実施しましたので、その概要を報告します。

1. 「国連防災世界会議」について

国連防災世界会議は、国際的な防災戦略を策定する国連主催の会議です。第1回世界会議は1994年に横浜市で、第2回世界会議は2005年に神戸市で開催され、第2回会議では国際的な防災の取組指針である「兵庫行動枠組（HFA）」が採択されました。

第3回となる今回の会議には、国連加盟国（193か国）のほとんど（187か国）が参加しました。本体会議には、各国首脳、閣僚、国際機関代表、国際認定NGOなど6千5百人が参加し（UNISDR発表）、パブリックフォーラム等の関連イベントを含めると全体で14万人以上が参加しました。

2. 「仙台防災枠組」の採択

今回の会議では、新たな国際防災指針となる「仙台防災枠組」が採択されました。この中では、日本が主張する「より良い復興（Build Back Better）」、防災の主流化、データの収集・分析・管理・活用による災害リスク評価、強靱化に向けた防災への投資等が明記されました。また、枠組では減災に向けた「7項目の世界目標」が初めて明記されました。なお、具体的な被害削減や支援額の「数値目標」は見送られました。併せて、関係国に対し、新指針の実現に向けた努力を求める政治宣言「仙台宣言」も採択されました。

「7項目の世界目標」は以下の通りです。

- (a) 災害による死亡者数を減少させる（2020～2030年の人口10万人あたりの災害による死亡者数の平均値を、2005～2015年の平均値と比べて削減する）
- (b) 災害による被災者数を減少させる（目標設定方法は死亡者数と同じ）
- (c) GDPに対する経済的な損失の割合を減少させる（2030年目標）
- (d) 重要なインフラの損害を減少させる（特に健康・教育施設）（2030年目標）
- (e) 防災戦略を採択する国の数を増加させる（2020年目標）
- (f) 途上国に対し、各国での活動への適切で持続的な支援を通じての国際協力を高める（2030年目標）
- (g) 住民に対し早期警戒システム及び災害リスク情報とリスク評価へのアクセスを増加させる（2030年目標）

The 3rd United Nations World Conference on Disaster Risk Reduction (UNWCDRR) was convened on March 14-18, 2015, in Sendai, Japan. ICHARM members participated in working sessions and public forums held at the conference and had a panel exhibition about ICHARM. The following outlines the conference and the activities of ICHARM researchers.



1. UN World Conference on Disaster Risk Reduction

The UNWCDRR is an international conference hosted by the United Nations to develop global disaster risk reduction strategies. The first conference was held in 1994 in Yokohama, Japan. The second one was held in 2005 in Kobe, Japan, which adopted a global disaster risk reduction policy, known as the Hyogo Framework for Action.

The Sendai conference is the third gathering joined by 187 of 193 UN Member States with a total participants of over 140,000. According to the United Nations Office for Disaster Risk Reduction (UNISDR), some 6,500 nations' leaders, ministers, representatives of international organizations, and internationally accredited NGOs attended the intergovernmental and multi-stakeholder segments, and many more participated in related events such as public forums.

2. Sendai Framework for Disaster Risk Reduction

The 3rd UNWCDRR adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 as the new global policy for disaster management. The priorities set forth in this framework include the ones that Japan had strongly advocated for inclusion, which are: the use of post-disaster recovery and reconstruction to "Build Back Better", the mainstreaming of disaster risk reduction, the promotion of disaster risk assessment by collection, analysis, management and use of relevant data, and the promotion of investment in disaster risk reduction for resilience. The framework also clearly defines seven global targets for disaster risk reduction although the conference could not agree on numerical targets for damage reduction and financial assistance. The Sendai Declaration was also adopted at the meeting as the political statement calling for the commitment of relevant countries to step up their efforts to fulfill the new global policy.

The seven global targets are as follows:

- (a) Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015.
- (b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015.
- (c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
- (d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- (e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
- (f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.
- (g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

3. ICHARM's contribution

The UNWCDRR sessions were arranged to hold the intergovernmental and multi-stakeholder segments, comprising ministerial roundtables and high-level partnership dialogues, and public forums, which were open to the general public. ICHARM made active contribution to the conference, participating in various sessions and sharing information and ideas with international audience.

3. ICHARM からの貢献

会議は、閣僚会議などが行われる『本体会議』と、一般市民も参加できる『パブリックフォーラム』からなり、ICHARM は下表のように積極的に各セッションに参加し、世界への発信を行いました。

Date & Time	Session	ICHARM representative	Host	Venue
Intergovernmental and multi-stakeholder segments				
Sat., March 14 15:00-16:30	Working session: Risk Identification and Assessment	Panelist: Hisaya Sawano (Chief Researcher)	UNISDR, WMO, UNESCO, MLIT, ICHARM, etc.	Hagi Conference Hall, Sendai International Center
Public forums				
Sat., March 14 13:45-15:45	Flood in Europe: new risks and strategies to build resilience	Moderator: Kuniyoshi Takeuchi (Advisor)	German Committee for Disaster Reduction	Kawauchi Kita Campus, Tohoku University
Sat., March 14 13:00-20:00	Disaster Management Policies – Preparedness against Large Tsunamis and Earthquake	Presentation speakers: Two Ph.D. & three Master's students of ICHARM	National Graduate Institute for Policy Studies (GRIPS), UNESCO	AER Garden City Sendai
Sun., March 15 13:00-16:00	Asian Conference on Disaster Reduction 2015	Presentation speaker: Yoshio Tokunaga (Chief Researcher)	Cabinet Office, Asian Disaster Reduction Center, UNISDR, etc.	TKP Garden City Sendai Kotodai
Mon., March 16 18:00-20:00	Building an international alliance for integrated and resilient delta management	Presentation speaker: Yoshiyuki Imamura (Chief Researcher)	MLIT, etc.	Kawauchi Kita Campus, Tohoku University
Tue., March 17 10:00-12:00	DISASTER RISK REDUCTION (DRR) AND INTERNATIONAL COOPERATION	Panelist: Toshio Koike (Director)	JICA	Kawauchi Kita Campus, Tohoku University
March 14-18	Panel exhibition on disaster management by MLIT	Daisuke Kuribayashi (Senior Researcher) Karina Vink (Research Specialist)	MLIT	AER Garden City Sendai

Working Session: Risk Identification and Assessment, 15:00-16:30, March 14.

This session was about risk information, which is essential in risk identification and assessment. They discussed how the information can be used in policymaking effectively.

ICHARM Chief Researcher Hisaya Sawano was one of the panelists in this session. He pointed out the need of risk assessment, which encourages prior investment to assess the impact of planned structural measures (i.e., simulation on changes in damage with or without measures), and stressed the importance of data collection and management, which is critical in accurate risk assessment. He also spoke about contributions of ICHARM in international cooperation.

A total of 259 people, including 29 Japanese, attended 34 working sessions of the conference's intergovernmental and multi-stakeholder segments as keynote speakers or panelists from governments, international organizations, academic societies and other groups.



Chief Researcher Sawano (second from right) as a panelist

3月14日 15:00 - 16:30 : ワーキングセッション“Risk Identification and Assessment” (リスクの特定と評価)

当該セッションでは、リスクの特定と評価に必要なリスク情報について、いかにして提供される情報が政策決定に活用されるようにするべきかについて議論が行われました。

セッションには、澤野上席研究員がパネリストとして参加し、リスクアセスメントによって事前投資による構造物対策の効果を評価することの必要性（対策の有無による被害状況の変化のシミュレーション）や、リスク評価に必要なデータの入手および管理の重要性について発表するとともに、ICHARM が国際協力で果たしている役割について紹介しました。

なお、本体会議を構成する34のワーキングセッションへは、各国政府・国際機関・学会等から259名が基調講演者やパネリストとして参加し、そのうち日本人は29名で、大学以外の日本の研究機関から参加したのは、土木研究所以外には気象研究所とJTB総合研究所でした。今

Special Event

回のセッションを通し、防災に関する研究機関としての ICHARM の役割を国際社会に示すことが出来ました。

3月14日 13:45-15:45:パブリックフォーラム「欧州での洪水-新たなリスクとレジリエンス構築のための戦略」

当該フォーラムは、ドイツ災害軽減委員会 (DKKV) が主催し、ヨーロッパの最近の洪水とそれぞれの教訓に焦点を当て、洪水リスク評価および管理の向上に向けての議論が行われました。竹内顧問がモデレーター(司会)として参加し、5名のパネリストとフロアによって、ヨーロッパにおける洪水保険や防災に関する EU 指令などについて活発な議論がなされました。

3月14日 13:00-20:00:パブリックフォーラム「Disaster Management Policies」- Preparedness against Large Tsunamis and Earthquakes etc.

当該フォーラムは、政策研究大学院大学 (GRIPS) が主催し、GRIPSでの研究成果の発表や東日本大震災など大災害からの教訓に基づく効果的な災害マネジメントについての議論を目的に開催されました。このフォーラムでは、ICHARM が GRIPS と連携して実施している博士課程および修士課程の学生 5 名から、自国の災害について発表を行いました。

3月15日 13:00-16:00:パブリックフォーラム「アジア防災会議 2015」

当該フォーラムは、内閣府、UNISDR、アジア防災センターが主催となりアジア地域での防災・減災の課題について関係国・機関間の情報共有、意見交換、連携促進を目的として実施されました。

フォーラムでは、徳永上席研究員から 2012 年 7 月 13 日にインドネシア アンボン ヌグリリマ村で発生した地すべり及び約 1 年後の 2013 年 7 月 25 日に起きた天然ダムの崩壊に伴う土石流災害についての概要及び災害被害軽減のための活動概要、その際の日本の貢献について説明しました。また、今回来日の被災地ベシハトゥ村長から、極めて大規模な災害であり、災害発生の数時間前まで住民が生活していたが、わずか 3 名の犠牲者のみであったこと、日本の協力で感謝していること等の報告がありました。

nese entities that participated in the conference. It was an excellent opportunity for ICHARM to inform the global community of our role as a research institute in disaster management.

Public Forum: Flood in Europe: new risks and strategies to build resilience, 13:45-15:45, March 14.

This public forum was hosted by the German Committee for Disaster Reduction (DKKV) and discussed issues on improvement of flood risk assessment and management. ICHARM Advisor Kuniyoshi Takeuchi was appointed as the moderator of this forum and facilitated active discussion with five panelists and the audience about various issues including flood insurance in Europe and European policies on disaster prevention.

Public Forum: Disaster Management Policies - Preparedness against Large Tsunamis and Earthquakes, etc., 13:00-20:00, March 14.

This forum was organized by the National Graduate Institute for Policy Studies (GRIPS) to discuss effective disaster management based on lessons learned from mega disasters such as the Great East Japan Earthquake. Five graduate-level students, currently enrolled at the doctoral or master's program jointly managed by ICHARM and GRIPS, presented disasters in their country.



Presentation by Master student Jorge Andres

Speakers & Titles

[Master students]

- Mr. Mohd Faiz Syed: 2005 India/Mumbai Flood
- Mr. George Chilli Otieno: 2010 Indonesia Mentawai Tsunami
- Mr. Jorge Andres Gonzalez Rojas: 2010 Columbia Flood

[Doctoral students]

- Mr. Nasif Ahsan: How to people decide to evacuate or not? A case report from the cyclone Alia
- Mr. Robin Kumar Biswas: Prediction tool to break the vicious cycle of disasters. Case of river bank erosion in Bangladesh

Public Forum: Asian Conference on Disaster Reduction 2015, 13:00-16:00, March 15.

The forum was organized by the Cabinet Office of the Japanese government, UNISDR, and the Asian Disaster Reduction Center to enhance information sharing, close dialogue and collaboration on issues of disaster prevention and mitigation in Asia.

ICHARM Chief Researcher Yoshio Tokunaga participated in the forum as a speaker to present the case of a debris flow disaster in Indonesia. He outlined a landslide event that occurred on July 13, 2012, in Negeri Lima Village of Ambon, Indonesia, and a subsequent event of debris flow caused by the collapse of the natural dam created by the landslide. The dam collapsed on July 25, 2013, about a year after the landslide. He also spoke about the efforts in disaster damage mitigation and Japan's contribution in the efforts. Village Mayor Pesihatu was with him and explained that the debris flow was an extremely large disaster and that only three were victimized though villagers were doing things just as usual until a few hours before the event, adding that he is grateful to Japan for its cooperation in the emergency.

Public Forum: Building an international alliance for integrated and resilient delta management, 18:00-20:00, March 16.

This forum was organized by the Netherlands, Japan and Colombia to promote the creation of the Delta Coalition, a collaborative effort involving a wide array of stakeholders to support the implementation of the UN disaster management framework for delta areas. The forum was joined by HRH Princess Margriet of the Netherlands, Mr. Kenichiro Ueno, the parliamentary vice-minister of Land, Infrastructure, Transport and Tourism of Japan (MLIT), and Mr. Carlos Ivan Marquez Perez, the general director of the National Unit for Disaster Management of Colombia. The representatives from the Philippines, Vietnam and France also participated in the meeting besides the three host countries. ICHARM Chief Researcher Yoshiyuki Imamura (now at Yamaguchi University) was one of the speakers and presented the history of floods and flood control in Japan and advanced flood forecasting technologies developed by ICHARM.



Presentation by Chief Researcher Imamura

Public Forum: DISASTER RISK REDUCTION (DRR) AND INTERNATIONAL COOPERATION – Sharing the experience and lessons learnt from the Mega-Disasters, Japan’s DRR Culture with the World through International Cooperation –, 10:00-12:00, March 17.

This forum was hosted by the Japan International Cooperation Agency (JICA) with the key concept of BOSAI, a Japanese word for disaster management that is becoming known worldwide. It explored how disaster risk reduction should be practiced through oral presentations and panel discussions with a variety of people from governments, local municipalities, universities, NGOs and countries that receive international cooperation.



Main venue: Sendai International Center

ICHARM Director Toshio Koike participated in the forum as a panelist and shared the case of Tunisia with other participants. He explained that when he was involved in a JICA yen-denominated loan project in Tunisia, the main target of the project was flood control but he also decided to study drought-related issues brought up by participants in a stakeholder meeting. Then, based on his analysis, he pointed out that the impact of drought under climate change would pose a serious threat to the country in the future.

Panel Exhibition, March 14-18.

During the conference, the MLIT of Japan opened an exhibition about past disasters and current efforts in disaster management. ICHARM joined this exhibition to inform the public of our contribution to the international community.



Panel exhibition

The 3rd UNWCDRR adopted the Sendai Framework for Disaster Risk Reduction 2015-2030 as the new global policy for disaster management. Member countries are expected to work towards disaster risk reduction in compliance with this framework. ICHARM is strongly committed to further reduction of water-related damage in the world through a diversity of activities and partnership with relevant organizations. We will appreciate your continued cooperation.

(Written by Daisuke Kuribayashi)

3月16日 18:00-20:00：パブリックフォーラム「統合的かつレジリエントなデルタ管理に向けての国際同盟構築」

当該フォーラムは、オランダ・日本・コロンビアの3国により、デルタ（三角州）に関する国連の災害フレームワークの履行をサポートするための多くの関係者の協働である「Delta Coalition」の構築を目的として開催されました。オランダからは王女及び大臣が参加され、日本からはうへの賢一郎国土交通大臣政務官、コロンビアからも防災局長が参加し、3か国以外にもフィリピン、ベトナム、フランスから参加がありました。フォーラムでは、今村上席研究員（現 山口大学）が、日本における洪水の歴史とその対策及び ICHARM の開発した先端技術についての講演を行いました。

3月17日 10:00-12:00：パブリックフォーラム：「BOSAIでつながる日本と世界 - 防災国際協力」

当該フォーラムは、国際的な言葉となりつつある「BOSAI（防災）」をキーワードとし、国際防災協力を展開する国内行政、自治体、大学、NGO、そして協力の受け手国の方々と共に、口頭発表やパネルディスカッションを通して、より良い防災とは何かを考えるため、(独)国際協力機構が主催して開催されました。

フォーラムには、小池センター長がパネリストとして参加し、チュニジアの JICA 円借款事業に触れながら、事業の目的の洪水対策に加え、ステークホルダー会議の中で出てきた渇水の問題についても検討したところ、気候変動による渇水の影響が同国では大きな問題になることを指摘したという事例が報告されました。

3月14日～18日：パネル展示

国土交通省の防災に関する展示『「忘れない」、「守りたい」防災パネル展』の中で、ICHARM の活動紹介に関するパネル展示を行いました。

前述のように、本会議では新たな国際防災指針となる「仙台防災枠組み」が採択され、各国はこの枠組みのもと、世界の災害軽減に取り組むこととなります。ICHARM も、各種活動を通じ、かつ関係機関との連携のもと、今後も世界の水災害被害軽減に貢献していく所存です。皆様のご協力を頂ければ幸いです。

Information Networking

Advisor's activities

3月14～18日仙台で開催された第3回国連防災世界会議では、私もいくつかのセッションに参加し国際的熱気を分かち合いました。中でも欧州の洪水に関連した2つのパブリックフォーラムは興味深いものでした。

14日のドイツ災害軽減委員会(DKKV)主催の「欧州の洪水」には進行役として参加し、欧州各国のパネリストとともに、EU洪水指令、2002年洪水後の取り組みと2013年洪水などを議論しました。EU洪水指令は、EU各国が洪水管理向上のために合意した、リスク評価、リスクマップ作成、計画立案を6年周期で実践する共通手順で、目標達成に重要な役割を果たしています。こうした取り組みの成功には加盟国の強い意志と能力が不可欠ですが、同じことが仙台の防災枠組の実行にも言えるものと思います。

16日には、仏国エコロジー・持続開発・エネルギー省主催の「水害を免れたパリ：洪水防御」に参加し、先年セーヌ川パリー上流の人工湖域を訪れた縁で発表の機会を頂きました。人工湖は当初、1900年初頭の大洪水後にパリ首都圏の水防を目的に計画されましたが、工事が長期化する中で、優先順位が湖近郊の水資源・環境ニーズへと移行してきました。これは住民参加型アプローチの結果であり、地元住民とパリ市民の意識水準の差の現れでもあります。類似の上下流問題は、日本にも多様な例があることを紹介しました。

仙台に先立つ3月4～5日、クアラルンプールでUNESCO Jakartaとマレーシア国立大の主催で「サステナビリティ・サイエンス国際会議」が開催されました。ユネスコカテゴリー2センター「南南協力のための国際科学技術革新センター」のLee Yee Cheongセンター長の基調講演は印象深いものでした。現在検討中の国連SDGsには軍事費削減が含まれないのが残念である。個人的には「公平で質の高い教育」、「男女平等」が最も重要と考えている。人類の半数を占める女性の力を活かさなくては、持続的発展はあり得ないと強調されました。Lee博士の見解は、SDGsの実現に向けて邁進するICHARMの方針とも軌を一にするものです。



The third World Conference on Disaster Risk Reduction at Sendai

It was an exciting week in Sendai on March 14-18, 2015, when the third World Conference on Disaster Risk Reduction was held. I joined several sessions, sharing the enthusiasm of disaster risk reduction with many participants from all over the world. Among them, two European sessions related to floods were particularly interesting and informative to me.

On the 14th, a public forum on "Flooding in Europe" was held by the German Committee for Disaster Reduction (DKKV). Five panelists from Germany, Denmark, UK and Italy discussed the

EU Flood Directive, spatial planning, lessons of the 2002 floods to the 2013 floods, insurance and public-public and public-private partnerships. Serving as the moderator of the forum, I learned that the EU Flood Directive is playing a key role in improving European flood management by their agreement on the six-year repetition of the cycle of assessing risk, mapping risk and planning risk management. The success of such a process depends on the commitment and capacity of member nations, which would also be the case in the implementation of the Sendai Framework for Action.

On the 16th, another public forum was held on "Paris saved from waters: flood protection," organized by the French Ministry of Ecology, Sustainable Development and Energy and discussed the recent OECD review, "Seine Basin, Île-de-France: Resilience to Major Floods". I was invited as a commentator as I visited the Seine Grands Lacs (large lakes) in 2013. It was impressive to learn that the lakes were planned to be constructed to protect Metropolitan Paris after large floods in 1907 and 1910 but in the long construction stage, the priority of the lake services shifted from the protection of Metropolitan Paris to local water and environmental needs. It was a result of the participatory approach with high interest of local people versus low awareness of Paris citizens. I said that we do have similar experiences and long efforts to share for managing such upstream-downstream relations in Japan.

Prior to the Sendai Conference, I attended the International Workshop on Sustainability Science held in Kuala Lumpur, Malaysia, on 4-5 March 2015. It was organized by UNESCO Jakarta Office and the Institute for Environment and Development (LESTARI) of Malaysia National University (UKM), and attended by about 170 participants from 16 nations. On the 1st day, Dr. Lee Yee Cheong, the director of the International Science, Technology and Innovation Centre for South-South Cooperation under the auspices of UNESCO (ISTIC), gave us an impressive keynote, saying (in my understanding) "The next SDGs (Sustainable Development Goals) have not only 17 goals but also 169 targets. Unfortunately, however, reduction of military budgets is not included. I consider 'Goal 4 Equitable quality education' and 'Goal 5 Gender equality' most important. A half of world population is the great potential resources." ICHARM shares the view and efforts to achieve the goals.

(Written by Kuniyoshi Takeuchi)

Visit by delegates from Asian countries



Delegates visiting PWRI hydraulic laboratory

On February 2, 2015, ICHARM supported the fellowship program organized by the Japanese National Commission for UNESCO of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), welcoming five delegates from China, Korea, Thailand, Turkey and Vietnam as well as MEXT staff.

They took a short tour of PWRI facilities and visited the hydraulic laboratory to learn about research directly related to a public infrastructure project. After that,



Discussion with visitors at ICHARM

they paid a courtesy visit to ICHARM Director Toshio Koike and discussed activities of UNESCO centres. It was a good opportunity for ICHARM to disseminate its localism-based activities to those in charge of education, science and culture, who usually do not work on issues directly related to water-related hazard and risk management.

(Written by Masahiko Murase)

2015年2月2日、文部科学省日本ユネスコ国内委員会フェロウシップ事業に協力して、アジア5カ国(中国、韓国、タイ、トルコ及びベトナム)の国内ユネスコ委員会からの招へい者が文部科学省とともに ICHARM を訪問し、土木研究所施設に案内してセンター長を表敬訪問しました。

水理実験施設では実際の公共事業に直接貢献する研究を紹介した後、小池センター長とユネスコセンターとしての活動等について意見交換を行いました。水災害リスクマネジメントを直接担当しない教育、科学、文化担当者に対して、現場実践を優先する ICHARM の取り組みを紹介する良い機会になったと考えています。

47th session of the Typhoon Committee in Thailand

The 47th session of the Typhoon Committee was held in Bangkok, Thailand, on February 9-13, 2015. The Typhoon Committee is jointly managed by the Economic and Social Commission for Asia and the Pacific (ESCAP) and the World Meteorological Organization (WMO) to promote international cooperation in the fields of meteorology, hydrology, disaster management, education, training and research for the prevention of typhoon-related disasters in southeastern Asian countries.



The 3rd Joint Session of ESCAP/WMO Typhoon Committee and WMO/ESCAP Panel on Tropical Cyclone

The 47th session was convened as the 3rd joint meeting with the Tropical Cyclone Panel of countries in southern and western Asia. A total of 109 representatives participated from 14 countries, 2 regions and 8 UN agencies, including 4 officials of the Japan Meteorological Agency (JMA) and two ICHARM Chief Researchers, Minoru Kamoto and Yoshio Tokunaga.

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In the plenary meeting, an annual report on typhoons in the areas of the member countries was presented. The below-average number of 23 tropical low pressure systems formed in 2014, out of which 11 systems developed into a typhoon and six typhoons eventually made landfall. In addition, JMA reported the progress in preparation of Himawari No.8, a meteorological satellite, scheduled to start its service next August.

Chief Researcher Kamoto, who has been the chair of the committee's Working Group on Hydrology, also reported on seven projects led by Japan, China or Korea. The plenary meeting also agreed that Chief Researcher Tokunaga will be the next chair of the working group and that Mr. Li Yan¹ of China and Mr. Cho Hyo Seob² of Korea will be the next vice-chairs. Among other announcements, the Working Group of Training and Research explained that they will hold a seminar on debris

台風委員会第47回会合が2015年2月9日～13日までの5日間、タイのバンコクで開催されました。台風委員会は東南アジア各国の台風災害防止に向けた、気象、水文、防災、教育、研修及び研究の5つの分野における国際協力の推進を目的として ESCAP 及び WMO が共同で運営しています。

今回は熱帯低気圧パネル(南・西アジアが対象国)との第3回合同会合を兼ね、14カ国、2領域、8国連機関等、合計109名の参加となりました。日本政府からは、気象庁から4名、そして ICHARM から加本上席研究員、徳永上席研究員の2名が参加しました。

全体会議では、台風委員会地域での2014年の台風の報告がされました。平均を下回る23個の熱帯低気圧が発生し、このうち11個が台風に発達して、6つは陸域にまで達しました。その他、日本の気象庁からはひまわり8号の今夏の運用開始に向けた準備状況の説明などが行われました。

加本上席研究員が議長を務める水文部会からは、日本、中国、韓国、それぞれの国が実施する7つの事業の活動報告、そして、徳永上席研究員の次期議長就任、Li Yan 中国水理部課長補佐及び Cho Hyo Seob 韓国国土交通部漢江洪水統制所河川情報センター長の次期副議長の任命が承認されました。また、研修及び研究調整部会が2015年11月ラオスで開催の「土石流・地すべり」セミナーを実施するため、日本の水文部会メンバー等が参加することになりました。

Information Networking

この他、台風委員会事務局長の Olavo 氏が今会議をもって退任、後任には中国気象局国際部顧問の Yu Jixin 氏が指名されました。

次の開催地について、2015 年 10 月下旬マレーシアで第 10 回統合ワークショップ、2016 年 2 月上旬ホノルルで第 48 回年次会合の開催が決まり、2017 年 2 月日本で 49 回年次会合が開催されることが提案されました。

flows and landslides in Laos in November 2015 and that some Japanese members of the Hydrology Working Group will join the event.

The 47th session was the last one for Mr. Olavo Rasquinho as the secretary of the Typhoon Committee, which will be assumed by Mr. Yu Jixin³ of China from the next time on. The schedule was also set for coming events: the 10th joint workshop will be held late October 2015 in Malaysia and the 48th committee early February 2016 in Honolulu, Hawaii. The proposal for holding the 49th session in February 2017 in Japan was also submitted in this session.

**1 Deputy Director, Division of Hydrological Forecasting Center, Bureau of the Hydrology, Ministry of Water Resources*

**2 Director of River Information Center, Han River Flood Control Office, Ministry of Land Infrastructure and Transport*

**3 Counsel of Department of International Cooperation, China Meteorological Administration*

(Written by Yoshio Tokunaga)

Visit to Ministry of Public Works and Housing, Indonesia

ICHARM では、平成 24 年度から文部科学省による研究プロジェクト「気候変動リスク情報創生プログラム」を実施しています。本プログラムにおいては、アジア 5 流域における気候変動下での洪水および濁水リスク評価を目標としており、その一つとしてインドネシア・ジャワ島のソロ川を対象流域として、IFAS (総合洪水解析システム) や RRI モデル (降雨流出氾濫モデル) や BTOP モデル (流出解析モデル) による流量、氾濫評価に関する研究を実施しています。

災害リスク評価のためには、気象・水文データ及び、家屋被害や人的被害など様々な詳細データが必要となりますが、このようなデータの取得にあたっては、データを管理する政府機関と信頼関係を築きながら、データ提供への協力を求めていく必要があります。

上記の背景のもと、2月9日から10日にかけて、澤野 上席研究員、栗林 主任研究員、津田 主任研究員がインドネシア公共事業・住宅省を訪問し、関係者への表敬訪問及びデータ入手の可能性を含めた打ち合わせを実施しました。

2月9日には、JICA の守安 専門家、渡辺 専門家、三浦 専門家、中尾 専門家、および片山 JICA 企画調査員とともに、公共事業・住宅省の Basuki Hadimuljono 大臣を表敬訪問し、ICHARM の活動を紹介しながら意見交換を行いました。大臣からは今年5月の「インドネシア水週間」への ICHARM の参加を求められるなど、ICHARM の活動に大きな関心を示されました。引き続き、水資源総局の Mudjiadi 総局長、Arie 水資源管理局長、および Made 河川計画課長など関係者を訪問し、創生プログラムでのソロ川における研究内容、ICHARM でのこれまでのインドネシア研修生の実入り状況の説明などを行うとともに、データ入手の依



Chief Researcher Sawano with Minister Basuki

ICHARM has been part of the Program for Risk Information on Climate Change, or the SOUSEI program, since 2012, which is led by the Ministry of Education, Culture, Sports, Science and Technology of Japan. One of the tasks is the assessment of flood and drought risk in five Asian rivers under climate change. The Solo River basin in Java Island of Indonesia is one of the study basins, in which

ICHARM has been conducting discharge and inundation assessment by using the Integrated Flood Analysis System (IFAS) and the Rainfall-Runoff-Inundation (RRI) model as well as drought assessment with BTOP model.

Accurate disaster risk assessment requires a diverse range of detailed data including hydrological and meteorological conditions and housing and human damage. Such data are usually managed by national organizations, so that it is important to build trust between ICHARM and the parties involved for good data collection.

To this end, ICHARM sent Chief Researcher Hisaya Sawano and Senior Researchers Daisuke Kuribayashi and Morimasa Tsuda to Indonesia on February 9-10, 2015, to visit its Ministry of Public Works and Housing, where they planned to meet with those in charge and discuss issues including the possibility of data collection.



Discussion with Dr. Arie and Dr. Made

On the first day, the ICHARM researchers paid a courtesy visit to Mr. Basuki Hadimuljono, the minister of Public Works and Housing, with JICA Experts Mr. Moriyasu, Mr. Watanabe, Mr. Miura and Mr. Nakao, and JICA Advisor Mr. Katayama, and exchanged views and opinions. The minister showed great interest in activities of

ICHARM and requested for its participation in Indonesia's Water Week, scheduled next May. They also met with Dr. Mudjiadi, the director general of Water Resources, Dr. Arie, the director of Directorate of Water Resources Management, and Dr. Made, the head of Subdit of Hydrology & Water Quality, and explained to them about the Solo River project of the SOUSEI program and ICHARM's training and educational programs in which Indonesian students have studied, as well as requested for

arrangement for data collection.

On February 10, ICHARM researchers also visited Mr. Sudarsono, a former section chief of a local Solo River office and a former section chief of disaster mitigation, and asked for detailed information on existing hydrological data about the Solo River.

The visit to Indonesia was very productive. The minister and all other officials were very interested in the activities of ICHARM and showed a positive response to our request for cooperation. In particular, Dr. Made quickly told a local office managing Solo River data to provide us with data we need.

ICHARM will continue building close partnership with governmental organizations in other countries to collect data we need to conduct research that accommodates local needs and conditions.

(Written by Daisuke Kuribayashi, Project led by Hisaya Sawano)

頼を行いました。

2月10日には、ソロ川の現地事務所元課長で、前災害軽減課長のSudarsono氏を訪問し、ソロ川において現存するデータの詳細について意見交換を行いました。

いずれの方も、ICHARMの研究内容について興味を持ち、協力について前向きに対応いただきました。Made課長からは早速、ソロ川のデータを管理する現地事務所へデータ入手の協力を直接依頼して頂けるなど、実りの多い訪問となりました。

ICHARMは今後も、このような政府機関との意見交換を行いながら、データ入手に努め、現地の実態に即した研究活動を行っていく予定です。

Visit by Afghan officials of Ministry of Energy and Water

On February 20, 2015, Mr. Sultan Mahmoud, the general director of Water Affairs Management of Afghanistan, visited ICHARM with 4 associate high officials of the Ministry of Energy and Water. The visit was part of the JICA counterpart training course entitled the Project for Capacity Enhancement on Hydro-Meteorological Information Management in Ministry of Energy and Water in the Islamic Republic of Afghanistan.

The visitors received a lecture and had discussion on activities of ICHARM, in particular, about the development of the Integrated Flood Analysis System (IFAS) and the sedimentation and erosion in rivers of Bangladesh.

(Written by Minoru Kamoto)

アフガニスタン国水文・気象情報管理能力プロジェクトカウンターパート JICA 本邦研修の一環として、Mr. Sultan Mahmoud 水管理局長を含む、水エネルギー省の準高官 5 名が、2月20日に ICHARM を訪問しました。

ICHARMの研究概要、特に IFAS(総合洪水解析システム)の開発、Bangladeshの河川の堆砂・浸食の研究を紹介し議論を行いました。

PAGASA-UNESCO seminar in the Philippines

On February 24-26, 2015, the International Seminar on Enhancing Resilience against Multi-Hazards through Effective Mitigation Systems and Adaptation Strategies was jointly convened by UNESCO and the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA). Chief Researchers Masahiko Murase and Yoichi Iwami and Senior Researcher Morimasa Tsuda attended the meeting from ICHARM.



Chief Researcher Murase

The seminar was held to discuss how to improve the coping capacity for multiple disasters in light of lessons learned from Typhoon Haiyan, which hit the Philippines in 2013 and caused an unprecedented catastrophe due to huge storm surges and other hazards, affecting about 11 million people and claiming the lives of over 6,000.

Three ICHARM researchers delivered a presentation at the meeting. Chief Researcher Murase first expressed his heartiest congratulations on organizing the seminar on behalf of the International Flood Initiative (IFI), a global effort in integrated flood control, which ICHARM serves as its secretariat. He then spoke about the current activities of IFI. Chief Researcher Iwami presented the characteristics of damage caused by floods, storm surges and tsunamis that Japan has ever experienced as well as lessons and efforts to reduce disaster damage in consideration of

2015年2月24日から26日にかけて、フィリピンで開催された PAGASA(フィリピン大気地球物理天文局)、ユネスコのセミナー、“International seminar on enhancing resilience against multi-hazards through effective mitigation systems and adaptation strategies”に、村瀬上席研究員、岩見上席研究員、津田主任研究員の3名が参加しました。

このセミナーは、2013年にフィリピンにおいて発生し、高潮等により約11百万人以上が影響を受け、死者6000人を超える甚大な被害が生じた、台風ハイアンの教訓を踏まえて、複合的な災害への対応能力の向上をテーマとして開催されました。

村瀬上席研究員からは、世界の統合洪水管理を推進するIFI(国際洪水イニシアチブ)の事務局として本セミナー開催を大いに歓迎した上で、IFIの現在の取り組みについて報告を行いました。岩見上席研究員からは、日本が経験した洪水、高潮、津波災害の特性及びその特性に応じた被害軽減のための取り組み例や教

Information Networking

訓を紹介しました。津田主任研究員からは、ICHARM で開発を続けている、IFAS（総合洪水解析システム）、RRI（降雨流出氾濫モデル）、BTOPモデル等の洪水予警報・流出解析モデルや、ユネスコパキスタンプロジェクトで構築した洪水予警報システム「Indus-IFAS」の報告を行いました。さらに、ICHARM がGRIPSと共同で開設している、修士課程の卒業生である SANTY B. FERRER 氏（NIA-UPRIIS, Dam and Reservoir Division）、BASILAN Emar Guevara 氏（Mines and Geosciences Bureau）からも、ICHARM での研究内容についての報告が行われました。

セミナーには、フィリピンの防災関係機関のほか、大学生らも多数参加し、災害被害軽減に向けて、活発な意見交換がなされました。



Chief Researcher Iwami

SANTY B. FERRER (NIA-UPRIIS, Dam and Reservoir Division) and Mr. Emar Guevara Basilan (Mines and Geosciences Bureau), who graduated from the master's program jointly organized by ICHARM and the National Graduate Institute for Policy Studies (GRIPS), also reported on their research at ICHARM.

The seminar was joined by many college students as well as personnel from disaster management agencies of the country, who actively participated in discussions on disaster damage reduction.

(Written by Morimasa Tsuda)

Visit by Ethiopian professor

2015年3月6日、エチオピア、アジスアベバ大学ケベベ准教授と同志社大学グローバルリソースマネジメント中田准教授が ICHARM を訪問し、災害被害と地域の開発、実務者育成の現状について意見交換を行いました。

ICHARM からは研究、研修及び情報ネットワークについて説明し、エチオピアからも2008～2010年に修士学生を受け入れていることを含めて活動の紹介を行いました。エチオピアでは洪水や土砂災害が常態化しており、一度整備されたインフラも損壊した状態が放置されており、災害対応と施設の管理を主体的に行う人材、機関が不十分であることが最も深刻な問題として提起されました。

今後も ICHARM はさまざまな地域での現地実践を通して、水災害被害軽減に貢献していきたいと考えています。



Visitors from Addis Ababa University (Center) and Doshisha University (Left) at ICHARM

On March 6, 2015, Dr. Seifu Kebebe, an associate professor of Addis Ababa University, Ethiopia, and Dr. Masami Nakata, an associate professor of Doshisha University Global Resource Management, visited ICHARM to discuss natural disasters and regional development as well as capacity building for practitioners.

ICHARM's activities of research, training and information networking were outlined to them, including the participation of Ethiopian students in the master's degree program in 2008-2010. Frequent floods, sediment disasters and poor infrastructure maintenance have been affecting Ethiopia, significantly because there is lack of institutions and human resources for disaster risk reduction and infrastructure maintenance.

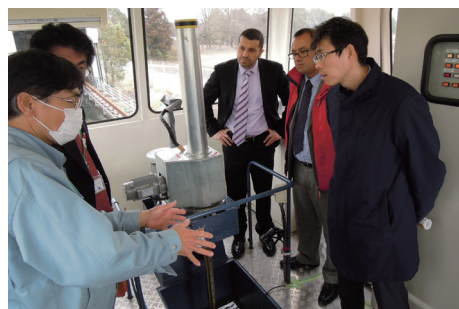
ICHARM will contribute to their efforts toward water-related disaster risk reduction based on field activities in various regions through such communication.

(Written by Masahiko Murase)

Visit by officials of UNESCO headquarters in France

2015年3月10日、ユネスコ本部よりマカリガキス課長他2名の専門家が ICHARM を訪れ、ICHARM の実験施設を視察し、センター長を表敬訪問しました。

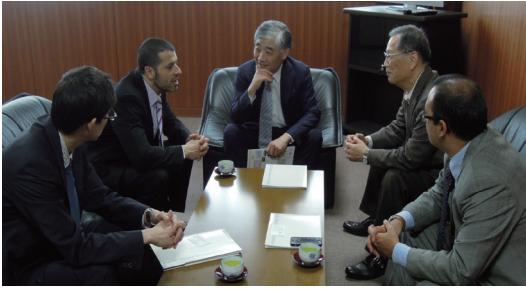
流速計検定施設では ICHARM が行う水文観測における品質確保の取組みを紹介した後、小池センター長他と水災害防止における科学技術の貢献、ユネスコセンターとしての活動等について意見交換を行いました。



Visitors from UNESCO headquarters at ICHARM current meter calibration facility

On March 10, 2015, Dr. Alexandros K. Makrigakis and two other experts from the UNESCO headquarters visited ICHARM. They were showed around ICHARM experiment facilities and received a brief explanation about quality management on hydrological observation at ICHARM's current meter calibration facility.

After that, they paid a courtesy visit to ICHARM Director Toshio Koike and discussed



Discussion with visitors from UNESCO headquarters at ICHARM

the roles of science and technology for disaster risk reduction, as well as activities of UNESCO centres.

It was a great opportunity to share ideas and knowledge on disaster risk reduction just before the 3rd UN World Conference on Disaster Risk Reduction, which took place in Sendai, Japan, in the following week.

(Written by Masahiko Murase)

翌週から開催される第3回国連世界防災会議を控えて、防災に関する知見、情報の重要性を確認する良い機会になったと考えています。

Visit by Negeri Lima mayor of Indonesia



Negeri Lima mayor Pesihatu (Right)

On March 17, 2015, Mayor Pesihatu of Negeri Lima Village of Ambon Island, Indonesia, visited the Public Works Research Institute (PWRI). He met with PWRI Acting Chief Executive Hiroshi Fujisawa (as of the date above) and expressed his gratitude for the contribution of PWRI to disaster prevention efforts before the large-scale sediment disaster that eventually hit the village.

The disaster occurred on July 25, 2013, when the natural dam that resulted from a landslide about a year before collapsed. The debris flow hit the village downstream, where about 5,000 people lived at that time, and washed out more than half of the village in no time. Despite the scale of the disaster, there were only three victims thanks to disaster prevention efforts including advice from PWRI experts and satellite-based monitoring of the water level of the natural dam.

Along with this courtesy visit, Mayor Pesihatu had a presentation with ICHARM Chief Researcher Yoshio Tokunaga for PWRI and other experts, outlining the disaster and explaining related issues they currently face.

(Written by Yoshio Tokunaga)

2015年3月17日、インドネシア アンボン島のヌグリリマ村ペシハトゥ村長が土木研究所を訪れ、藤澤理事（当時）に対して同村で発生した大規模土砂災害への土木研究所の貢献に対して謝意が述べられました。

2013年7月25日、その約1年前の地すべりでできた天然ダムが決壊、下流の5,000人が住む村を直撃して瞬間に村の半分以上を流失させる大規模な土砂災害が発生したものの、災害発生までの土木研究所の専門家のアドバイスや衛星を活用した天然ダム湖水位観測の実施により、犠牲者は僅か3名にとどまったという貢献に対してです。

表敬に併せ、ICHARM 講堂において、ペシハトゥ村長と徳永上席研究員による災害概要と現状の課題について説明会が開催されました。

Visit by MJIT Professor of Malaysia

On March 27, 2015, a party of six people, led by Professor Rubiyah Yusof, from the Malaysia-Japan International Institute of Technology (MJIT) visited ICHARM to collect information about its master's program on disaster management.



Discussion with visitors from MJIT

MJIT is a part of the Universiti Teknologi Malaysia (UTM) and planning to set up a master's program on disaster management. Though it belongs to UTM, MJIT places a primary focus on graduate-level education and expected to be not only ASEAN's but also international hub of engineering education in a long-term perspective. It is also looking at the further development of the institute as a multi-joint project involving the sectors of industry, government, academia and private corporations in collaboration with the industrial sectors of Japan and Malaysia. MJIT officially started on September 12, 2011, with the current enrollment of 856 students, comprising 513 undergraduates and 343 graduates.

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(Written by Minoru Kamoto)

2015年3月27日にマレーシア工科大学 (UTM) の中に設置されているマレーシア日本国際工科院 (MJIT) の Prof. Dr. Rubiyah Yusof, Dean (Ms) 他5名が、防災の修士課程開設のための情報収集で ICHARM を訪問されました。

MJIT は、大学院に重点を置いた学術機関 (工科院) として設置され、長期的には ASEAN を含めた国際的な工学教育のハブ化、日・マレーシア産業界も関与する産官学民プロジェクトへの育成も視野に入れているとのこと。2011年9月12日に開校され、現在の学生数は、学部が513名、大学院が343名、合計で856名です。

Local Practices

ADB Myanmar project (TA8456) update: Training on RRI Model and Storm Surge Model

ADB TA-8456 プロジェクトの一環として、2015年2月16～20日にかけて、ミャンマーの首都ネピドーの運輸省気象水文局 (DMH: Department of Meteorology and Hydrology) において、その職員と農業灌漑省灌漑局 (ID: Irrigation Department) 職員を対象に、プロジェクト対象3都市 (ヤンゴン、モラミヤイン、マンダレー) を含む流域での RRI モデル (降雨流出氾濫モデル) と高潮モデル構築のトレーニングを実施しました。RRI モデル構築のトレーニング (2/16～2/18) には 15 名 (DMH12 名、ID3 名)、高潮モデル構築のトレーニング (2/19～2/20) には 6 名 (DMH3 名、ID3 名) が参加しました。

トレーニングは、モデルの構築及び精度向上とモデル出力の利用について学ぶことを目的としました。トレーニングにより、気象水文局職員、灌漑局職員がモデルを理解し、自らモデルを修正出来るようになるとともに、職員の水文気象学的分析能力が向上することで、今後、ハザードマップ作成など、組織としての洪水リスク管理に関わる取り組みが促進されることが期待されます。

今回のトレーニングにおいて、参加者全員がプログラムをすべて修了することができました。トレーニング終了後に実施した水文気象学的分析についての質問等を通し、トレーニングにより水文気象学的理解が進んだことが確認できました。RRI モデルトレーニングについて受講者からは、よく理解できたとする一方で、「独力で RRI を完全に操作できるようになるには、よりトレーニングが必要と感じた」、「様々なケースにおいて RRI を活用するには、もっと実習実践の時間が必要だと感じた」等の意見が出されました。また RRI、IFAS (総合洪水解析システム)、GIS といった様々な技術を、より高度に研鑽する機会が欲しいとの意見も提出されました。これらの意見については、今後の一連の ICHARM が行うトレーニングでも参考にしていく予定です。

今回の3都市を対象としたモデル構築は簡略化したものですが、今後プロジェクトでは、実際のシミュレーションに適したスケールでのモデル構築を進め、その過程にトレーニングの一環としてミャンマー側も参加することで、モデルに関しより一層理解が進むことを目指す予定です。

ICHARM conducted capacity development training, as part of the technical assistance project (ADB TA8456) funded by the Asian Development Bank, at the Department of Meteorology and Hydrology (DMH) in Nay Pyi Taw, Myanmar, on February 16-20, 2015. The objective of the training was to enhance skills of officers from DMH and the Irrigation Department (ID) in order to develop a Rainfall-Runoff-Inundation (RRI) model and a storm-surge model for the river basins where three targeted cities, Yangon, Mawlamyine and Mandalay, are located. More specifically, the training aimed for the participants to learn the development of the models, improvement of model accuracy and use of model outputs. A total of 15 officers (DMH:12, ID:3) joined the RRI Model Training (February 16-18), and a total of 6 officers (DMH:3, ID:3) joined the Storm Surge Model Training (February 19-20). Through the training, they were expected to understand how the models work and to learn how to calibrate them. This way, individual capacity of hydro-meteorological analysis will be enhanced, which will in turn increase organizational capacity for flood risk management including flood forecasting and flood hazard mapping, in the future.



Training participants

In this training, all participants managed to complete the training program. Through questions asked about hydro-meteorological analysis at the end of the training, it became clear that their understanding on the subject improved a great deal. The participants of the RRI model training made positive comments on the improvement in their understand-

ing of the model. However, they were also aware that more training would be necessary to fully master it for its future application in their work, and that they should spend more hours with the model to cope with different cases. Some even asked for more opportunities to further strengthen their skills with advanced technologies such as RRI, IFAS and GIS. The feedback from the participants will be considered when we plan this series of training workshops.

Simplified models were developed for the basins containing the three cities for the purpose of training, but full-scale models will be developed to conduct real simulation at the scale that would be suitable for this project. The officers will be also participating in that process as part of their training, which is expected to increase their understanding of the models even more.

(Written by Yusuke Yamazaki, Project led by Hisaya Sawano)

Research

Thai Hydrologist Association 2015 in Thailand

2015年1月28日から30日にかけて、気候変動と水管理に関する国際会議「THA 2015 Climate

The THA 2015 International Conference on "Climate Change and Water & Environment Management in Monsoon Asia" was convened on January 28-30, 2015 in Bangkok, Thailand.



THA2015 in Thailand

This international conference was hosted by the Thai Hydrologist Association with support from other organizations including ICHARM. Approximately 400 people attended the meeting and roughly 60 oral and poster presentations were made. Senior Researcher Takahiro Sayama of ICHARM participated and delivered a keynote speech on assessment of climate change impact on flood risk in the Chao Phraya

River basin in Thailand, which is also one of the research themes in the Program for Risk Information on Climate Change, or the SOUSEI Program, led by Japan's Ministry of Education, Culture, Sports, Science and Technology. The ASEAN Workshop was also held during the conference period, in which researchers and practitioners in the field of climate change and water management gathered and discussed ideas for strengthening the academic networking among the ASEAN countries.

The conference prepared four major themes for discussions: 1) Climate change and uncertainties in hydrology and meteorology; 2) Participatory water management; 3) Latest technologies in water management and environment; and 4) Water-related disaster management. Many of the presentations directly addressed water issues in Asian countries, ranging widely from analysis of climate change projections to groundwater management.

On Day 3, a study tour was organized. Participants visited "Monkey Cheek," a flood control basin using rice fields, and learned its management system, with an explanation by the Royal Irrigation Department, Kingdom of Thailand.

(Written by Takahiro Sayama)

Change and Water & Environment Management in Monsoon Asia」がタイ・バンコクにて開催されました。

この会議はタイ水文学会 (Thai Hydrologist Association) が主催し、ICHARM も開催を後援しました。総勢約 400 名が出席し、60 件程の口頭発表とパネル展示がありました。

ICHARM からは佐山主任研究員が出席し、創生プログラムでも進めている、タイ・チャオプラヤ川流域を対象にした気候変動による洪水リスクの影響評価について基調講演を行いました。会議中には ASEAN Workshop と題して気候変動・水管理の研究者・実務者が一堂に会する機会が設けられ、関係国の学術ネットワーク構築に関する議論が繰り広げられました。

会議全体のテーマは大きく 4 つありました。1) 気候変動と水文・気象の不確実性、2) 参加型の水マネジメント、3) 水管理・環境分野の最新技術、4) 水災害マネジメントです。研究発表はアジア諸国の水問題に直接関係するものが多く、気候変動予測の分析や地下水管理など多岐に渡りました。

3 日目には現地見学会も開催され、モンキーチークと呼ばれる水田を利用した遊水地を訪問し、タイ王立灌漑局からその管理体制なども含めて詳しい説明がありました。

Workshop on Flood Contingency Planning with Evidence-based Simulation in the Philippines



Presentation by ICHARM

The ICHARM Risk Management Team has been providing assistance in the development of an emergency response plan for Calumpit Municipality, the model area selected for this project, located in the Pampanga River basin in Bulacan Province of the Philippines. This project is intended to improve recovery efforts after a natural disaster and enhance local resilience to natural hazards by planning essential administrative responses in timeline appropriate to disaster situations based on flood

inundation simulation. On February 24, 2015, the "Workshop on Flood Contingency Planning with Evidence-based Simulation" was held at the Calumpit Municipal Office to report the progress in the development of the emergency response plan proposed by ICHARM and exchange views on related issues. The workshop was attended by about 75 participants ranging from municipal disaster management personnel to local community leaders.

Mayor Hon Jessie P. de Jesus first greeted the participants of the workshop, followed by ICHARM Chief Researcher Hisaya Sawano, who explained the purpose of the meeting. ICHARM Researcher (now Senior Researcher) Badri Shrestha presented the results of flood inundation simulation over Calumpit Municipality by using the Rainfall-Runoff-Inundation model.

ICHARM リスクマネジメントチームでは、フィリピン共和国パンパンガ川流域に位置するブラカン州カルンピット市をモデル地域として、洪水災害対応計画の作成支援を行っています。洪水氾濫シミュレーションに基づき、災害状況に応じて必要となる行政対応を事前に想定しておくことで、発災後のすみやかな復旧活動や地域のレジリエンスの向上を目指しています。

2015年2月24日に、カルンピット市役所内にて、成果報告と意見交換を目的としたワークショップ「Workshop on Flood Contingency Planning with Evidence-based Simulation」を開催しました。ワークショップには、市役所の災害対応担当部署の職員やコミュニティーのリーダーなど、総勢75名が参加しました。

まず初めに、市長 Hon Jessie P. de Jesus 氏の開会の挨拶の後、澤野 上席研究員が趣旨説明を行いました。続いて、Shrestha 研究員（現主任研究員）が RRI モデル（降雨流出氾濫モデル）を用いたカルンピッ

Research / Training

ト市内での洪水氾濫シミュレーションについて報告しました。

また、大原主任研究員が、洪水氾濫シミュレーションに基づき、時間経過に応じた緊急復旧対応をまとめた「洪水対応シナリオ」の提案を行いました。洪水対応シナリオは、「浸水想定マップ」、「各コミュニティでの浸水深さを示した浸水チャート」、「災害対応計画」という3つの機能により構成されます。本市は、あらかじめ電柱を地面から2フィートごとに3色（黄：0-2ft、赤：2-4ft、緑：4ft以上）に色付けしておくことで、浸水の程度を一目でわかるようにし避難誘導に活用するコミュニティ警報システムを有しています。よって、マップやチャートではこの3色を用いて浸水高さを示し、既存のシステムと提案シナリオとの融合を図りました。

これらの説明の後、参加者を4班に分け、約1時間のグループディスカッションを行いました。各班からは、時系列での表現は大変有用であるとの意見を得るとともに、いくつかの示唆も得ました。今後は、これらの示唆に基づいて、提案シナリオの改善とマニュアル化を行う予定です。



Power pole painted in three colors

ICHARM Senior Researcher Miho Ohara proposed the Flood Contingency Scenario, which comprises a timeline of emergency responses arranged based on the results of the flood inundation simulation. The proposed scenario consists of three key components: Flood Inundation Map, Inundation Water Chart for each community and Emergency Response Scenario. Since the municipality has painted power poles in three different colors by every two feet (i.e., 0-2 ft in yellow, 2-4 ft in red and over 4 ft in green) to visualize the level of danger and uses them as part of the community warning system to help residents with decision-making for evacuation, ICHARM attempted to incorporate the existing system into the scenario by using its color classification for the proposed map and chart to show the flood depth.

After the presentations, the participants were divided into four groups to discuss the proposal and other related issues for about an hour. All participants recognized the usefulness of the Flood Contingency Scenario for the chronological arrangement of emergency responses in addition to some other recommendations. We are planning to make further improvement on the proposed scenario and develop a manual to apply this method to other flood prone areas.



Presentation after the group discussion

(Written by Miho Ohara, Project led by Hisaya Sawano)

FY2014 SOUSEI annual meeting

2015年1月28日に「気候変動リスク情報創生プログラムの平成26年度研究成果報告会」が国連大学 ウ・タント国際会議場で開催されました。

気候変動リスク情報創生プログラムは、地球シミュレータ等の世界最高水準のスーパーコンピュータを活用し、気候変動予測の信頼性を高めるとともに、気候変動リスクの特定や生起確率を評価する技術、気候変動リスクの影響を多角的に評価する技術に関する研究等を推進し、気候変動によって生じる多様なリスクのマネジメントに資する基盤的情報の創出を目的としています。

ICHARMからは鈴木グループ長が研究テーマD領域「課題対応型の精密な影響評価」の自然災害に関する気候変動リスク情報の創出の1課題である「アジアにおける水災害リスク評価と適応策情報の創出」について、パンパング川流域の力学的ダウンスケーリングの結果、チャオプラヤ川流域における将来気候変動の影響等に関する報告を行いました。

The Program for Risk Information on Climate Change (the SOUSEI program) held an annual research results presentation meeting for fiscal year 2014 on January 28, 2015, at the U Thant International Conference Hall of the United Nations University.

The SOUSEI program aims to improve the reliability of climate change projection by means of world-class super computers such as the Earth Simulator, and produce basic information for the management of various risks arising from climate change. To achieve these goals, it promotes the development of technologies to identify climate change risks and assess occurrence probabilities, and encourages research on technologies to assess the impact of climate change risks from multiple perspectives.

ICHARM Deputy Director Atsushi Suzuki participated in the meeting and reported the results from research on the impact of future climate change in the Chao Phraya River basin by using a dynamic downscaling approach. ICHARM has been involved in studying water-related disaster risk assessment in Asia and production of information for adaptation, which is one of the tasks focused on the production of climate change risk information related to natural disasters and categorized in Theme D of precise impact assessments on climate change.

(Written by Youji Chida)

Training

Follow-up seminar in Indonesia

ICHARMでの研修を修了した帰国研修生・卒業生に対するフォローアップ活動として、年1回現地国を訪問してセミナーを開催しています。こ

ICHARM convenes an annual seminar in a country of graduates from ICHARM educational programs to provide follow-up assistance. Follow-up seminars are a great opportunity for ICHARM to see how they are using what they learned at ICHARM

and to learn actual issues they face in their local practice, which later help ICHARM to improve its training programs and enhance its research activities.

The seminar for fiscal 2014 was held in Jakarta, Indonesia, on March 3-4, 2015, in collaboration with the Water Resources Department of the Ministry of Public Works and Housing of Indonesia, the JICA Indonesia Office and other JICA experts in integrated water-resources policy. Four out of seven graduates from our master's program joined the seminar along with personnel of the Public Works and Housing Ministry participating as observers.

On the first day, ICHARM Chief Researcher Minoru Kamoto gave a greeting speech with Mr. Hideki Katayama, an adviser of JICA Indonesia, and Ir. Hartanto. Dipl. He., the secretary of the director general of Water Resources. Then, three speakers, including ICHARM Research and Training Advisor Shinji Egashira, delivered



Participants in the follow-up seminar

a special presentation, followed by six category-A general presentations including water-related issues in Indonesia. ICHARM Chief Researcher Yoshio Tokunaga facilitated the meeting, mixing Indonesian from time to time. On the second day, the master's program graduates made a presentation along with category-B general presentations including flood risk management in Jakarta.

(Written by Minoru Kamoto)

の目的は、帰国研修生がどのように研修成果を活用しているかを確認するとともに、彼らが直面している現地での課題を共有し、それらを研修プログラムや研究活動に活かすこととしています。

平成 26 年度は、インドネシアジャカルタにおいてインドネシア公共事業・住宅省水資源局、JICA インドネシア事務所及び JICA 専門家（水資源総合政策）の協力を得て 2015 年 3 月 3～4 日にかけてセミナーを実施しました。セミナーには、過去の修士課程に在籍した 7 名のうちの 4 名の他、公共事業・住宅省からオブザーバー参加をいただきました。

1 日目は、加本 上席研究員、片山 英城 JICA インドネシア・アドバイザー 及び、Ir. Hartanto. Dipl. He. (Secretary of Director General of Water Resources) からの開会の辞に引きつづき、江頭 研究・研修指導監の講演を含む特別講演 3 題、およびインドネシアの水問題等の一般講演 A の 6 題を行いました。総合司会はインドネシア語を交えて、徳永 上席研究員が行いました。2 日目は、卒業生からの発表およびジャカルタの洪水対策等の一般講演 B を行いました。

Field Tour and participation in WCDRR in Japan

Two doctoral students and 13 master's students in ICHARM's educational programs attended a public forum session in the third United Nations World Conference on Disaster Risk Reduction (UNWCDRR), held on March 14-18, 2015, in Sendai, Japan. They were currently studying in ICHARM's doctoral or master's program on disaster management policy, which ICHARM organizes in collaboration with the National Graduate Institute for Policy Studies (GRIPS).

On March 14, they participated in the 4th session of the conference's public forum, "Disaster Management Policies – Preparedness against Large Tsunami and Earthquakes," in which two doctoral students and three master's students delivered a presentation. (Please refer to 4 page on this issue)



Ishinomaki City, Disaster hit area

On the following day, they had a chance to visit Ishinomaki City, which was devastated in the Great East Japan Earthquake. They first went to a hill called Hiyoriyama, from which they had a full view of downtown Ishinomaki and briefly learned about the land form and damage by the calamity in the area. They visited several other places around Ishinomaki, one of which is the remain

of Kadowaki Elementary School, where they were shown some photos at the time of the earthquake and tsunamis, listened to people who survived the disaster, and saw the ongoing reconstruction firsthand.

(Written by Takashi Shirai)

政策研究大学院大学 (GRIPS) と ICHARM が連携して実施している、博士課程「防災学プログラム」の学生 2 名及び修士課程「防災政策プログラム水災害リスクマネジメントコース」(JICA 研修「洪水防災」)の学生 13 名は、3 月 14 日から仙台で開催された第 3 回国連防災会議における、GRIPS が主催する国連防災会議関連パブリックフォーラム学生セッションに参加しました。参加学生のうち、博士課程の学生 2 名及び修士課程の学生 3 名が発表を行いました。(本誌 4 ページ参照)

翌日 15 日には、東日本大震災で甚大な被害を受けた石巻市を視察しました。まず最初に石巻市街地を一望できる日和山で地形や被害概要を把握した後、旧門脇小学校跡などを訪れました。そこでは、被災時の写真や生存者の証言から当時の状況を想像するとともに、現地の復興の状況を体感しました。

New ICHARM Members

Mohamed Rasmy Abdul Wahid

Senior Researcher

Sri Lanka



I am pleased to be a member of ICHARM from April 2015. While I was at the University of Tokyo, I worked in earth system models, earth system monitoring technologies, and implementing those techniques in developing countries.

I am looking forward to team up with all the members to succeed ICHARM's mission through knowledge sharing and developing integrated tools to predict/manage water hazard events early in time and thus to support sustainable developments around the world.

Four new members joined ICHARM.

They would like to say brief hellos to the readers around the world.

Hitoshi UMINO

Senior Researcher

Japan



I am pleased to come back to PWRI and to join ICHARM in April 2015. While I was out of PWRI, I was engaged in the project of Kasumigaura Water Conveyance Work Office.

I would like to do my best to make progress of ICHARM's research activities and to develop my research skills. I appreciate you for your kind consideration and good cooperation.

Karina VINK

Research Specialist

Netherlands



I returned to ICHARM as a research specialist in March after graduating as Ph.D. last September.

I'm very happy to continue to work on disaster and vulnerability indicators, and I am looking forward to our development of a global methodology for accurate risk estimates and applying it in developing countries together.

Yoshihiro SHIBUO

Research Specialist

Japan



Very glad to join the international research hub of water hazard management. I will be working as a training team member.

My research interest is how information from big data combined with model predictions can be used to mitigate water disaster damage.

Annual Hanami lunch outing

On April 6, ICHARM held an annual Hanami (cherry-blossom viewing) lunch outing to encourage more interaction between overseas trainees and people at ICHARM and PWRI. With great weather and a great turnout, it was a wonderful opportunity for the trainees to get to know more people as well as enjoy the air of festivity unique to this season.

外国人研修員との交流を目的とした花見会を4月6日のお昼休みに行いました。花見会は好天に恵まれ、小池センター長を始め、魚本理事長他幹部の方々を交え大勢参加されました。満開の桜の下、風が吹くたびに花吹雪が舞う中での、談笑のひとつときに、外国人研修員も日本の春の風情を十二分に満喫できたことと思います。



Leaving ICHARM

今村 能之 上席研究員
佐山 敬洋 主任研究員
上米良 秀行 専門研究員

Yoshiyuki IMAMURA : Chief Researcher
Takahiro SAYAMA : Senior Researcher
Hideyuki KAMIMERA : Research Specialist

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* January - March 2015.

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To subscribe or unsubscribe to our mailing list, please contact us at: icharm@pwri.go.jp
1-6 Minamihara, Tsukuba, Ibaraki 305-8516, Japan
Tel: +81 29 879 6809 Fax: +81 29 879 6709 URL: <http://www.icharm.pwri.go.jp/>

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〒305-8516 茨城県つくば市南原 1-6 国立研究開発法人土木研究所 ICHARM (アイチャーム)
Tel: 029-879-6809 Fax: 029-879-6709 Email: icharm@pwri.go.jp