

Newsletter



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ICHARM

International Centre for Water Hazard and Risk Management
under the auspices of UNESCO

Message from Executive Director

Water as a Connector



At the International Forum on Big Data for Sustainable Development Goals in Beijing on September 6, 2026

第6回SDGsのためのビッグデータ国際フォーラムにて
(北京、2026年9月6日)

Throughout history and across cultures, water has been regarded as a "fundamental principle" within various systems of thought. Thales, often referred to as the father of Western philosophy, claimed that water is "the origin of all things" (arche), and Laozi, a founder of Taoism, taught that "the highest good is like water." Regarding the fluidity of water, Heraclitus, a philosopher known for the concept that "everything is in flux" (panta rhei), is said to have remarked, "You cannot step into the same river twice." Similarly, Kamo no Chōmei, the author of the *Hōjōki* (a seminal work of Japanese medieval literature), wrote, "The flow of the river never ceases, yet the water is never the same." These two perspectives are strikingly similar.

Across their many differences, various religions have viewed water as a means of purification, a source of life, and a bridge to the sacred. In some traditions, such as the Spring of Lourdes in Catholicism or Zamzam Water in Islam, water is believed to have healing properties. In other instances, such as the biblical account of Noah's Flood or the Hindu myth of Manu's Flood, water serves to wash away the existing world, paving the way for a new world and a new humanity. Similarly, Buddhist scriptures describe water, alongside fire and wind, as one of the three great calamities that destroy the world prior to its recreation.

Water is essential for maintaining the body's internal environment and plays a vital role in physical and mental well-being, facilitating stress reduction and relaxation. Furthermore, improving access to safe water and mitigating the risks of water-related disasters helps to secure educational opportunities, boost labor productivity, and address social challenges such as poverty, gender inequality, and conflict. In this way, water is a central element connecting various levels of life, from the most fundamental requirements for biological survival, to economic factors, and ultimately to higher-order social well-being.

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Water bestows blessings upon society but can also pose a threat through water-related disasters. In this sense, water is a double-edged sword. The management of water, encompassing everything from its daily use to too much water (flooding) and too little water (drought), has shaped fundamental global concepts, including those concerning philosophy, religion, and the relationship between the individual and the community. Some suggest that this is why the four great ancient civilizations emerged along the banks of major rivers. Today, however, climate change has undermined the assumption of stationarity, a cornerstone of traditional water management, rendering past experience alone insufficient for addressing current challenges. In this context, we must revisit the concept of water as a connector. We need to quantify the relationships mediated by water and scientifically analyze the processes through which changes propagate. Using this understanding, we can guide the governance of our society.

水はコネクター

古今東西、水はさまざまな思想体系で「根源的な原理」として扱われてきました。西洋哲学の祖とされるタレスは「万物の根源（アルケー）は水である」と述べ、老子は「上善は水の若し」と説いています。水の流動性については、「万物は流転する（パンタ・レイ）」の思想で知られるヘラクレイトスは「同じ川に二度入ることはできない」と述べたとされます。中世日本の代表的随筆である『方丈記』を記した鴨長明は、「ゆく河の流れは絶えずして、しかももとの水にあらず」と表し、両者は驚くほど類似しています。

多くの宗教は、その違いを超えて、水を「清め」「生命」「聖なるものとの媒介」として捉えてきました。カトリックの「ルルドの泉」やイスラム教の「ザムザムの水」のように「癒しの水」とみなす例がある一方、聖書のノアの洪水やヒンドゥー教のマヌの洪水神話のように、水が世界を一度洗い流し、新しい世界や人間を始めるという共通の構造も見られます。仏典においても、火・水・風の三災によって世界が壊滅し、再び成立すると説かれています。

水は「体内の環境を整える土台」であるとともに、ストレス軽減やリラクゼーションとも結びついて、身体的・精神的ウェルビーイングに重要な役割を果たします。また、安全な水へのアクセスの改善や水災害リスクの軽減によって、教育機会が確保され、労働生産性が向上し、貧困やジェンダー格差、紛争など社会的課題の解決にもつながります。このように、生存に不可欠な最も基礎的なレベルから、経済的次元、さらに高次の社会的ウェルビーイングに至るまで、水はさまざまな階層をつなぐ中心的な役割を担っています。

社会に恵みをもたらす水は、水災害を通して社会への脅威ともなるため、「もろ刃の剣」とも言われます。平時の水利用から、水が多すぎる洪水、少なすぎる渇水まで、振れ幅の大きい水の管理を通して、思想、宗教、個人と共同体の関係など、世界に共通する考え方が形成されてきました。このことが、四大文明が大河のほとりに生まれた理由であるとも言われています。気候変動により、水管理の大前提であった定常性が失われ、これまでの経験だけでは対応できなくなっています。こうした今こそ、「水はコネクター」であることを改めて理解し、水を介した関係を定量化したうえで、変化が伝わっていく過程を科学的に捉えて社会を運営していく必要があります。

October 30, 2026
KOIKE Toshio
Executive Director

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● Special Topics

Special contribution

As ICHARM celebrates its 20th anniversary, Dr. IKEDA Tetsuya has contributed an article to the ICHARM Newsletter, reflecting on the background to ICHARM's establishment, the discussions and deliberations that took place during its preparatory stage, and some memorable episodes from those formative years.

Dr. Ikeda was previously with the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and was deeply involved in the establishment of ICHARM even before its official launch. From July 2003 to March 2005, while serving as a senior researcher at the Public Works Research Institute (PWRI), he played a key role in coordinating with MLIT headquarters and other relevant organizations, building domestic and international networks, and preparing for the activities of the centre as an international institution.

After ICHARM was officially launched, he continued to support its development and international outreach, serving as a chief researcher from April 2017 to March 2020 and later as the director for special research from April 2020 to June 2022.

The following is his contribution to the newsletter.

特別寄稿

元国土交通省職員の池田鉄哉氏は、ICHARM が正式に発足する前から土木研究所の主任研究員（2003.7~2005.3）として本省をはじめとする関係機関との調整や国内外のネットワーク構築、国際センターとしての活動準備など、ICHARM の設立に向けて深く携われました。

また ICHARM が設立された後においても、上席研究員（2017.4~2020.3）、特別研究監（2020.4~2022.6）として、ICHARM の国際活動の推進にご尽力いただきました。

今回、ICHARM 設立 20 周年を迎えた機に、設立準備当時の背景やエピソードなど、どのような議論がなされ、検討が行われたのかを振り返っていただきました。



This and That from Twenty Years Ago: Reflections on the Early Days 20 年前のあれやこれや — 今日からの振り返り

IKEDA Tetsuya
池田 鉄哉

I am delighted to celebrate the 20th anniversary of ICHARM. I would like to express my sincere respect and gratitude to all those who have played proactive roles in its activities or supported its work as partners over the past 20 years. Preparations for the establishment of ICHARM began in response to a commitment announced by the director-general of UNESCO at the 3rd World Water Forum in March 2003, and I was involved in those efforts from July 2003 to March 2005. Looking back today, I would like to share some reflections on the preparatory activities undertaken during the period when the proposed institute was tentatively referred to as the UNESCO Centre (hereafter, "the Centre") among those involved.

Fundamental framework

In April 2004, the Secretariat of the Preparatory Activities for the UNESCO-PWRI Centre was established within PWRI to oversee preparations for the Centre's launch. In its early days, it was a small team of fewer than ten staff members, including the head of the secretariat. Looking back, I recall the many challenges that the staff, myself included, had to overcome at that time. It is therefore deeply moving to see how those challenges were overcome and how ICHARM has continued to fulfill its mission ever since.

One of the key issues during the Centre's establishment was staffing. The plan was to recruit mid-career researchers with doctoral degrees from outside organizations, including applicants from overseas, through an international open call. The length of appointments was another consideration. At that time, three-year appointments were the norm. Looking at ICHARM today, research specialists are appointed for five years, with the possibility of a five-year reappointment. I believe that this longer-term appointment system gives researchers, particularly those from overseas, the confidence to devote themselves fully to research and other ICHARM's activities. Language was also an important issue. Given the international nature of the Centre,

ICHARM 設立 20 周年を迎えられたことに心よりお慶び申し上げます。この 20 年間、主体的に活動を実施、或いはパートナーとしてご支援・ご協力いただいた皆様方のご尽力に深く敬意を表します。ICHARM は 2003 年 3 月の第 3 回世界水フォーラムで UNESCO 事務局長から表明されたコミットメントを受けて設立準備が進められ、筆者は 2003 年 7 月から 2005 年 3 月まで設立準備活動に携わりました。ここでは当時、ユネスコセンター（以降、「センター」と記します。）と称していた頃の ICHARM の設立準備活動を振り返ってみたいと思います。

ICHARM の基本的枠組み

センターの設立準備体制として、2004 年 4 月、土木研究所内に「ユネスコセンター設立推進本部」が設置されました。設置当初は本部長以下、10 名に満たない小さな組織でした。当時を振り返るに、実に様々な課題があったことが思い起こされます。そうした課題を解決して、今日、ICHARM で活動が進められていることが実に感慨深く思われます。

まず組織体制について。センターでは博士号を有する研究者を外部から中途採用することとし、しかも外国人も含めた国際公募を想定していました。また雇用期間も、どの程度の期間とすべきかを検討していました。当時、一般的な任期は 3 年でしたが、今日の ICHARM では専門研究

員の任期が5年、加えて5年の再任用が可能となっており、海外からの研究者にとっても腰を据えて研究等の活動に取り組めるようになったものと考えられます。

また国際センターゆえに、当時の坂本忠彦理事長からは「センターの公用語は英語」との考えが示されました。これに関して、日本で起業され、今日では世界的に有名となったIT企業の創業者社長が「社内公用語英語化の方針」を打ち出して話題となったのが、6年後の2010年であったことに鑑みれば、実に先見の明があったと思ひ返されます。公用語英語化の背景としては、国際活動を行うには英語でのコミュニケーションが必須となること、また国際競争力を高めるには世界的に有能な人材確保や資金調達を行う必要性からと考えられます。設立準備活動当初は英語の堪能なアシスタントを探すことすら困難でしたが、今日のICHARMでは日常的に英語で会議やコミュニケーションが図られており、大変頼もしく思われます。

UNESCO との合意書締結

センター設立に向けての重要なタスクが UNESCO との合意書締結でした。合意書にはセンターの目的や任務が記されますが、特にセンター長の任命と予算の承認をどのように位置付けるかが論点でした。センターは UNESCO 外の組織として、その支援を受けるカテゴリー2のセンターを目指しており、独立行政法人（当時）である土木研究所の内部組織であることから、センター長は土木研究所理事長の任命によることを合意書に明示させる必要がありました。またセンターの予算についても、土木研究所からの運営交付金について記載する必要がありました。これらに関しては、UNESCO との協議を経て合意書に位置付け、センターの活動に係る諮問委員会（*）の役割とも、上手く調整を図ることができました。

（*）2013年7月の合意書改定に伴い運営理事会（Governing Board）へと改組されました。

ICHARM の先駆的活動「洪水ハザードマップ作成研修」

国土交通省ではその前身の建設省の時代から長年、国連機関 WMO と UNESCAP との合同政府機関である台風委員会水文部会に支援・協力を行ってきました。2001年から水文部会で Flood Hazard Mapping Project が実施されていた傍ら、2004年度から JICA 研修「洪水ハザードマップ作成」が行われることとなり、設立準備段階当時から ICHARM が研修の企画・運営、実施、フォローアップに携わってきました。本研修は東・東南アジア各国の政府機関職員を対象とし、洪水ハザードマップに関する講義や、台風委員会でも実施されていたタウンウォッチング演習が行われました。このタウンウォッチング演習は、実際の洪水発

then-PWRI President SAKAMOTO Tadahiko proposed that English should be the Centre's official working language. Looking back, his notion was both significant and remarkably forward-thinking. It is worth noting that it was not until 2010, six years later, that the founder and CEO of a Japanese IT company now known around the world attracted widespread attention by announcing English as the company's official language. He believed that a good command of English was essential not only for effective international activities but also for attracting talented professionals and securing funding from around the world, thereby enhancing the Centre's international competitiveness. In the early days of the preparatory phase, it was difficult even to find assistants with strong English skills. Today, however, meetings and day-to-day communication at ICHARM are routinely conducted in English, which I find both reassuring and deeply gratifying.

Concluding an agreement with UNESCO

One of the most important tasks in establishing the Centre was concluding an agreement with UNESCO. The agreement set out the Centre's objectives and functions, and among its provisions, two issues particularly required extensive discussion: the director appointment and the budgetary framework. At that time, the Centre was intended to be established as a UNESCO Category 2 centre, an institute operating independently from UNESCO while receiving its support. At the same time, as the Centre would also serve as a research center inside PWRI, it was necessary to clearly stipulate in the agreement that the Centre's director would be appointed by the president of PWRI. It was also necessary to specify that the Centre's operational budget would be provided by PWRI. After extensive discussions with UNESCO, these matters were appropriately reflected in the agreement. Careful coordination was also undertaken regarding the role of the ICHARM Advisory Board*, which was responsible for providing guidance on the Centre's activities.

* Following the revision of the agreement in July 2013, the Advisory Board was reorganized as the Governing Board.

ICHARM's Pioneering Activity: Flood Hazard Mapping Training Course

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) in Japan, formerly known as the Ministry of Construction, long contributed and supported the activities of the Working Group on Hydrology (WGH) of the Typhoon Committee, an intergovernmental body of the World Meteorological Organization (WMO) and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), including the Flood Hazard Mapping Project initiated in 2001. In 2004, the Japan International Cooperation Agency (JICA) launched the Flood Hazard Mapping Training Course. ICHARM was deeply involved in planning, organizing, delivering, and follow-up on this program from its preparatory stage, even before the Centre was officially named ICHARM.

The training targeted officials from government agencies in East and Southeast Asia and included lectures on flood hazard mapping as well as a town-watching exercise, which had also been conducted as part of the WGH's project. This exercise was designed to give participants hands-on experience in flood risk assessment by identifying evacuation routes, evacuation sites, and other key features while imaging potential flood events. By learning to recognize flood risks that often go unnoticed in everyday life, participants were expected to develop the capacity to raise awareness and promote preparedness within their communities.



Town-watching exercise in the 1st Flood Hazard Mapping Training Course (February 8, 2005)
第1回洪水ハザードマップ作成研修でのタウンウォッチング演習（2005年2月8日）

Today, flood hazard maps are widely developed and used not only across Asia but throughout the world, and are considered to have made a significant contribution to reducing flood damage. The achievements of this training course were highly praised by the Typhoon Committee, and, building on its success, a new JICA training program entitled "Local Emergency Operation Plan with Flood Hazard Map" was launched in 2009. This flood hazard mapping training course was made possible through the dedicated efforts of OTANI Satoru, who at the time served as a deputy director for international affairs in the River Planning Division of MLIT's River Bureau. In addition to his pivotal role in launching the training course, he made many other important contributions toward the establishment of ICHARM. Sadly, he passed away from a sudden illness at the end of 2023. I would therefore like to take this opportunity to express my deepest condolences and pay tribute to his memory.

To mark ICHARM's 20th anniversary, a commemorative publication was issued, and I was honored to contribute a column titled "Reflecting on the Vision of Twenty Years Ago." In that article, I recognized that even at the preparatory stage, ICHARM had already identified water-related disasters and their risk management as its core mission, and that its activities were to be pursued through the integrated implementation of three pillars: research, training, and information networking. Looking back after two decades, I observed that the vision set out at that time remains as relevant and compelling as ever.

While preparing my column, I found myself reflecting on the many discussions that took place during the Centre's formative years. We grappled with questions such as what institutional frameworks and regulations would be needed to establish an international center, whether an institute such as ours could award academic degrees like a university, how external competitive funding could be secured, and what kinds of risks we may face. Those were days when hopes and expectations were intertwined with anxieties about the Centre's future.

Thanks to the generosity of the Newsletter Editorial Committee, I have been given this opportunity to share some additional reflections on the Centre's establishment as a supplement to my original column in the anniversary publication. I would like to express my sincere appreciation to the committee.



Three pillars of ICHARM's activities (Source: Civil Engineering Journal, Vol. 46, No. 4, April 2004)

土木技術資料・平成 16 年 4 月号 (Vol. 46, No.4) の記事に掲載した「センター活動の 3 本柱」

生を想定しながら街中を歩いて避難路・避難場所などを確認する実践的なリスク評価を行うものであり、普段は気が付かない危険箇所等を確認することでコミュニティレベルでの意識啓発・向上が期待されます。

今日、洪水ハザードマップはアジア地域だけでなく、世界的に作成・活用されることで洪水被害軽減に大きく寄与していると考えられます。本研修の成果は台風委員会でも高く評価され、またこれを受け継ぐ形で 2009 年度から JICA 研修「洪水ハザードマップを活用した地域防災計画」が実施されることとなりました。この洪水ハザードマップ作成研修は、当時、国土交通省河川局河川計画課で国際担当の課長補佐であった大谷悟氏による精力的な調整によって実現しました。大谷氏はその他にも ICHARM の設立に向けて尽力していただきましたが、2023 年の暮れ、急な病により帰らぬ人となりました。ここに謹んで深く哀悼の意を表します。

ICHARM 設立 20 周年に際して「20 周年記念誌」が発行され、光栄なことに私からもコラム「20 年前のビジョンを振り返る」を投稿させていただきました。そこでは、設立準備段階から ICHARM は水災害とそのリスクマネジメントを活動テーマとし、研究、研修、情報ネットワークの 3 つの活動について、三位一体となって取り組むこととされており、それから 20 年経過した今日においてなお、当時のビジョンが全く色褪せていないことを記しました。そうした機会に、その他にも国際センターを設立するに当たって、どのような規定を整備すべきか、大学のように学位を授与することはできないか、どのようにして外部から競争的資金を獲得していくか、どのようなリスクが待ち受けているか? などなど、先行き不透明な中で様々な期待や不安が入り混じっていたことが思い起こされました。このたび、ニュースレター編集委員会のご厚意により、コラムの追補のような形で投稿させていただけることとなりました。ここに深く感謝申し上げます。

Public Relations

The 77th ICHARM R&D Seminar: Special interactive session & dialogue between the World Bank and ICHARM

第 77 回 ICHARM R&D セミナー：世界銀行と ICHARM による意見交換特別セッション

ICHARM では、水防災に関係する様々な分野から、国際的に著名な専門家を招いて、研究・開発 (R&D) セミナーを定期的に開催しています。7月27日に世界銀行からサロジ・クマール・ジャー水部門グローバルディレクターを ICHARM に招き、「第 77 回 ICHARM R&D セミナー：世界銀行と ICHARM による意見交換特別セッション」を開催しました。

初めに板垣修グループ長が ICHARM の概要を紹介した後、修士学生の 2 グループが、自国の水問題について発表しました。

まずマラウイの学生達が、首都リロングウェの上下水道網の課題と解決案を発表しました。これについてジャー・ディレクターは、水源の多角化のため、水の再利用を提案しました。また、無収水や屋外排泄のデータについて、数値を再確認するよう勧めました。

次に、スリランカの学生達が、自国の古い水施設（小規模貯水池）遺産を、大型ダムと併せて活用することにより、将来の気候に耐え得る公平で安定した水の確保を目指す提案を行いました。ジャー・ディレクターは、世界的な貯水量減少の危機に触れ、グリーンウォーターと通常のブルーウォーターとの統合利用や、公平な水分配を助言しました。

さらにジャー・ディレクターは、世界銀行の「ウォーター・フォワード」の取組を紹介しました。これは、雇用創出と経済発展を促しながら、2030 年までに 4 億人分の水の安全保障を確保するものです。この取組に伴い、世界銀行は各国に対し、政策改革、制度強化、投資計画を組み合わせた「水協定」の作成を勧めています。

質疑の時間には参加者が、越境協力を進めるための資金面でのインセンティブ、緊急的な経済要請に基づく政府の借款目的変更、越境水紛争を仲裁する役割、について議論しました。

セミナーの最後に、小池俊雄センター長が、ジャー・ディレクターの示唆に富んだ基調講演や、ICHARM への激励について謝意を表し、ICHARM が今後、環境や経済分野に関連した研究にも取り組む予定であることを伝えました。

本セミナーは、企画から運営まで全て ICHARM の学生が担当しました。主要な国際援助機関との対話は、学生達が自国の多様な水問題に対する現実的な解決案を自ら模索したことにより、彼らの授業活動や論文研究にとって有益なものとなりました。



Keynote speech by Mr. Jha,
WB Global Director
ジャー世銀グローバルディレクターの基調講演

ICHARM regularly hosts research and development (R&D) seminars delivered by internationally acclaimed experts in a wide range of fields associated with water-related disaster management. On July 27, ICHARM invited Mr. Saroj Kumar Jha, the global director of the World Bank Group's Water Department to join the 77th ICHARM R&D Seminar, titled "Special Interactive Session & Dialogue between the World Bank (WB) and ICHARM."

Following a brief introduction to ICHARM by Deputy Director ITAGAKI Osamu, two groups of ICHARM master's students shared water-related issues in their respective countries.

Students from Malawi presented the challenges facing water supply and sewerage systems in Lilongwe City, Malawi, and proposed possible solutions. Mr. Jha suggested that they consider water reuse as a diversified water source. He also advised them to recheck the data on non-revenue water and open defecation.

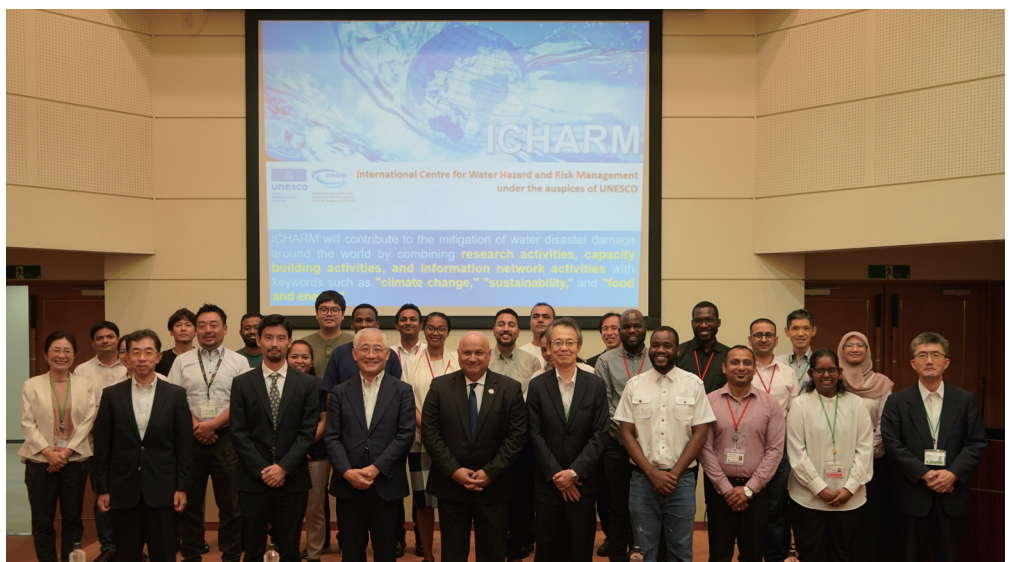
Sri Lankan students highlighted how the legacy of their ancient water assets, namely traditional small-scale reservoirs, can contribute to a climate-resilient future that promotes water equity and safety, together with major dams. Referring to the global water storage crisis, Mr. Jha recommended the hybrid use of green water and conventional blue water, as well as equitable water sharing.

Mr. Jha also introduced WB's "Water Forward" approach, which aims to create jobs and prosperity while improving water security for 400 million people by 2030. As part of this approach, WB recommends that countries develop "Water Compacts," which integrate policy reform, institutional strengthening, and investment planning.

During the Q&A session, the participants discussed WB's financial incentives for



Dialogue with Global Director Jha
ジャー・グローバルディレクターとの意見交換



Participants in the 77th R&D Seminar
第 77 回 R&D セミナー参加者

promoting transboundary cooperation, the restructuring of WB loans by governments to address urgent economic needs, and arbitration mechanisms for resolving transboundary water disputes among countries.

The seminar concluded with remarks by Executive Director KOIKE Toshio. Expressing his appreciation to Mr. Jha for his insightful keynote speech and encouragement for ICHARM, Koike stressed that ICHARM plans to strengthen research covering both the environmental and economic aspects of water-related issues.

The seminar was entirely planned and organized by ICHARM students. The dialogue with a key international financial institution contributed to their coursework and thesis research by providing an opportunity to explore practical solutions to a wide range of water-related issues in their respective countries.

(Written by OKADA Tomoyuki)

SIP activity report: outreach activities using the Virtual Flood Experience System (VFES)

SIP 活動報告 仮想洪水体験システムを用いたアウトリーチ活動

ICHARM is participating in the 3rd phase of the Cross-ministerial Strategic Innovation Promotion Program (SIP), a five-year project launched in September 2023 by the Cabinet Office of Japan. Its central involvement is in the sub-project "Promoting Disaster Prevention Actions Using Risk Information," under the broader project "Development of a Resilient Smart Network System against Natural Disasters."

More specifically, ICHARM is contributing primarily to the second R&D theme of this sub-project, "Risk and Damage Visualization." It is developing a platform system to support the assessment of water-related disaster risks and resilience. This system enables businesses to estimate potential damages from future water-related disasters by combining hazard information with their own data. It also supports their efforts to strengthen disaster resilience by calculating the cost-effectiveness of the damage-control measures they plan to implement. In addition, through this sub-project, ICHARM is developing and implementing the Virtual Flood Experience System (VFES), which allows people to experience flooding virtually and learn how to act during such events. Overall, ICHARM is making steady progress toward building a society in which people regard floods and other water-related disasters as personal concerns and are fully aware of the importance of taking preventive actions to minimize damage.

The following is a report on its recent activities.

ICHARM では、「戦略的イノベーション創造プログラム (Crossministerial Strategic Innovation Promotion Program : SIP)」第3期に位置付けられた課題「スマート防災ネットワークの構築」を構成するサブ課題の一つである「リスク情報による防災行動の促進」に共同研究機関として参加しています。

ICHARM は研究開発テーマ2)「水災害リスク・被害影響可視化技術の開発」において、将来の水災害リスク情報と企業の自社データを活用して水災害想定被害額を算出するとともに、対策実施による費用対効果効果を算出して企業のレジリエンス向上を支援するシステム「水災害リスク・レジリエンス評価支援基盤システム」の開発や、仮想空間での洪水体験を通じて住民の洪水に対する経験値を上げる「仮想洪水体験システム」の開発および実装を行っています。これらの活動を通して、洪水をはじめとする水災害が「ジブンゴト」として捉えられ、事前の防災行動が促進される社会づくりに取り組んでいます。

以下、最近の活動について報告します。

July 31: Tsukuba Chibikko Hakase 2026: NILIM-PWRI Open House

Families experienced urban flooding with Minecraft-based simulation

Tsukuba City in Ibaraki Prefecture, Japan, where ICHARM is based, held the Tsukuba Chibikko Hakase 2026 from July 18 to August 31. The "Chibikko Hakase (Young Polymath)" program is an annual summer event in which elementary and junior-high school students—not only local students but also those from across Japan—are invited to visit various research institutes, companies, and



Senior Researcher DENDA Masatoshi and Researcher YAMASHITA Daiki (standing in the back) explaining the activity to participants.

説明をする傳田正利主任研究員と山下大輝研究員

7月31日：「つくばちびっこ博士2026～国総研・土木研究所大公開！！」にて体験イベント「マイクラフトでまちの洪水を体験しよう」を実施しました

「つくばちびっこ博士」は、つくば市在住の小中学校生のみならず、全国の小中学校生を対象に、夏休みの期間につくば市内にあるさまざまな研究機関・企業・文化施設を見学し、楽しく学ぶイベントで、7月18日から8月31日まで開催されました。参加者はスマホなどの端末を活用しながら、専用サイトでポイントを集め、「最優秀つくばちびっこ博士」を目指します。2026年度はつ

くば市内の41か所の研究機関・企業・文化施設等が参加して開催されました。

国土技術政策総合研究所と土木研究所は、2026年7月31日（金）、共同でイベント「～つくばちびっ子博士2026～ 国総研・土木研究所大公開！！」を開催し、その一環としてICHARMは体験イベント「マイクラフトでまちの洪水を体験しよう」を開催しました。イベントは30分間を1サイクルとして、計6サイクル実施しました。1サイクル当たり最大13組が参加し、参加者は、親子連れなど68組110名となりました。今回は、新たに作成した、東京駅・秋葉原駅周辺を再現した仮想空間を使用しました。まず、東京駅周辺を再現した空間を自由に歩きながら、実際のまちに入り込んだような感覚を楽しんでもらうとともに、マイクラフトの基本的な操作に慣れてもらいました。その後、秋葉原駅周辺を再現した空間に移り、荒川が決壊して洪水が秋葉原周辺まで到達するシナリオのもと、マイクラフト版の仮想洪水体験システム（VFES）を用いて洪水からの避難を体験いただきました。

最初に、傳田正利主任研究員から荒川の概要を説明した後、荒川からの洪水が秋葉原付近に流れ込むはん濫シナリオを用いて、2回の洪水避難体験を行いました。1回目の避難体験では、あえて事前に何も伝えず、自由に避難行動をしてもらいましたが、行き先が分からずスタート地点付近でうろうろする参加者が多く見られました。その後、荒川が決壊した場合のはん濫シナリオや、駅の東西をつなぐアンダーパスの存在、高い場所（神田明神方面）の方向を説明したうえで、2回目の避難体験を行いました。2回目の体験では、1回目の経験や説明を踏まえ、多くの参加者が避難することができました。これのように、失敗も含めた避難の経験が、次はうまくやろうというインセンティブを生み出し、学習効果が高くなることが示唆されました。

今後、ICHARMでは、このような機会を得られた貴重なデータを踏まえ、防災教育における仮想洪水体験システムの適用可能性を検討して参ります。

（つくば市ホームページ「つくばちびっ子博士2026」）

<https://www.city.tsukuba.lg.jp/kosodate/oshirase/chibikko-hakase/index.html>

cultural facilities in Tsukuba to learn while having fun. Participants collect points on a dedicated website using their smartphones or other devices as they aim to earn the title of “Top Tsukuba Chibikko Hakase.” This summer, a total of 41 research institutes, companies, and cultural facilities in Tsukuba took part in the program.

Among the 41 participating entities, the National Institute for Land and Infrastructure Management (NILIM) and the Public Works Research Institute (PWRI) jointly held the event “Tsukuba Chibikko Hakase 2026: NILIM–PWRI Open House.” on July 31, 2026. As a part of PWRI, ICHARM organized a hands-on activity titled “Experience Urban Flooding with Minecraft.” The activity was conducted in six sessions, each lasting 30 minutes, with up to 13 families per session. A total of 68 families (110 participants) took part. This time, participants used a newly developed virtual space that reproduces the area around Akihabara Station in Tokyo to experience flood evacuation through the Minecraft-based Virtual Flood Experience System (VFES). First, we let participants freely walk around the virtual space, so they could enjoy the feeling of actually being in the city while also getting used to the basic controls of Minecraft. After that, they moved to the another virtual space around Akihabara Station, where, under a scenario of the Ara River, the major river closest to Akihabara, overflowing and flooding the Akihabara area, participants could experience evacuation from flooding using a Minecraft-based VFES.

In each session, Senior Researcher DENDA Masatoshi first explained an overview of the Ara River. Participants were then instructed to carry out two rounds of flood evacuation exercises using a scenario in which flooding from the Ara River flows into the Akihabara area. In the first round, participants were intentionally given no prior information and asked to evacuate freely. Many wandered around the starting point, unsure of where to go. After being informed about the underpass connecting the east and west sides of the station and the direction of higher ground (toward Kanda Myoujin, a nearby shrine), many participants were able to evacuate successfully in the second round, choosing safer routes and avoiding hazardous locations. These results suggest that experiencing failure can motivate participants to improve in subsequent attempts, thereby enhancing the learning effect.

Going forward, ICHARM will examine the potential applications of the Virtual Flood Experience System in disaster-education programs, drawing on the valuable data obtained through opportunities such as this.

Tsukuba City: Tsukuba Chibikko Hakase 2026 (Japanese only)

<https://www.city.tsukuba.lg.jp/kosodate/oshirase/chibikko-hakase/index.html>



Participants experiencing how to evacuate while enjoying the activity.
どのように避難するかを楽しみながら体験する参加者

August 8: Families learn about flood evacuation using VFES at the Bosai Camp in Joso City

On August 8 and 9, 2026, Joso City in Ibaraki Prefecture, Japan, hosted the Bosai Camp, a disaster awareness program, using Mitsukaido Asunaro-no-Sato as the main venue. The event is held annually for Joso families with elementary school students. This year, 43 participants from 15 households (18 adults and 25 children) took part. As part of the program, ICHARM organized a disaster awareness activity in the late afternoon of the 8th, during which participants experienced flood disasters using the Minecraft-based Virtual Flood Experience System (VFES) developed by ICHARM.



Scene of the venue
会場の様子

The virtual space used in this system for this activity was an improved version created by students at Ibaraki Prefectural Mitsukaido First High School Affiliated Junior High School (Joso City) during last year's inquiry-based learning program instructed by ICHARM researchers. It accurately reproduces key locations such as Mitsukaido Station, supermarkets, and local schools.

Participants first received brief lectures from Senior Researcher DENDA Masatoshi and Researcher YAMASHITA Daiki about topics such as the Tone River Eastward Diversion, the topography and flood history of Joso City, how to read hazard maps, and the importance of checking water levels and rainfall in advance during heavy rain. After that, they tried the VFES using the tablets distributed to them.



Senior Researcher DENDA Masatoshi and Researcher YAMASHITA Daiki (standing in the back) explaining the activity to participants.

説明をする傳田正利主任研究員と山下大輝研究員

Participants experienced virtual flood conditions twice. In the first round, they were instructed to evacuate without being given any prior information, such as evacuation sites. In the second round, they evacuated after being informed about local topographic features and the appropriate directions to flee. While some participants wandered around the starting point during the first attempt, many were able to evacuate toward higher ground in the second attempt. This activity provided an excellent opportunity for participants to learn practical lessons for emergencies by experiencing both failure and success in virtual flood situations.



Participants experiencing how to evacuate while enjoying the activity.

どのように避難するかを楽しみながら体験する参加者

In the post-event survey, participants shared positive feedback such as "It was fun to think about where to evacuate during a flood," "I'm glad I learned what actions to take in a flood," and "Although it was completely new for adults like myself, children who are familiar with Minecraft seemed to find it easy to understand."

Going forward, ICHARM will examine the potential applications of the Virtual Flood Experience System in disaster-education programs, drawing on the valuable data obtained through opportunities such as this.

Finally, ICHARM expresses its sincere appreciation to the staff of the Joso City Disaster Risk Management Division for making this opportunity possible.

8月8日：常総市「防災キャンプ」にて仮想洪水体験システムを体験いただきました

2026年8月8日(土)・9日(日)、常総市水海道あすなろの里を中心に「防災キャンプ」が開催されました(主催：常総市)。このイベントは、常総市内の小学生を含む親子連れを対象に毎年開催されています。今年は、15世帯43名(大人：18名 子ども：25名)が参加され、洪水災害をマイクラフトで体験できるイベントとして、8日夕方に ICHARM が開発している仮想洪水体験システムを体験いただきました。

なお、今回使用した仮想空間は、茨城県立水海道第一高等学校付属中学校(常総市)で昨年度実施した「探究型学習」にて生徒の皆さんが改良したもので、水海道駅やスーパー、学校などが精度高く再現されています。

傳田正利主任研究員・山下大輝研究員から、利根川東遷に始まり常総市の地形・洪水の歴史、ハザードマップの見方、豪雨時には水位・降雨量を事前に知ることの重要性などを学んだ後、参加者に配布されたタブレットを用いて実際に洪水体験を行いました。

体験は2回行い、1回目は避難場所などが事前に知らされないままの避難体験、2回目は地形の特徴や逃げる方向などが知らされた上での避難体験を行いました。1回目ではスタート地点をうろうろしていた体験者も、2回目では多くの参加者が標高の高い方向へ避難することができ、一度失敗することで成功へのモチベーションが高まることが確認できました。

参加者への事後アンケートでは、「水害から避難する場所を考えながら楽しくできた」「水害の時どのような行動をすればよいかわかって良かった」「子どもは普段からマイクラに触れているので身近で考えやすかったみたいだが、大人は全くわからなかった。」などのご意見が寄せられました。

今後、ICHARM では、このような機会で作られた貴重なデータを踏まえ、防災教育における仮想洪水体験システムの適用可能性を検討して参ります。最後になりましたが、本機会を提供頂いた常総市防災危機管理課の皆様へ厚く感謝申し上げます。

9月12日～13日：サイエンスアゴラ 2026 に仮想洪水体験システムを 出展

9月12日（土）・13日（日）、東京・お台場のテレコムセンタービルほかで、科学技術振興機構（JST）主催の「サイエンスアゴラ 2026」が開催されました。サイエンスアゴラは、科学技術について体験や対話を通じて考える、日本最大級の科学コミュニケーションイベントです。土木研究所では、全所的な取組として、有志の職員からなる「土木研究所 チームサイエンスアゴラ」を組織し、9月12日に「避難中！～あなたはマイクラの中の秋葉原で洪水から逃げられるか～」を出展しました。ICHARMからは古本一司特別研究監、傳田正利主任研究員、柿沼太貴主任研究員、山下大輝研究員、田中沙季主事が参加したほか、他所属の職員もメンバーとして加わり、所属の垣根を越えて運営しました。

当日は、ICHARM リスクマネジメントチームが開発する「仮想洪水体験システム」を活用し、Minecraft上に再現した秋葉原周辺で洪水からの避難を体験してもらいました。体験後には、自らの避難経路や行動を振り返りながら、洪水の広がり方や河川について学んでもらいました。仮想空間の制作には、夏季インターンシップで ICHARM を訪れた学生 2 名にも協力いただいています（p.55 参照）。

当日は、約 25 名ずつ 2 回の体験を実施しました。50 枚の整理券は配布を始めて間もなくなくなるなど、多くの方に関心を持っていただきました。多くの方に関心を持っていただきました。一方で、参加を希望しながら体験いただけなかった方がいたことや、会場の通信環境の影響によりシステムが安定して動作しない場面があったことなど、運営上の課題も残りました。こうした課題はありましたが、特に子どもたちが Minecraft を通じて洪水や避難に強い関心を示す様子も多く見られ、防災を身近に考えてもらう機会となりました。

今回の出展は、ICHARM で開発してきた研究成果を活用しながら、所属の枠を越えた職員が協力し、土木研究所として広く一般の方々に防災研究を発信する機会となりました。今後も、全所的な連携を生かしながら、研究成果を分かりやすく社会へ届ける取組につなげていきたいと考えています。

September 12-13: VFES showcased at Science Agora 2026

Science Agora 2026, organized by the Japan Science and Technology Agency (JST), was held on September 12 and 13 at the Telecom Center Building and other venues in Odaiba, Tokyo. Science Agora is one of Japan's largest science communication events, providing opportunities for the general public to explore science and technology through hands-on experiences and dialogue. For this event, PWRI formed "PWRI Team Science Agora" as an institute-wide initiative, recruiting volunteer staff members across the organization to operate an exhibit. Participants from ICHARM included Director for Special Research FURUMOTO Kazushi, Senior Researchers DENDA Masatoshi and KAKINUMA Daiki, Researcher YAMASHITA Daiki, and Administer TANAKA Saki. In addition, two college students who participated in a summer internship program at ICHARM helped create the virtual environment used in the exhibit (see p. 55).

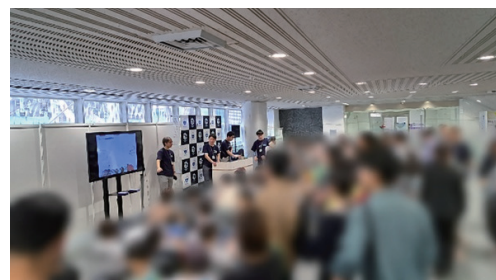
The PWRI team's exhibit was held on the 12th under the title of "Evacuating! Can You Escape a Flood in Minecraft Akihabara?" At the exhibit, visitors used the Virtual Flood Experience System developed by ICHARM's Risk Management Team to experience evacuating from a flood in a Minecraft recreation of the Akihabara area in Tokyo. They then reviewed their evacuation routes and actions while learning about local rivers and how flooding could spread throughout the area.

The exhibit was very well received. All 50 tickets prepared for the two sessions, each accommodating about 25 participants were distributed shortly after registration opened. Despite this strong public interest, however, several operational challenges remained. Some people who wished to participate were unable to do so, and the system occasionally became unstable because of the communication environment at the venue. Nevertheless, many of the children who participated showed great enthusiasm for learning about floods and evacuation through Minecraft, and the exhibit helped them recognize disasters as something closely connected to their daily lives.

This exhibit provided PWRI with an opportunity to communicate its disaster risk reduction research to a broad public audience by drawing on research outcomes developed at ICHARM and bringing together staff across the institute. PWRI hopes to continue building on institute-wide collaboration to communicate research outcomes to society in a more accessible and engaging way.



Senior Researcher Denda and Researcher Yamashita explaining the system
傳田正利主研、山下大輝研究員による説明



Participants trying the system at the exhibit
会場の様子

(Written by KURIBAYASHI Daisuke, DENDA Masatoshi and YAMASHITA Daiki)

ICHARM Open Day 2026 for local school students

ICHARM Open Day 2026 ～茨城県立竹園高等学校・茨城県立並木中等教育学校が参加～

9月4日、ICHARMは「ICHARM Open Day」を開催しました。このイベントは、ICHARMの地域貢献活動として、つくば市内の学校の生徒を招待し、国際交流の機会を提供しようとするもので、茨城県立竹園高

On September 3, the ICHARM Open Day was held as part of its community outreach activities, inviting students from schools in Tsukuba City, where the center is based, to learn about ICHARM and interact with international students studying there. A total of 111 people participated in the event: 91 students and teachers from Ibaraki Prefectural Takezono High School and Ibaraki Prefectural Namiki Secondary School

and 20 ICHARM master's and doctoral students from eleven countries. The program was conducted entirely in English.

The open day began with a keynote speech by Executive Director KOIKE Toshio, entitled "Is the frequency of heavy rainfall likely to increase due to climate change?" The students listened with great interest as he explained several key points. He noted that the word climate derives from the Greek word klima, meaning "inclination." He also explained why hot miso soup cools down when we blow on it, pointing to turbulence created by blowing as the reason. He went on to describe why heavy rainfall events have become more frequent, explaining how interactions between warm and cold air, as well as dry and moist air, generate convection currents and how these currents intensify as global warming progresses. He then highlighted that this phenomenon was discovered by Dr. MANABE Syukuro, a 2021 Nobel Prize laureate in Physics.

In the poster session that followed, master's and doctoral students from eleven countries (Afghanistan, Bangladesh, Bhutan, Indonesia, Kenya, Madagascar, Malawi, Nepal, Sri Lanka, Timor-Leste and Vietnam) presented their posters with brief explanations focusing on water-related disasters in their countries, as well as their countries' features, lifestyles, and cultures. Local school students visited each poster and enjoyed international exchanges by listening to the presentations and asking many questions. Some ICHARM students even wore national costumes, adding to the event's international atmosphere.

In the post-event questionnaire, students shared comments from various perspectives, such as:

"While Japan frequently experiences water-related disasters like tsunamis and floods, I became interested after realizing—through these interactions—that other regions face different challenges, such as water shortages, landslides, and even glacial lake outbursts."

"It was my first time talking to people from so many different countries in a single day; it really made me appreciate just how vast the world is, and I'd love to visit the countries they told me about someday."

"I was truly impressed to see everyone working so hard and conducting research here in Japan on the disasters affecting their own home countries."



All participants gather at the ICHARM entrance hall
ICHARM エントランスホールでの集合写真



Local school students interact with Malawi students

マラウイの学生と英語を使ってやり取りをするつくば市の中高生

等学校・茨城県立並木中等教育学校の生徒 86 名と引率の先生 5 名、ICHARM の修士課程・博士課程の学生 11 か国 20 名の合計 111 名が参加しました。プログラムはすべて英語を使って行われました。

イベントでははじめの基調講演で、ICHARM 小池俊雄センター長が、「気候変動に伴って豪雨は増加するのか」と題して、Climate の語源が傾きを意味するギリシャ語の klima に由来していること、熱い味噌汁に息を吹きかけると冷めるのは乱流を起こしているからということ、温かい気体と冷たい気体、乾いた気体と湿った気体の存在が対流を起こし、その対流が温暖化の進行とともに激しくなることが豪雨の増える要因であり、この現象は 2021 年にノーベル物理学賞を受賞した真鍋淑郎博士が発見した、ということを講義され生徒たちは興味深く聞いていました。

その次のポスターセッションでは、11 カ国（アフガニスタン、バングラデシュ、ブータン、インドネシア、ケニア、マダガスカル、マラウイ、ネパール、スリランカ、東ティモール、ベトナム）の修士課程・博士課程の学生が各国の概要、生活、文化の紹介のほか、水災害をテーマとしたポスター発表を行いました。生徒たちは、各国のブースでの ICHARM 学生の説明に多くの質問をし、国際交流をしました。ICHARM の学生の中には民族衣装を身につけた学生もいたことから、国際交流イベント色が一層強まりました。

参加した生徒から開催後にいただいたアンケート結果では、「日本での水害は、津波や洪水などが頻繁に発生しますが、他の国の地域では水不足や土砂災害、他にも氷河の決壊などの災害が起こっていることを身近に感じることができ、興味を持ちました。」「一日でこんなに多くの国の人と話すのは初めてだったので、世界ってほんとに広いんだな、と改めて思った。いつか紹介してもらった国に行ってみたいと思った。」「みなさん自国での災害について研究するために日本に来て、励んでいる姿がすごいと思った。」などの感想がありました。

(Written by FUJIKANE Masakazu)

Information Networking

Visit by senior officials from Japan and abroad for a laboratory tour and research presentations

国内外高官らに対する土研実験施設見学および ICHARM 研究紹介の実施

2026 年 7 月 27 日、国土交通省水管理・国土保全局河川計画課国際室からの要請の下、国内外の高官 5 名による土木研究所訪問を受け、実験施設見学と ICHARM 研究紹介を行いました。参加された高官は以下の通りです。

- ・ハニー・スウェイラム エジプト・アラブ共和国 水資源・灌漑大臣
- ・上川陽子 2026 国連水会議総理特使 / 衆議院議員 / 元外務大臣
- ・アブドゥラ・バララ アラブ首長国連邦 外務副大臣 (エネルギー・持続可能性担当)
- ・ペマ・ギャムツォ 国際総合山岳開発センター (ICIMOD) 事務局長
- ・ラギー・エルエトレビー エジプト・アラブ共和国 駐日特命全権大使

まず、水理実験施設の見学を行い、河道保全研究グループの水草浩一上席研究員より、日本のダム整備状況と大戸川ダム模型実験の説明を受けました。

次いで、ICHARM 講堂にて、藤田光一土木研究所理事長も参加し、栗林大輔 ICHARM 上席研究員の司会の下、研究紹介セッションを開始しました。板垣修グループ長から ICHARM の概要を紹介した後、以下の 3 名の研究者・学生から研究紹介を行いました。

筒井浩行 (ICHARM 専門研究員) からは、「農業干ばつ評価 (Agricultural drought assessment)」と題し、以下の内容を紹介しました。

- ・衛星リモートセンシングとデータ同化技術を活用した農業干ばつ評価手法を紹介。CLVDAS により根域土壌水分や植生水分量 (Green Water) を推定し、アフリカ、特に南スーダンの農業生産への影響分析結果を紹介。
- ・植生水分量と作物収量の関係モデルを構築し、トウモロコシとソルガムの収量を推定した結果、洪水や干ばつによる作物被害の違いを把握できることを示した。
- ・気候変動による水循環の変化に対応し、農業生産を維持・向上するための水インフラ検討の重要性を提唱。
- ・ラナプラ デワーゲ ティリニ カウシャラ (Sri Lanka) (博士課程の学生、スリランカ灌漑局 (Irrigation Department)) からは、「水と貧困 (Water and Poverty)」と題し、以下の内容を紹介しました。
- ・水の不安定性が貧困の重要な要因であることをスリランカの事例から説明。
- ・豊富な降雨がある一方で、地域・

On July 27, 2026, ICHARM welcomed five senior officials from Japan and abroad and provided research presentations. They visited ICHARM as part of their visit to PWRI, which was arranged at the request of the International Affairs Office of the River Planning Division, the Water and Disaster Management Bureau, the Ministry of Land, Infrastructure, Transport and Tourism of Japan. They also toured one of PWRI's laboratories. The participating officials were as follows:

- ・ H.E. Hani Sewilam, Minister of Water Resources and Irrigation, Arab Republic of Egypt
- ・ Ms. Yoko Kamikawa, Special Envoy of the Prime Minister for the 2026 UN Water Conference; Member of the House of Representatives; Former Minister for Foreign Affairs
- ・ H.E. Abdulla Ahmed Balalaa, Assistant Minister of Foreign Affairs for Energy and Sustainability, Ministry of Foreign Affairs, United Arab Emirates
- ・ Dr. Pema Gyamtsho, Director General, International Centre for Integrated Mountain Development (ICIMOD)
- ・ H.E. Ragui ElEtreby, Ambassador of the Arab Republic of Egypt to Japan

The visit began with a tour of the Dam Hydraulic Laboratory, where Team Leader MIZUKUSA Koichi of the River Dynamics Management Group explained Japan's dam development status and the Daido River Dam model experiment.

The visitors then moved to the ICHARM auditorium, where they received research presentations, moderated by Chief Researcher KURIBAYASHI Daisuke, with PWRI President FUJITA Koichi also in attendance. Following an overview of ICHARM presented by Deputy Director ITAGAKI Osamu, a researcher and two graduate students delivered presentations on their work.

Research Specialist TSUTSUI Hiroyuki delivered a presentation titled "Agricultural Drought Assessment," covering the following points:

- ・ Introduction of an agricultural drought assessment method using satellite remote sensing and data assimilation technologies. He explained how the Coupled Land and Vegetation Data Assimilation System (CLVDAS) estimates root-zone soil moisture and vegetation water content ("green water") and presented analysis results on agricultural impacts in Africa, particularly in South Sudan.
- ・ Development of a model linking vegetation water content to crop yields. Using this model, he estimated maize and sorghum yields and demonstrated how differences in crop damage caused by floods and droughts can be identified.
- ・ Emphasis on the importance of strategic planning for water-infrastructure options to sustain and improve agricultural production in response to climate-induced changes in the water cycle.

Ranapura Dewage Thilini Kausyalya, a doctoral student and an officer of the Irrigation Department of Sri Lanka, delivered a presentation titled "Water and Poverty," covering the following points:



Team Leader Mizukusa explaining an experiment
実験の説明をする水草上席研究員



Research Specialist Tsutsui
筒井専門研究員

- Explanation of how water insecurity is a major driver of poverty, illustrated through cases from Sri Lanka.
- Description of the severe impacts on rural livelihoods and agriculture caused by floods and droughts, which occur despite abundant rainfall due to strong spatial and seasonal variability.
- Discussion of how water-quality degradation and increasing disaster risks driven by climate change further deepen poverty among vulnerable groups.
- Introduction of water-resources management initiatives such as the Mahaweli Development Program, which have contributed to improvements in agriculture, livelihoods, and energy supply in Sri Lanka.
- Conclusion that climate change adaptation and integrated water-resources management are essential for sustainable development and poverty reduction.



Doctoral student
Ranapura Dewage Thilini
Kausalya
博士課程学生のランブラ
デワージェ ティリニ カ
ウシャラ氏

Rambolamanana Faranirina Sarindra, a master's student and an officer of the Ministry of Public Works of Madagascar, delivered a presentation titled "The Effect of Solid Waste on Urban Flood and Sanitation in Madagascar," covering the following points:

- Analysis of the impacts of solid waste on urban flooding and sanitation issues in Madagascar.
- Explanation of how clogged drainage channels in the capital, Antananarivo, exacerbate flooding, leading to contamination of drinking water, malfunctioning toilets, and the spread of infectious diseases.
- Presentation of a quantitative assessment integrating the Rainfall-Runoff-Inundation Model with the drainage network, evaluating reduced drainage capacity and resulting inundation caused by waste accumulation.
- Identification of bridge areas as major bottlenecks, and recommendation that improving drainage infrastructure, strengthening waste collection, enhancing inter-agency coordination, and prioritizing investment in the water and sanitation sectors are essential for reducing flood risk and improving public health.



Master's student
Rambolamanana
Faranirina Sarindra
修士課程学生のランボラ
マナナ ファラニリナ
サリンドラ氏

There was an active discussion session, with comments from H.E. Hani Sewilam and Dr. Pema Gyamtsho, among others, in response to the presentations.

Finally, Executive Director KOIKE Toshio wrapped up the presentation session by expressing his appreciation for the visitors.

ICHARM will continue to offer research presentations such as this for senior officials and others from Japan and abroad, aiming to mainstream disaster risk reduction worldwide.



Executive Director Koike
小池センター長

季節による偏在により洪水や干ばつが発生し、農村部の生活や農業に深刻な影響を与えている。

- また、水質汚染による健康被害や気候変動による災害リスクの増大が、脆弱な層の貧困をさらに深めている。
- 一方、スリランカにおける「マハウェリ開発計画」などの水資源管理は農業、生計、エネルギー供給の向上に貢献していることを紹介。
- 持続可能な発展と貧困削減には、気候変動への適応と統合的水資源管理が不可欠であると結論。

ランボラマナナ ファラニリナ サリンドラ (MADAGASCAR) (修士課程の学生、マダガスカル公共事業省 (Ministry of Public Works)) からは、「マダガスカルにおける都市の洪水と衛生に対する固形廃棄物の影響 (The effect of solid waste on urban flood and sanitation in Madagascar)」と題し、以下の内容を紹介しました。

- マダガスカルの都市洪水と衛生問題に対する固形廃棄物の影響を分析。
- 首都アンタナナリボでは排水路のごみ詰まりが洪水を悪化させ、飲料水汚染やトイレの機能不全、感染症拡大を引き起こしている。
- 研究では RRI 洪水モデルと排水ネットワークを統合し、ごみによる排水能力低下と浸水被害を定量的に評価した。
- その結果、橋梁周辺が主要なボトルネックであることを示し、排水インフラ整備、ごみ収集強化、組織間連携、水・衛生分野への重点投資が洪水リスク低減と公衆衛生改善に不可欠であると提言。

フロアからは、スウェイルム水資源・灌漑大臣やペマ・ギャムツォ ICIMOD 事務局長から発表に対してコメントを頂くなど、活発な質疑応答がありました。

最後に、小池俊雄センター長から来訪に対するお礼の言葉を申し上げ、研究紹介セッションは終了しました。

ICHARM は、世界における防災の主流化を目指し、国内外の高官に対するこのような研究紹介活動を今後も行っていきます。



Front row, from left: Chief Researcher Kuribayashi, Executive Director Koike, Ambassador ElEtreby, Special Envoy Kamikawa, Minister Sewilam, Assistant Minister Balalaa, Director General Gyamtsho, and PWRI President Fujita
集合写真

(前列左から、栗林 ICHARM 上席研究員、小池 ICHARM センター長、ラギー・エルエトレビー エジプト・アラブ共和国 駐日特命全権大使、上川陽子 2026 国連水会議総理特使 / 衆議院議員 / 元外務大臣、ハニー・スウェイルム エジプト・アラブ共和国 水資源・灌漑大臣、アブドゥラ・バララ アラブ首長国連邦 外務副大臣 (エネルギー・持続可能性担当)、ペマ・ギャムツォ 国際総合山岳開発センター (ICIMOD) 事務局長、藤田土木研究所理事長)

(Written by KURIBAYASHI Daisuke)

International symposium commemorating the 50th anniversary of Japan's Water Day "Thinking Future of Water"

「水の日」・「水の週間」第50回特別行事「水の未来を考える国際シンポジウム」

2026年7月28日(火)に日本未来科学館において、「水の日」・「水の週間」第50回特別行事として「水の未来を考える国際シンポジウム」が開催されました。本シンポジウムは、日本の「水の日」・「水の週間」が第50回を迎え、また12月には国連水会議2026が開催されるという節目に、年々拡大する気候変動による水リスクの削減と同時に持続可能な社会づくりに向け、世界各国が取り組むべき治水・利水・環境を踏まえた包括的水管理のあり方を議論することを目的として開催されたものです。本シンポジウムは天皇陛下のご聴講を賜りました。

ハン・スンス水と災害に関するハイレベルパネル(HELP)議長による開会挨拶の後、金子恭之国土交通大臣(当時)、小池百合子東京都知事、および小池俊雄水の週間実行委員会会長(ICHARM センター長)から主催者挨拶があり、上川陽子国連水会議2026 総理特使/衆議院議員から祝辞がありました。小池実行委員会会長からは、「健全な水循環」「流域治水」、そしてこれらを包括する「流域総合水管理」に至る経緯、そして7月31日の「水の日」のつどいで発表する声明案「私たちが描く水の未来」の紹介がありました。

続く基調講演では、神田真人アジア開発銀行総裁から、気候変動適応に関するアジア開発銀行の融資実績・予定や日本の支援による基金の設置、他開発銀行との連携について紹介がありました。また、ハニー・スウェイラム エジプト・アラブ共和国水資源・灌漑大臣からは、エジプトにおける水資源の状況およびAI技術等を活用した水に関するリスク管理技術の高度化の事例、また、日本とエジプトが共同議長を務める国連水会議2026ID-Cへの意気込みが述べられました。続いて、アブドゥラ・バララ アラブ首長国連邦外務副大臣(エネルギー・持続可能性担当)から、国連水会議2026のホスト国として、持続可能で測定可能な具体的行動とパートナーシップの創出への期待が述べられました。虫明功臣東京大学名誉教授からは、「流域総合水管理」に関し、流域水マネジメントは国による国土管理の一環であり、地域性・多様性の尊重、セクター間連携の重要性、また走りながら考える柔軟な対応の必要性が指摘されました。

また、廣木謙三政策研究大学院大学名誉教授をモデレータ役とするハイレベルパネルが実施され、サロージ・クマール・ジャール 世界銀行水部門グローバルディレクター、角南篤笹川平和財団理事長、ペマ・ギャムツォ 国際総合山岳開発センター(ICIMOD) 事務局長、野田由美子日本経済団体連合会副会長・環境委員長が参加しました。

The International Symposium Commemorating the 50th Anniversary of Japan's Water Day, "Thinking Future of Water," was held on July 28, 2026, at Miraikan Hall of the National Museum of Emerging Science and Innovation in Tokyo, Japan, with His Majesty the Emperor in attendance. The symposium – marking a significant milestone, the 50th anniversary of Japan's Water Day and Water Week – was also planned in anticipation of the 2026 United Nations Water Conference (UNWC) to be held in December. Its purpose was to discuss approaches to integrated water management encompassing flood management, water utilization, and environmental conservation, in order to reduce water-related risks arising from increasingly severe climate change while promoting the development of sustainable societies worldwide. Executive Director KOIKE Toshio participated in the event as the chair of the Water Week organizing committee.

Following the opening remarks by Dr. Han Seung-soo, the chair of the High-Level Experts and Leaders Panel on Water and Disasters (HELP) and a former prime minister of the Republic of Korea, Prof. Koike spoke alongside other organizers, including KANEKO Yasushi, Minister of Land, Infrastructure, Transport and Tourism of Japan (at that time), and KOIKE Yuriko, Governor of Tokyo. Congratulatory remarks were also given by KAMIKAWA Yoko, Special Envoy of the Prime Minister for the 2026 UN Water Conference.

In his speech, Prof. Koike introduced the evolution of basin management concepts from "sound water cycle" and "River Basin Disaster Resilience and Sustainability by All" to the broader framework of "Integrated River Basin Management for All." He also presented the draft declaration entitled "The Water Future We Envision," scheduled for delivery at the Water Day gathering on July 31.

The keynote session began with a presentation by KANDA Masato, the President of the Asian Development Bank. He outlined the bank's achievements and future plans in financing climate change adaptation projects, the establishment of funds supported by Japan, and collaboration with other development banks. Hani Sewilam, the Egyptian Minister of Water Resources and Irrigation, spoke on the state of water resources in Egypt, highlighting examples of advanced water-related risk management technologies utilizing AI and other innovations. He also expressed his commitment to the 2026 UNWC Interactive Dialogue C, "Water for Planet," for which Japan and Egypt serve as co-chairs. Abdulla Balalaa, Assistant Minister of Foreign Affairs for Energy Sustainable Affairs of the United Arab Emirates, spoke as a representative of the UNWC host country, expressing his expectations for the creation of sustainable and measurable actions as well as new partnerships through the conference. MUSHIAKE Katsumi, a professor emeritus at the University of Tokyo, discussed the concept of "Integrated River Basin Management for All," noting that river basin management should be regarded as an integral part of national land management. He stressed the importance of respecting local characteristics and diversity, Cross-sector collaboration, and maintaining the flexibility to adapt and learn while implementing policies.

A high-level panel discussion was also held, moderated by HIROKI Kenzo, a professor emeritus at the National Graduate Institute for Policy Studies, who is also the HELP Coordinator. Panelists included Saroj Kumar Jha, the Global Director for the World Bank Group's Water Department; SUNAMI Atsushi, the President of the Sasakawa Peace Foundation; Pema Gyamtsho, the Director General of the International Centre for Integrated Mountain Development (ICIMOD); and NODA Yumiko, the Vice Chair and the Chair of the Environment Committee at Keidanren (Japan Business Federation).

Throughout the symposium, participants shared the view that water forms the foundation of employment, economic prosperity, and peace. In addressing challenges

such as glacier melt caused by climate change, growing water demand, and the need for environmental improvement, including water quality enhancement, speakers emphasized the necessity of comprehensive river-basin water management. They further highlighted the importance of public-private partnerships, the participation of women, technological innovation, data-driven decision-making, and international cooperation in achieving these goals.

ICHARM hopes that the outcomes of this symposium will be shared with the international community through forthcoming conferences and other forums, generating synergies that will contribute to enhancing global efforts to address water-related challenges, including discussions and actions toward the post-2030 agenda.



Executive Director Koike speaking at the symposium (Source: the symposium secretariat)
小池実行委員会会長 (ICHARM センター長) の挨拶 (主催事務局提供)

(Written by FURUMOTO Kazushi)

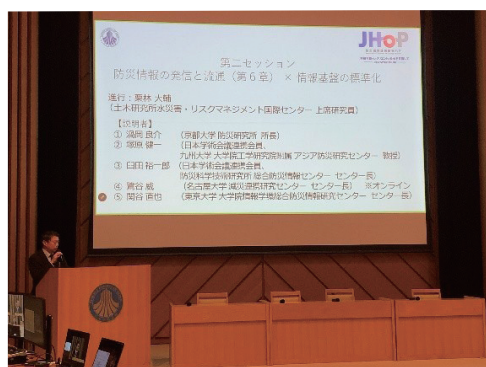
全体を通じ、水は雇用・経済・平和を支える基盤であることが共有され、気候変動の影響による氷河の融解や水需要増大、水質を含む環境改善への対応として、包括的な流域水管理の必要性、そのための官民連携、女性参画、技術革新の推進とともに、データに基づく意思決定と国際協調の重要性が強調されました。本シンポジウムの成果が、国連水会議2026等を通じて国際社会に発信され、ポスト2030アジェンダにおける議論や行動を含めて、世界的な水問題解決に向け相乗効果が発揮されることが期待されます。

Participation in the public symposium co-hosted by SCJ and JHoP on building a sustainable and resilient society

日本学術会議×防災・減災20機関による公開シンポジウム「分野横断を活性化する『防災減災連携研究ハブ (JHoP)』が目指す持続可能でレジリエントな社会」参加報告

The Japan Hub of Disaster Resilience Partners (JHoP) is a network-based organization established in 2019 as Japan's hub for flexibly promoting integrated disaster risk reduction (DRR) research in collaboration with overseas organizations under the framework of the Integrated Research on Disaster Risk (IRDR), an international science program. Twenty universities, research institutes, and administrative bodies in Japan engaged in disaster prevention and mitigation participate in this initiative. ICHARM is among these member entities.

JHoP collaborates closely with ongoing discussions within the Subcommittee on IRDR of the Committee on Civil Engineering and Architecture of the Science Council of Japan (SCJ). It has established a joint task force with this subcommittee, providing a forum through which researchers and practitioners meet monthly and maintain close communication. The subcommittee also has the IRDR Activity Promotion Working Group, of which Executive Director KOIKE Toshio and Chief Researcher KURIBAYASHI Daisuke are members.



Chief Researcher Kuribayashi chairs the second session of the symposium.
第2セッションで司会進行を務める栗林上席研究員

「防災減災連携研究ハブ (JHoP : Japan Hub of Disaster Resilience Partners)」は、2019年に発足した、防災・減災に関わる国内の大学・研究拠点及び実務機関、計20組織をメンバーとするネットワーク型の組織で、統合的なDRR (Disaster Risk reduction : 災害リスク軽減) 研究を推進しています¹⁾。ICHARMもメンバーとして参画しています。

このJHoPは、日本学術会議土木工学・建築学委員会IRDR分科会での継続的な議論を背景に、防災に関する国際科学プログラムIRDR(Integrated Research on Disaster Risk)の枠組下で海外組織と連携して、国際的な災害リスク統合研究を機動的に推進するための日本拠点として設立されました²⁾。なお、小池俊雄センター長と栗林大輔上席研究員は、IRDR分科会のもとにあるIRDR活動推進小委員会のメンバーを務めています。また、このJHoPとIRDR分科会は合同タスクフォースを設置し、防災研究者・実務者が毎月議論するなど、密接なつながりがあります。

これらの背景のもと、2026年8月26日(水)、IRDR分科会とJHoPが主催し、日本学術会議講堂(東京都港区)において、標記シンポジウムがハイブリッド形式で開催されました。本シンポジウムでは、JHoP発足後初めての機会として、参画機関の登壇者が多様な実践を紹介するとともに、日本学術会議から2026年4月10日に発出された提言「壊滅的災害が想定されるメガシティの防災力強化に向けた科学技術イノベーション」³⁾とJHoPの4つの活動を掛け合わせて議論し、学術と社会をつなぐ防災減災の連携強化を目指しました。

シンポジウムは、臼田裕一郎防災科学技術研究所総合防災情報センター長(日本学術会議連携会員)の司会で進行し、實験防災科学研究所理事長(日本学術会議連携会員)による開催趣旨およびJHoPの紹介、田村圭子新潟大学危機管理本部危機管理センター特任教授(日本学術会議第三部会員)による提言の紹介ののち、4つのセッションが行われました⁴⁾。栗林上席研究員は、第2セッション「防災情報の発信と流通(第6章)×情報基盤の標準化」の司会進行を務めました。第2セッションでは、以下の方から各組織の紹介を行いました。

- ・渦岡良介京都大学防災研究所所長
- ・塚原健一日本学術会議連携会員、九州大学大学院工学研究院附属アジア防災研究センター教授
- ・臼田裕一郎センター長
- ・鷺谷威名古屋大学減災連携研究センター長(WEB参加)
- ・関谷直也東京大学大学院情報学環総合防災情報研究センター長(ビデオ発表)

発表後のパネルディスカッションでは、提言8「防災情報の最新技術・知見を活用する」、提言9「防災に有効なAIの開発を主導的に進める」に関して議論を行いました。提言8に関しては、単なる「Information(情報)」ではなく行動につながる「Intelligence(インテリジェンス)」とすること、例えば洪水対応ではSIPで開発されたIDR4M(市町村災害対応総合システム)というシステムを用いると6時間の猶予があり、市町村にとっては情報をインテリジェンス化するのには有効といったコメントがありました。また、マスコミは「想定外」といった言葉はセンセーショナルに伝えがちだが、防災意識向上や防災対策を進めるため、着実に指標化して伝えられるべきというコメントもありました。提言9に関しては、AIを防災で活用するには、ブラックボックスと思われるのではなく、防災に関する既存の規則やルールを組み込むなど透明性の高いAIを構築し、首長の判断を支援できるものが望ましいとのコメントがありました。

また、栗林上席研究員は、セッション4「メガシティの防災のための科学技術イノベーション(第8章)×産学官民連携」で、ICHARMの活動紹介を行い、主に、フィリ

On August 26, 2026, the Subcommittee on IRDR and JHoP jointly hosted a hybrid public symposium, "Towards a Sustainable and Resilient Society: Japan Hub of Disaster Resilience Partner (JHoP) Stimulating Cross-Disciplinary Collaboration," at SCJ's Auditorium in Minato-ku, Tokyo. As the first opportunity since JHoP's establishment, speakers from participating institutions presented a wide range of practices, and participants discussed various issues by combining JHoP's four principal areas of activity with the policy recommendations issued by SCJ on April 10, 2026, under the overarching title "Science, Technology and Innovation to Strengthen Disaster Resilience in Megacities Facing Catastrophic Disaster Risks." The symposium aimed to strengthen collaboration between academia and society in disaster prevention and mitigation.

The symposium was moderated by USUDA Yuichiro, the director of the Center for Digital Transformation and Action Research at the National Research Institute for Earth Science and Disaster Resilience (NIED) and an SCJ associate member. Following opening remarks and an introduction to JHoP by TAKARA Kaoru, the president of NIED and an SCJ associate member, and an overview of the policy recommendations by TAMURA Keiko, a specially appointed professor at the Crisis Management Center of Niigata University's Headquarters for Risk Management and a member of SCJ Section III Physical Sciences and Engineering, four sessions were held. Kuribayashi chaired Session 2, "Dissemination and Circulation of Disaster Information (Chapter 6 of the policy recommendations) × Standardization of Information Infrastructure." In this session, the following speakers introduced their respective organizations:

- ・UZUOKA Ryosuke, Director, Disaster Prevention Research Institute, Kyoto University
- ・TSUKAHARA Kenichi, Associate Member, SCJ; Professor, Disaster Risk Reduction Research Center, Graduate School of Engineering, Kyushu University
- ・USUDA Yuichiro, Director, Center for Integrated Disaster Information, NIED
- ・SAGIYA Takeshi, Director, Disaster Mitigation Research Center, Nagoya University (online participation)
- ・SEKIYA Naoya, Director, Center for Integrated Disaster Information Studies, Interfaculty Initiative in Information Studies, The University of Tokyo (video presentation)

In the panel discussion following the presentations, participants discussed Recommendation 8, "Utilizing the Latest Technologies and Knowledge in Disaster Information," and Recommendation 9, "Taking the Lead in Developing AI Effective for Disaster Management." Regarding Recommendation 8, speakers emphasized the need to transform mere information into actionable intelligence. For example, in flood response, the Integrated Disaster Response System for Municipalities (IDR4M), developed under the Cross-ministerial Strategic Innovation Promotion Program, provides a six-hour lead time, which was noted as highly effective for municipalities in converting information into intelligence. Another comment pointed out that while mass media tend to focus on sensational disaster-related figures as unexpected, greater efforts should be made to encourage them to help raise public awareness and preparedness, for example, by providing more information on effective practices for reducing disaster damage. Regarding Recommendation 9, speakers noted that for AI to be effectively used in disaster management, it should not be perceived as a black box. Instead, "disaster-specialized AI systems" should be developed by incorporating existing disaster-management rules and regulations to ensure as much transparency as possible, enabling local government leaders to rely on them more confidently in their decision-making.

In Session 4, "Science, Technology and Innovation for Disaster Resilience in Megacities (Chapter 8 of the policy recommendations) × Collaboration among Industry, Academia, Government, and Communities," Kuribayashi introduced ICHARM's activities. He highlighted two initiatives: the "Water Resilience and Disaster Platform" underway in Davao, Philippines, under the International Flood Initiative (IFI), and the Online Synthesis System for Sustainability and Resilience (OSS-SR),

a knowledge integration system. In the subsequent panel discussion, participants discussed Recommendation 13, "Establishing a Science and Technology Innovation Platform for Disaster Management," and Recommendation 14, "Strategically and Continuously Providing Recommendations Addressing Disaster-Related Challenges Based on Societal Needs." Referring to the roles of academia, Kuribayashi argued that universities and research institutes, key components of JHoP, possess unique advantages, such as diverse means and opportunities for risk communication. He emphasized that they can serve as a bridge between governments and communities by drawing on these strengths, and are well positioned to directly engage with residents.

For more information on JHoP:

<https://www.bosai.go.jp/jhop/en/>



Speakers and JHoP secretariat members

Front row, from left: Professor OHARA Miho of the University of Tokyo, Specially Appointed Professor Tamura, President Takara, and Director Usuda. (Professor Ohara chaired the first session of the symposium.)

発表者及び JHoP 事務局メンバーとの集合写真

(前列左から第 1 セッションの進行を務めた大原美保教授 (東京大学)、田村特任教授、實理事長、白田センター長)

ン・ダバオにおいて国際洪水イニシアティブ (IFI) で取り組む「水のレジリエンスと災害に関するプラットフォーム」、および OSS-SR (Online Synthesis System for Sustainability and Resilience: 知の統合システム) を紹介しました。その後のパネルディスカッションでは、提言 13「防災分野の科学技術イノベーションプラットフォームを構築する」、提言 14「社会のニーズに基づく防災課題に対応した提言を戦略的・継続的に提供する」に関する議論を行いました。産官学民における「学」の立場から JHoP の主要構成組織である大学等の研究組織は、どのようにあるべきかの議論では、栗林上席研究員は、「学」は様々なリスクコミュニケーションの手段や機会を持っており、「官」と「民 (住民)」をつなぐ役割や、「民」の中に直接入り込める役割など多様な役割を担いえることを主張しました。

1) JHoP ホームページ

(日本語) <https://www.bosai.go.jp/jhop/>

(英語) <https://www.bosai.go.jp/jhop/en/>

2) 文部科学省 防災科学技術委員会 (第 53 回) 会議資料 (開催日 令和 3 年 11 月 11 日) 資料 3-5「防災レジリエンス研究の国際的な拠点形成について ~国際機関や日本学術会議と連携した日本の ICoE 構築と展開」

https://www.mext.go.jp/kaigisiryoy/content/20211110-mxt-jishin01-000018462_9.pdf

3) 提言「壊滅的災害が想定されるメガシティの防災力強化に向けた科学技術イノベーション」

<https://www.scj.go.jp/ja/info/kohyo/pdf2/kohyo-26-t399.pdf>

4) シンポジウムプログラム (日本学術会議ホームページ)

<https://www.scj.go.jp/ja/event/2026/399-s-0826.html>

(Written by KURIBAYASHI Daisuke)

The 15th Typhoon Committee's WGH annual meeting 台風委員会水文部会第 15 回年次会合への参加

The 15th annual meeting of the Working Group on Hydrology (WGH) of the Typhoon Committee was held in Kuala Lumpur, Malaysia, from September 8 to 10, 2026. The meeting was co-hosted by Japan's Ministry of Land, Infrastructure, Transport and Tourism and Malaysia's Department of Irrigation and Drainage (DID). WGH is one of the committee's four working groups, alongside the Working Group on Meteorology, the Working Group on Disaster Risk Reduction, and the Training and Research Coordination Group. This year's meeting was held under the theme "Scaling Flood Resilience with Advanced Technology ~the AI Revolution~" and was attended by more than 30 practitioners and researchers from eight countries (China, Japan, Lao PDR, Malaysia, the Philippines, Republic of Korea, Thailand, and Vietnam) and the Typhoon Committee Secretariat, including online participants. From ICHARM, Senior Researchers MIYAMOTO Mamoru, KAKINUMA Daiki, and MOROOKA Yoshimasa attended the meeting.

台風委員会水文部会第 15 回年次会合 (WGH) が 2026 年 9 月 8 日から 10 日の 3 日間、日本の国土交通省とマレーシア灌漑排水局 (DID: Department of Irrigation and Drainage) との共同ホストによりマレーシアのクアラルンプールにおいて開催されました。なお、台風委員会 (TC: Typhoon Committee) は気象部会 (WGM: Working Group on Meteorology)、水文部会 (Working Group on Hydrology)、防災部会 (Working Group on Disaster Risk Reduction)、トレーニング・研究連携部会 (Training and Research Coordination Group) の 4 つの部会が構成されています。

本会合は「先端技術を活用した洪水レジリエンスの強化 ～AI 革命～」をテーマとし、8 カ国（中国、日本、ラオス、マレーシア、フィリピン、韓国、タイ、ベトナム）と台風委員会事務局からオンラインを含め 30 名以上の実務者や研究者が参加しました。ICHARM から水文部会議長の宮本守主任研究員と柿沼太真主任研究員、諸岡良優主任研究員が参加しました。

会合では、DID、中国水利部情報センター、ICHARM の柿沼主任研究員からのテクニカルプレゼンテーションの後、各メンバー国から昨年と今年の台風や洪水対策の取り組みに関する報告があり、議長長の宮本主任研究員の主導の下、活発な議論が交わされました。柿沼主任研究員のテクニカルプレゼンテーションでは、日本の中小河川における洪水予測システムの紹介及び SATREPS アルゼンチンプロジェクトにおける気象・水文分野を融合したプラットフォームの社会実装事例を紹介しました。さらに、8 つの現在進行中の年間実行計画（AOP：Annual Operating Plan）の進捗と成果、予算執行状況を議論しました。その他、第 21 回統合部会（IWS：Integrated Workshop）の開催準備に関する議論や年次総会に向けた水文部会方針の取り決め等、今期の部会運営に係る様々な議題が議論されました。

ICHARM では、台風委員会を水災害レジリエンス向上のための地域協力を促進する最も重要な国際地域枠組みの 1 つと理解し、引き続きこの取り組みに貢献してまいります。

The meeting opened with technical presentations from DID, the Information Center of China's Ministry of Water Resources, and Kakinuma. Representatives from each member country then reported on their typhoon and flood countermeasures for 2025 and 2026, followed by a lively discussion led by Chairperson Miyamoto. In his technical presentation, Kakinuma introduced a flood forecasting system for small and medium-sized rivers in Japan and presented a practical application of an integrated meteorological and hydrological platform developed under the SATREPS Argentina Project.

The participants also reviewed the progress, outcomes, and budget status of eight ongoing Annual Operating Plans. Other agenda items included preparations for the 21st Integrated Workshop and the formulation of WGH's policy for the upcoming annual session, covering various topics related to the group's operations during the current term.

ICHARM recognizes the Typhoon Committee as one of the most important international frameworks for promoting regional cooperation to enhance water-related disaster resilience and intends to continue contributing to this effort.



Participants in the 15th WGH annual meeting
台風委員会水文部会年次会合の参加者



Presentations by Senior Researchers Kakinuma (left) and Miyamoto
会合での発表の様子（左：柿沼主任研究員、右：宮本主任研究員）

(Written by MOROOKA Yoshimasa)

The 33rd UNESCO IHP Regional Steering Committee Meeting for Asia and the Pacific in Turpan, China

第 33 回ユネスコ IHP アジア太平洋地域運営委員会（中国トルファン）

9 月 16 日～18 日に、中国トルファンで、第 33 回ユネスコ政府間水文学計画アジア太平洋地域運営委員会（IHP RSC-AP）が開催されました。会議は、中国水利水電科学研究所（IWHR）が主催した、第 6 回水文化国際検討会（ISWC）の一環として設けられたものです。ユネスコ・ジャカルタ事務所が事務局を務め、日本

From September 16 to 18, the 33rd UNESCO Intergovernmental Hydrological Programme Regional Steering Committee for Asia and the Pacific (IHP RSC-AP) meeting was held in Turpan, China, in conjunction with the 6th International Seminar on Water Culture (ISWC) organized by the China Institute of Water Resources and Hydropower Research (IWHR). The IHP RSC-AP Secretariat at the UNESCO Jakarta Office facilitated the meeting, which was funded by the Japan Funds-in-Trust (JFIT), a contribution from the Japanese government to UNESCO.

On the first day, the meeting started with welcome remarks by representatives of UNESCO Headquarters, the Ministry of Water Resources of China, and IWHR, followed by the launch ceremony for the 4th edition of the Catalogue of Hydrologic Analysis (CHA). The Secretariat reported on preparations for the 5th edition of CHA and the submission of two side-event proposals to the 11th World Water Forum by the relevant RSC-AP working groups. Furthermore, ten IHP member countries and several UNESCO Water Family institutions shared updates on their activities. Chief Researcher OKADA Tomoyuki presented recent research outcomes related to climate change, early warning, and reservoir optimization, as well as activities commemorating the 20th anniversary of ICHARM. At the end of the meeting, Malaysia was selected as the next chair of RSC-AP, and Indonesia offered to host the 34th meeting in 2027.

On the second day, the plenary and five parallel technical sessions of the 6th ISWC were organized. During session 5, "Operationalizing water wisdom: Decision support, data integration, and adaptive management," Okada made a presentation, "Climate change impact on future rainfall, and agricultural drought assessment." A workshop followed to discuss the 5th CHA, which will focus on IWRM and feature 17 case studies, including one from Japan.

On the third day, participants joined a technical excursion to the underground canals at the Turpan Karez Museum, the UNESCO World Heritage Site "Jiaohe Ruins," and a water-saving demonstration site for grape cultivation in Hongxing District. These sites, located at the foot of the Tian Shan range, showcase both ancient and modern water management systems adapted to an extremely arid climate, with annual rainfall of 16 mm and annual evaporation of 3,000 mm.

Annual IHP RSC-AP meetings provide IHP organizations with opportunities to learn about best practices in water management and experience original local water cultures.



33rd IHP RSC-AP meeting
第33回 IHP アジア太平洋地域運営委員会



Outlet of an underground canal
at the Turpan Karez Museum
カレーズ博物館の地下水路出口



Jiaohe Ruins, a UNESCO World Heritage Site
ユネスコ世界遺産「交河故城」都市遺跡



Water-saving demonstration site for grape cultivation
節水モデル葡萄園

政府がユネスコに拠出している日本信託基金が開催を支援しました。

初日は、ユネスコ本部、中国水利部、水利水電科学研究院の挨拶で会議が始まり、「水文分析カタログ」第4版の発行記念式典が続きました。事務局からは、「水文分析カタログ」第5版の準備プロセスや、第11回世界水フォーラムのサイドイベントをRSC-APワーキンググループが2件申請中、といった説明がありました。さらに、IHPメンバー10カ国とユネスコ水ファミリー機関が活動報告を行いました。ICHARMの岡田智幸上席研究員は、気候変動、予警報、貯水池運用効率化の研究結果とともにICHARM 20周年を紹介しました。会議の最後に、マレーシアが次期RSC-AP議長国に選出され、インドネシアは回目の会議主催を申し出ました。

2日目は、第6回水文化国際検討会の本会議と、5つの並行した技術セッションが行われました。第5セッション「水の知恵の活用：意思決定支援、データ統合、順応的管理」では、岡田が「将来降雨に対する気候変動影響と農業渇水評価」と題する発表を行いました。続いて、統合水資源管理がテーマの「水文分析カタログ」第5版を議論するワークショップが開かれ、日本のものを含む17件の事例が紹介されました。

3日目は技術視察として、トルファン・カレーズ博物館の地下水路、ユネスコ世界遺産「交河故城」都市遺跡、紅星地区の節水モデル葡萄園を訪問しました。これらは天山山脈の麓に位置する、古代と現代の水管理システムで、年降水量16mm、年蒸発量3,000mmという極端な乾燥気候に適するように発達したものです。

毎年開催されているRSC-AP会議は、水管理の優良事例を学び、地域独自の水文化を体験するすばらしい機会となっています。

(Written by OKADA Tomoyuki)

● Research

Introduction of ICHARM research projects / 研究紹介

ICHARMは、その使命を果たすため、世界及び地域での災害の傾向及び経験と災害対応に関する地域のニーズ、重要課題、開発段階等を踏まえつつ、自然、社会及び文化といった地域の多様性を考慮する原則というローカリズムを念頭に、研究、能力育成及び情報ネットワーク構築の3本柱を有機的に連携させて、現地実践活動を実施しています。

そのうち、研究としては

- (1) 水災害データの収集、保存、共有、統計化
- (2) 水災害リスクのアセスメント
- (3) 水災害リスクの変化のモニタリングと予測
- (4) 水災害リスク軽減の政策事例の提示、評価と適用支援
- (5) 防災・減災の実践力の向上支援

の5つの柱のもと、革新的な研究活動を行っています。

本号では、(2)に関する取組例としてアブドゥル ワヒド モハメッド ラスミー主任研究員より「A Climate-Hydro-Crop Modeling Framework for Assessing Climate Change Impacts on Hydrometeorology and Rain-Fed Paddy Yield in the Pampanga River Basin, Philippines」を紹介しします。

ICHARM sets three principal areas of activity: research, capacity building, and information network. It plans and implements projects in these areas in order to fulfill its mission, always keeping in mind "localism", a principle with which we respect local diversity of natural, social and cultural conditions, while remaining sensitive to local needs, priorities, development stages, and other factors, within the context of global and regional experiences and trends of disasters.

At present, ICHARM conducts innovative research in the following five major areas:

- (1) Data collection, storage, sharing, and statistics on water related disasters**
- (2) Risk assessment on water related disasters**
- (3) Monitoring and prediction of changes in water related disaster risk**
- (4) Proposal, evaluation and application of policy ideas for water related disaster risk reduction**
- (5) Support in constructing the applicability of water-related disaster management**

In this issue, Senior Researcher Abdul Wahid Mohamed RASMY shares his recent research, titled "A Climate-Hydro-Crop Modeling Framework for Assessing Climate Change Impacts on Hydrometeorology and Rain-Fed Paddy Yield in the Pampanga River Basin, Philippines".



A Climate-Hydro-Crop Modeling Framework for Assessing Climate Change Impacts on Hydrometeorology and Rain-Fed Paddy Yield in the Pampanga River Basin, Philippines

Abdul Wahid Mohamed RASMY, Senior Researcher

アブドゥル ワヒド モハメッド ラスミー主任研究員

Climate change poses a significant threat to water and food security, highlighting the urgent need to quantify evolving climate-related risks within the water-food nexus. Developing appropriate disaster risk reduction policies requires the reliable quantification of climate change impacts not only on water availability and water-related disasters but also on food production. Although extensive studies have examined the impacts of climate change on hydrometeorological processes, the climate-hydro-crop nexus remains largely unexplored under changing climatic conditions. In this context, using the latest scientific and technological advancements, such as global climate model (GCM) outputs and downscaling techniques, seamless hydrological modeling, and crop modeling, provides a unique opportunity to simultaneously quantify the impacts of climate change on catchment-scale water availability, water-related disasters, and food production.

Regional climate models (RCMs) are used to simulate finer-scale processes that are consistent with larger-scale phenomena prescribed by GCMs. Although RCMs can improve atmospheric quantities, including extreme rainfall, errors attributed to their parent GCMs and model parameterizations are not necessarily reduced by increasing resolution, leaving uncertainties in climate change impact assessments unresolved. A common approach to correcting rainfall biases is to apply statistical bias correction methods under the assumption of stationarity. Therefore, using statistically bias-corrected, high-resolution RCM rainfall outputs is preferable for climate change impact studies, given their superior performance in simulating rainfall amounts and distributions.

Distributed hydrological models are essential tools to provide evidence-based information on future water resources and water-related disasters. In a warming climate, both floods and droughts are likely to intensify, with both hydrological extremes potentially occurring within the same year. Rather than being treated as separate hazards, floods and droughts should be managed in an integrated manner. To seamlessly simulate these extremes, hydrological models must be physically based and capable of addressing parameters related to floods (e.g., peak flood discharge and inundation), droughts (e.g., soil moisture, evapotranspiration, and low-flow discharges), and crop growth (e.g., soil moisture and temperature), all of which are influenced by varying surface energy, temperature, and sequences of extreme dry and wet periods. As a result, Rasmy et al. (2019) developed the Water and Energy Budget-Based

Rainfall-Runoff-Inundation (WEB-RRI) model, which considers water- and energy-related processes, land–vegetation–atmosphere interactions, and soil moisture dynamics that are essential for crop growth estimation. It is one of the most appropriate models for reliably simulating basin hydrological responses to variability in water cycles and climate change.

Paddy rice is a staple food worldwide, and its cultivation accounts for a significant share of food production in Asia. In this study, we adopted the Simulation Model for Rice-Weather Relationships (SIMRIW), a simplified process-based model for simulating the growth and yield of irrigated rice. The model simulates three major processes: plant ontogenetic development, leaf area expansion, and dry matter accumulation. Homma and Horie (2009) expanded this model to simulate rice growth under rain-fed conditions by incorporating water-stress and nitrogen-supply modules. The model has been validated in many regions, including Japan, the USA, Thailand, Indonesia, and Lao PDR. In addition, we incorporated a formula to consider the impact of flood depth and duration on rice damage and yield estimation (Rasmy et al., 2026).

This study presents a climate–hydro–crop modeling framework to investigate the impacts of climate change on catchment-scale hydrometeorological characteristics and paddy rice yields (Fig. 1). The framework integrates high-resolution (~5 km) downscaled climate projections from the MRI-AGCM-3.2S model under the RCP8.5 scenario, a statistical bias-correction method based on long-term in-situ observations, the WEB-RRI hydrological model, and the SIMRIW model for application in the Pampanga River Basin, Philippines.

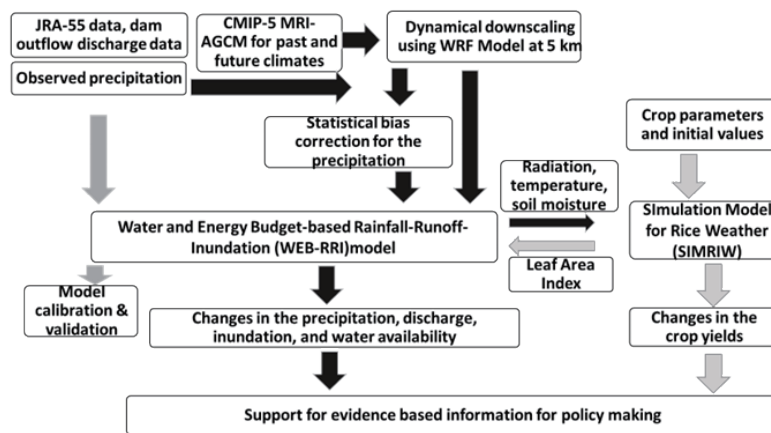


Figure 1: Research framework for assessing the impact of climate change on water resources and crop yields in the Pampanga River Basin.

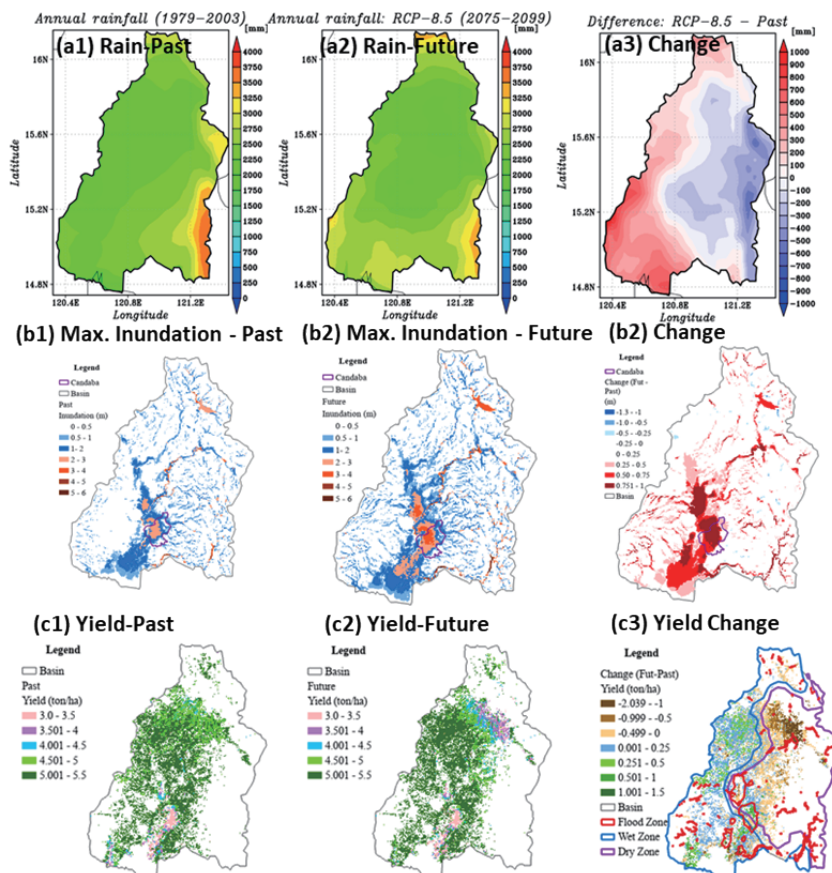


Figure 2: Comparison of the annual average rainfall (mm/year) (a1-a3), maximum inundation (m) (b1-b3), and annual average yield (ton/ha) between the historical period and the RCP8.5 scenario; (a) past climatology, (b) future climatology, and (c) projected yield changes between the future and past periods

The results showed that during the historical period, annual rainfall mostly ranged between 1,500 and 3,500 mm, with higher intensities observed in the eastern part of the region (Fig.2a1). However, under the RCP8.5 scenario, changes were observed in both the magnitude and spatial distribution of rainfall, with some areas experiencing decreases and others increases. In particular, rainfall was projected to increase in the western and southern areas and decrease in the central and eastern areas (Fig.2a3). While the total rainfall is expected to increase by only 2.5%, extreme rainfall events are likely to become both more intense (by ~30%) and more frequent (not shown). These projected shifts in rainfall patterns and intensities have severe implications for water availability and agricultural productivity in the basin.

Hydrological model simulation results showed that flood inundation area and flood risk are likely to increase in the basin under the RCP8.5 scenario. Past inundation patterns (Fig. 2b1) showed that low-lying regions, especially around the Candaba area, experienced significant flooding, with depths of 2–3 m. Under future climate conditions, flood inundation depths in the same area is expected to increase to approximately 3–4 m (Fig. 2b2). At the same time, the flow duration curves indicated that daily discharge rates will decline in the future. The decreasing trend is visible for exceedance probabilities greater than 20% at the San Isidro discharge locations (not shown).

The spatial distribution of simulated rain-fed rice yield results showed that most areas of the basin are characterized by relatively high yields ranging from 4.5 to 5.50 t/ha, with lower-yielding areas (3–3.5 t/ha) mainly confined to the Candaba region and further downstream (Fig. 2c1). In contrast, the future climate will experience a significant reduction in yield, with several areas shifting to lower yield classes and merging with high-yield fields (Fig. 2c2). The change map (Fig. 2c3) revealed widespread yield losses, particularly in the eastern and southern regions of the basin, with reductions ranging from 0.5 - 2 t/ha. The main reason for the reduction in rain-fed yield in the eastern and southern regions was water scarcity due to reduced rainfall, whereas the reduction around the Candaba region was due to flood-induced damage. Conversely, rain-fed rice yields in the western region were projected to increase by ~0.5 t/ha due to increased rainfall during the rainy season. These findings highlight the growing hydrological and agricultural risks posed by climate change in the basin and thus the need for regional climate-adaptive and climate-resilient strategies to safeguard water-food security.

In summary, climate change underscores the pressing need to quantify evolving climate-related risks and their implications across the water–food nexus. To address this challenge, this study developed and applied a Climate–Hydro–Crop Modelling Framework to investigate the impact of climate change on catchment-scale hydrometeorological characteristics and paddy rice yields simultaneously. The results emphasize the urgent need for climate-resilient and adaptive strategies to mitigate water-related disasters, enhance food and water security, and support sustainable development in the region. Future work will focus on intensive data collection, comprehensive sensitivity analysis, and the integration of irrigation practices and the water storage functions of paddy fields. These improvements will enhance the reliability of paddy rice yield risk assessments and provide a stronger scientific basis for informed policies for climate adaptation and water–food security.

References:

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- 3) M. Rasmy, K. Homma, T. Ushiyama, R. Acierto, M. Ohara, Y. Kikumori, and T. Koike, "A Climate–Hydro–Crop Modeling Framework for Assessing Climate Change Impacts on Hydrometeorology and Rain-Fed Paddy Yield in the Pampanga River Basin, Philippines," *J. Disaster Res.*, Vol.21 No.2, pp. 299-313, 2026.

The 1st project meeting and field visit for the Japan-Philippines smart resilient agriculture model project

「ラグナ州シニローン川流域におけるアグロフォレストリーと稲魚農業を組み込んだスマートレジリエント農業モデル」プロジェクトの第一回会議出席と現地視察に参加

ICHARM is participating in a project entitled "Smart Resilient Agriculture Model Incorporating Agroforestry and Rice-Fish Farming in the Siniloan River Basin, Laguna Province." The project is being implemented under the Japan-Philippines smart agriculture research framework led by Professor HOMMA Koki of Tohoku University, as part of the Japan-ASEAN Science, Technology and Innovation Cooperation Program. The first project meeting and field visit were conducted from July 7 to 9, 2026. From ICHARM, Senior Researchers Mohamed Rasmy and USHIYAMA Tomoki and Research Specialists Ralph Allen Acierto and TAMAKAWA Katsunori participated in these activities.

On July 7, the first project meeting was held at the Siniloan Campus of Laguna State Polytechnic University (LSPU). The meeting brought together LSPU officials, representatives from a local government unit and the Municipal Agriculture Office, local farmers from the Siniloan area, the Philippine project team led by Professor Roger Luyun of the University of the Philippines Los Baños (UPLB), and the Japanese project team. During the meeting, the project overview and planned activities were presented, focusing on three key components: fish paddies, alternate wetting and drying paddies, and agroforestry-based paddies. Potential paddy sites for each component were discussed and selected. Following the meeting, a field visit was conducted to inspect the candidate sites and assess their suitability for the planned project activities (Photo 1).

On July 8 and 9, research presentations and discussions were held at the Institute of Agricultural and Biosystems Engineering (IABE), part of UPLB, with participation from the Japanese and Philippine project teams. Senior Researcher Rasmy presented the development and application of the WEB-RRI+SIMRIW modeling, which is capable of simulating river discharge, inundation depth, soil moisture, rice growth, and crop yield. He also introduced Japan's current flood management policy, "River Basin Disaster Resilience and Sustainability by All," and explained the role of paddy-field dams in flood mitigation and water resources management. Senior Researcher Ushiyama and Research Specialist Ralph presented research findings indicating that the intensity of the 100-year return period rainfall is projected to increase in the Laguna Lake Basin under the RCP 8.5 climate change scenario. They also introduced case studies demonstrating the use of machine learning techniques to accelerate climate-related simulations. Research Specialist Tamakawa introduced an overview of the flood monitoring system developed on the DIAS platform under the SATREPS Philippines Project, as well as the real-time rainfall observation data transmission system currently implemented by ICHARM (Photo 2).

Through these activities, ICHARM researchers were able to observe the climate, topography, land use, water use, and agricultural conditions within the target basin, gaining valuable information for model development. They also had opportunities to interact with representatives of relevant organizations and local farmers, which helped establish a foundation for future research cooperation. Furthermore, they clarified the project objectives, research framework, and division of responsibilities with the Philippine project team and made progress in coordinating data sharing, which enabled a smooth start to the project.

ICHARMは、東北大学の本間香貴教授が代表を務める日ASEAN 科学技術・イノベーション協働連携事業(NEXUS) 日本-フィリピン「スマート農業」研究領域の下で進めている「ラグナ州シニローン川流域におけるアグロフォレストリーと稲魚農業を組み込んだスマートレジリエント農業モデル」プロジェクトに参画しています。令和8年7月7日(火)～7月9日(木)にプロジェクトの第一回会議と現地視察が実施され、ICHARMから Mohamed Rasmy 主任研究員、牛山朋来主任研究員、Ralph Allen Acierto 専門研究員、玉川勝徳専門研究員が参加しました。

7月7日にはラグナ州立ポリテクニク大学シニローン・キャンパス(LPSU) 会議室において、LSPU 関係者、また、地方自治体(LGU)の代表、農業事務所(MAO)の代表、シニローン地域での農業従事者、フィリピン側プロジェクト代表であるフィリピン大学ロスバニョス校(UPLB)のDr. Roger Luyun と UPLB 関係者、日本側プロジェクト代表である東北大学の本間教授をはじめとする日本側メンバーが一同に会し、第一回プロジェクト会合が実施されました。会議では稲田養魚、間断灌漑、アグロフォレストリーの3つの水田を柱としたプロジェクトの概要や検討内容について説明があり、それぞれの水田の候補地が選定されました。また、候補となった各水田の現地視察を行いました(写真1)。

7月8日、9日にはフィリピン大学ロスバニョス校 農業・生物システム工学研究所(UPLB-IABE)にて日本側、フィリピン側で実施している研究内容の紹介と協議を行いました。Rasmy 主任研究員からは、河川の流量・浸水深・土壌水分に加え、コメの収量や成長をシミュレーション可能な WEB-RRI + SIMIRW の開発内容とその適用事例、さらに日本における流域治水の考え方と田んぼダムの役割について説明されました。牛山主任研究員、Ralph 専門研究員からは、ラグナ湖流域において RCP 8.5 シナリオに基づく100年確率降雨強度が増加することや機械学習を用いた高速化の取り組み事例があることが紹介されました。玉川専門研究員からは、SATREPS Philippines プロジェクトで DIAS 上に開発した洪水モニタリングシステムや ICHARM が実施しているリアルタイム降雨観測データ転送システムの概要が説明されました(写真2)。

これらの活動を通じて対象流域の気候・地形・土地利用・水利用・農業状況を直接確認できモデル開発に有用な情報を得ることができました。また、関係機関や農業従事者と話ができて今後の調査協力体制を構築することができました。さらに、フィ

リピン側研究者と共同研究の目的・研究体制・役割分担を明確にし、データ共有に向けた調整も進めることができ、プロジェクトの円滑なスタートを切ることができました。



Photo 1: Participants in the first project meeting at the LSPU Siniloan campus
写真1：第一回全体会議での集合写真：(LPSU) 会議室において



Photo2: Participants in the meeting at UPLB-IABE
写真2：UPLB-IABE における集合写真

(Written by TAMAKAWA Katsunori)

Field surveys and establishment of river discharge monitoring systems across target rivers under the SATREPS Ghana Project

SATREPS ガーナプロジェクトにおける現地観測および定点流量観測体制の構築を実施

ICHARM は、JICA と JST の地球規模課題対応国際科学技術協力プログラム (SATREPS) に基づく研究課題：沿岸域の持続的な保全、防災、生活改善を実現する総合土砂および環境管理手法の構築 (研究代表者：田島芳満 東京大学大学院工学系研究科教授) に参画しています。今回、研究代表機関である東京大学からの依頼を受け、2026 年 9 月 12 日から 26 日まで、ICHARM より秦夢露専門研究員、カティア・ルビ・アルネス・フェレル専門研究員、および南雲直子専門研究員がガーナ共和国へ渡航しました。

今回の主な用務は、ガーナ側の代表機関であるケープコースト大学沿岸域管理センター (ACECoR: Africa Centre of Excellence in Coastal Resilience, Centre for Coastal Management) と連携し、数値解析に必要な現地データの計測および

ICHARM is participating in the SATREPS research project titled "The Project for the Development of Integrated Sediment and Environmental Management Towards Sustainable Conservation, Disaster Risk Reduction, and Livelihood Improvements in Coastal Areas," led by Professor TAJIMA Yoshimitsu of the University of Tokyo. Commissioned by the university, Research Specialists QIN Menglu, Kattia Rubi ARNEZ FERREL, and NAGUMO Naoko from ICHARM visited the Republic of Ghana on a research mission from September 12 to 26, 2026.

The primary objective of this mission was to collect essential field data for numerical modeling and establish continuous fixed-point river-discharge monitoring systems in collaboration with the Ghanaian counterpart, the Africa Centre of Excellence in Coastal Resilience (ACECoR) at the University of Cape Coast. Specifically, the team conducted bathymetric surveys (Photo 1), river cross-section surveys (Photo 2), fixed-point flow-discharge monitoring camera installations (Photo 3), and bank erodibility investigations (Photo 4) across the study areas: the Pra River's lower reach and estuary, the Volta River's section from Akosombo Dam and its estuary delta, and the Densu Delta.

Furthermore, since flood events of varying magnitudes occurred during the 2026

rainy season in these three river basins, the research team carried out post-flood surveys to evaluate bank erosion and sediment deposition (Photo 5), as well as flood inundation depth (Photo 6). They also performed geomorphological surveys of ancient river channels formed thousands of years ago to understand the long-term fluvial evolution of the lower Volta alluvial plain and delta system (Photo 7).

Through these activities, the team successfully established an operational water-level and flow-discharge monitoring system utilizing continuous camera imagery. In addition, following up on their 2025 investigation, they measured riverbed elevations and captured key characteristics of riverbed variations in several sections, significantly advancing their comprehensive understanding of sediment transport and river morphological dynamics across the target rivers. These observations will provide vital insights for refining numerical simulations and building a sustainable sediment and flood monitoring system in Ghana.



Photo 1 Bathymetric survey conducted by boat in a target river section

写真 1 対象河川におけるボートを用いた深浅測量の様子



Photo 2 River channel cross-section survey

写真 2 河道の断面測量の様子



Photo 3 Installation of a fixed-point camera for continuous water-level and discharge monitoring

写真 3 流量・水位観測のための定点観測カメラ設置



Photo 4 Field investigation on riverbank erodibility

写真 4 河岸の耐侵食性調査



Photo 5 Post-flood survey of riverbank erosion and sediment deposition after rainy-season flooding

写真 5 雨季の洪水に伴う河岸侵食および土砂堆積状況の確認



Photo 6 Investigation on inundation depth

写真 6 浸水深調査

定点流量観測設備の設置を行うことです。具体的には、研究対象であるPra川下流部および河口域、Volta川のAkosomboダム下流区間から河口デルタ地域、さらにDensuデルタにおいて、深浅測量（写真1）、河川断面測量（写真2）、定点観測カメラの設置（写真3）、ならびに河岸の耐侵食性調査（写真4）を実施しました。

また、今年度の雨季において3河川それぞれで異なる規模の洪水が発生したことを受け、出水に伴う河岸の堆積・侵食調査（写真5）および氾濫調査（写真6）を実施しました。さらに、Volta川の沖積平野・デルタ地帯における長期的な河道特性を把握するため、数千年前に形成された旧河道の地形・土砂調査（写真7）も行いました。

一連の調査を通じて、カメラ画像を用いた水位・流量観測体制が確立されるとともに、昨年度に続く2回目の継続的な河床高観測によって、一部の区間において出水前後の河道地形変化を捉えることができました。これにより、対象河川における土砂流出及び河道変動の特性の全体像・現況に関する理解が深まりました。得られた成果は、今後の数値解析の高精度化や実流域における持続的な土砂・洪水モニタリング手法の確立に大きく寄与することが期待されます。



Photo 7 Geomorphological survey of ancient river channels in the Volta River alluvial plain and delta area
写真 7 Volta 川沖積平野・デルタ地帯における旧河道の地形・土砂調査

(Written by QIN Menglu)

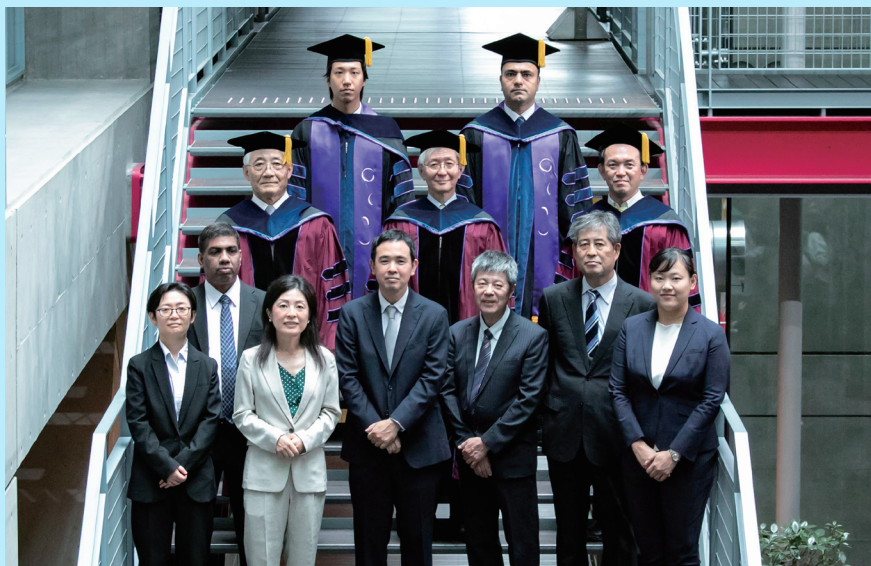
Thesis summaries and comments from graduating doctoral students 博士論文の概要と学生からのコメント

ICHARMは、2010年度から政策研究大学院大学（GRIPS）と連携して、水関連災害リスクマネジメントの政策立案と、その実行においてリーダーシップを発揮できる専門家の育成を目的とした3年間の博士課程「防災学プログラム」を実施しています。2026年9月までに26名の学生が修了しました。

以下では、今年9月に修了した2名の学生の研究内容をご紹介します。

ICHARM started a three-year doctoral program, the "Disaster Management Program," in 2010 in collaboration with GRIPS to produce experts capable of developing water-related disaster risk management policies and taking leadership in implementing them. As of September 2026, 26 students have graduated from this program.

In this section, two students who graduated this September briefly present their thesis research, along with some reflections on their three years at ICHARM.



Two doctoral graduates in purple gowns (left: KURIHARA Yuta; right: Mohammad Tayib Bromand) with ICHARM and GRIPS faculty members

博士課程学生の栗原 悠太氏（最上段 左）とプロマンド モハメド タイブ氏（最上段 右）と ICHARM・政策研究大学院大学の研修スタッフ



A PHYSICALLY BASED HYDROLOGICAL MODELING FRAMEWORK FOR REPRODUCING LONG-TERM HYDROMETEOROLOGICAL CONSISTENT DATASETS FOR INTEGRATED WATER RESOURCES MANAGEMENT IN THE KABUL RIVER BASIN

Mohammad Tayib Bromand, Ph.D. in Disaster Management

ブロマンド モハマド タイブ 博士 (防災学)

Afghanistan's water–food–energy security is intrinsically linked to complex and highly variable hydrological processes governed by snow and glacier dynamics, agricultural water use, and climatic extremes. However, severe hydro-meteorological data scarcity remains a fundamental barrier to quantifying these processes and their implications for sustainable water resources management and disaster risk reduction. This limitation was further intensified by the disruption of hydrological and meteorological monitoring networks during the civil war (1980–2009), resulting in substantial gaps in long-term observations. Consequently, reliable assessment of cryospheric dynamics, seasonal water availability, and hydro-meteorological hazards remains challenging, with cascading implications for sustainable development. Moreover, recent hydrological studies in Afghanistan have predominantly relied on simplified empirical approaches and short observational records, limiting the robustness and transferability of hydrological assessments under a changing climate. Addressing these limitations requires an integrated framework that combines available ground observations with complementary remote sensing and reanalysis datasets within a physically based hydrological modeling framework.

To bridge these gaps and support decision-making, this study developed an integrated three-step framework: First, short-term ground observations and a vast amount of the Reanalysis (JRA-55) dataset were systematically integrated with physically based hydrological modelling to systematically develop, calibrate, and validate a robust hydrological model across three representative hydrological settings shown in Fig. 1: snow-dominated, snow- and agriculture-dominated, and snow- and glacier-dominated sub-basins. Second, multi-source satellite precipitation products with improved snow algorithms were evaluated using a multi-criteria framework incorporating spatial heterogeneity and water-balance consistency to identify optimal long-term forcing datasets. Third, the selected long-term precipitation dataset was systematically integrated with the well-calibrated and validated hydrological model to enable a framework for long-term hydrological assessment.

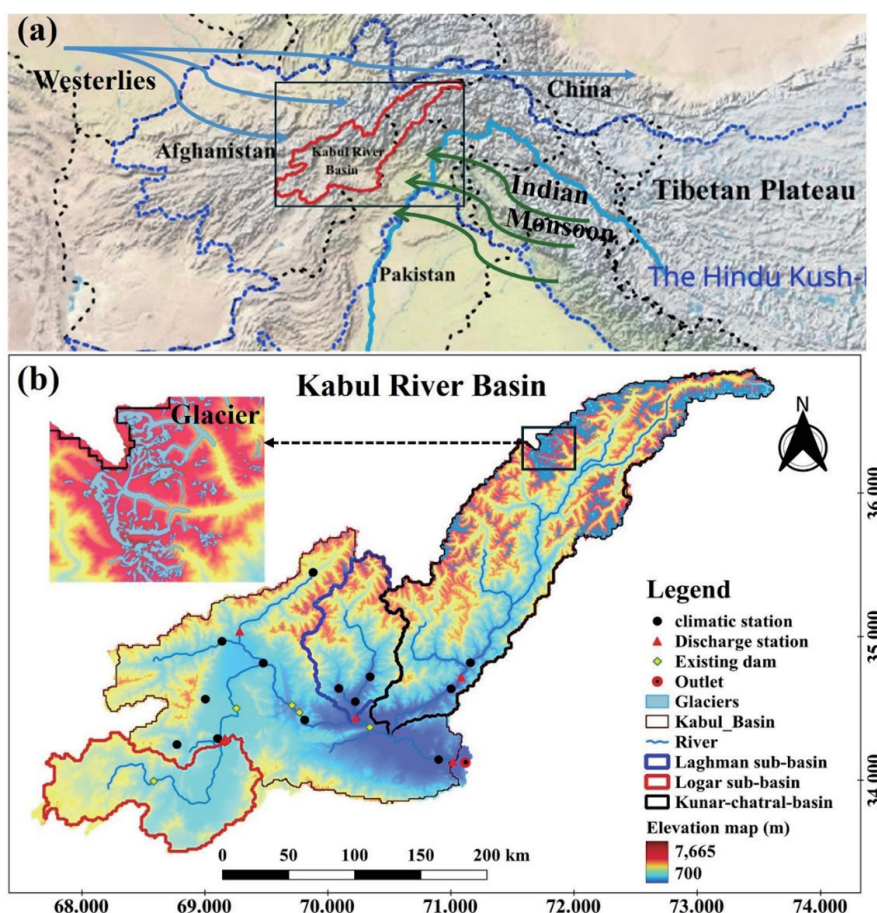


Figure 1. Overview of the Kabul River Basin. (a) Location of the basin within the Himalayan region, showing the dominant atmospheric circulation systems. (b) Topography of the Kabul River Basin, delineation of the three representative sub-basins, and the locations of hydro-meteorological observation stations.

Overall, this study demonstrates that reliable assessment of snow and glacier hydrology in the complex Kabul River Basin can be achieved by integrating limited ground observations with multi-source remote sensing, reanalysis, and process-based distributed hydrological modeling. The results indicate that snowmelt is the dominant contributor to annual runoff (65.7%), while glacier melt contributes approximately 20%, highlighting the critical role of cryospheric processes in sustaining basin water availability. These findings underscore the need to align future irrigation development and micro-hydropower planning with the seasonal timing and magnitude of snowmelt and glacier melt, rather than relying solely on historical mean-flow conditions. This study provides key scientific and practical contributions. First, we propose a sequential calibration and parameter-transfer framework within the physically based Water and Energy Budget-based Distributed Hydrological Model with Snow Processes (WEB-DHM-S) to represent the coupled effects of snow, glacier, and human water use on streamflow across contrasting hydro-climatic settings. Second, we improved the conventional evaluation framework of satellite precipitation products (SPP) by integrating spatial heterogeneity and hydrological consistency to identify suitable products for hydrological simulation in cold and mountainous regions, leveraging recent remote-sensing products to improve long-term hydro-climatic reconstruction in data-scarce regions such as Afghanistan. The proposed framework provides a transferable approach for strengthening water-resource assessment, supporting climate adaptation, and promoting sustainable water management in snow-dominated mountainous basins worldwide.

My reflections on three years as a research assistant and Ph.D. student at ICHARM

I am deeply grateful for the privilege of spending three fruitful years at ICHARM, where I had the opportunity to learn, conduct research, and grow. The warm support and encouragement I received from the researchers and management team played an invaluable role in the successful completion of my Ph.D. journey. I would like to express my deepest gratitude to my supervisor, Professor Mohamed Rasmy, for his unwavering guidance, continuous encouragement, and invaluable support throughout my research. I am profoundly grateful to my co-supervisor, Professor Toshio Koike, for his insightful guidance, scientific advice, and invaluable contributions that helped shape and strengthen my research. I sincerely thank all ICHARM researchers, training team members, and my classmates for their friendship, encouragement, and support throughout these three years. Their kindness and cooperation made this journey not only academically rewarding but also a truly memorable experience.



At ICHARM Open Day on April 24, 2024.
Mr. Bromand (right) gives poster presentation to Japanese students.



DEVELOPMENT OF AN INTEGRATED FLOOD RISK INFORMATION FRAMEWORK FOR RECOVERY, RISK REDUCTION, AND PREPAREDNESS THROUGH DETERMINISTIC AND PROBABILISTIC ASSESSMENTS IN THE CAGAYAN RIVER BASIN, PHILIPPINES

KURIHARA Yuta, Ph.D. in Disaster Management

栗原 悠太 博士（防災学）

In many developing countries, disasters are one of the major obstacles to sustainable development. Although disaster-related deaths have been declining thanks to improvements in early warning systems and other measures, economic losses continue to increase. This is driven not only by the intensification of hazards under climate change, but also by social changes such as unplanned urbanization and the expansion of infrastructure, housing, and agricultural land into flood-prone areas. As these changes progress, flood-exposed countries and regions are likely to face increasingly severe human and economic losses.

The Philippines is one of the countries most exposed to flood risk, with growing exposure due to population growth and high vulnerability associated with socioeconomic disparities. The Cagayan River Basin in northern Luzon clearly illustrates these challenges (Figure 1). The Cagayan River, approximately 505 km long, is the longest river in the Philippines and drains the largest basin in the country, covering approximately 25,649 km². The basin is an important agricultural area where rice and corn are the major crops, but it is also highly vulnerable to heavy rainfall and river flooding, which occur almost every year during the monsoon season from July to December. Typhoon Ulysses in November 2020 was one of the most devastating disasters in recent years, causing approximately USD 419 million in direct damage nationwide, including USD 152 million to agriculture and USD 267 million to infrastructure.

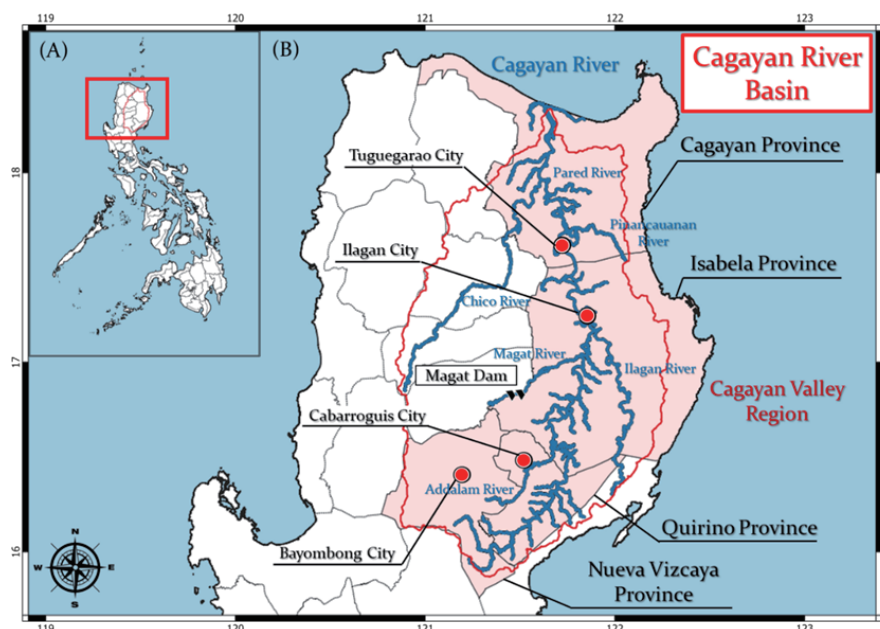


Figure 1: Study area. The Cagayan River Basin (red outline) and the Cagayan Valley Region (pink) in northern Luzon, Philippines.

To reduce such flood damage, my doctoral research aimed to develop analytical methods for producing the disaster-risk information required at each stage of the disaster management cycle: response, recovery, risk reduction, and preparedness. To support more informed decision-making, I also sought to advance conventional deterministic approaches toward probabilistic approaches that explicitly consider uncertainty. Focusing on the Cagayan River Basin, I developed (1) a method for rapidly assessing flood damage after a disaster, (2) a method for assessing future flood risk under climate change and changes in land use and population, (3) a method for evaluating uncertainty in future flood risk, and (4) a method for supporting early action using forecast information before a flood occurs. Together, these form an integrated flood risk information framework spanning post-disaster damage assessment, future risk assessment, and preparedness.

First, I developed a method for rapidly assessing flood damage after a disaster using satellite imagery. A one-stop tool on Google Earth Engine combines satellite-derived flood-depth information, damage functions, and unit costs, so that the entire process from flood extent mapping to damage estimation can be conducted in an integrated manner. The results demonstrated that wide-area damage information can be produced within approximately three days after a disaster.

Second, I developed a method for assessing future flood risk under climate change and social changes. Future flood hazards were assessed through statistical analysis of downscaled GCM outputs, while future land use was projected by combining AI and statistical approaches. Integrating these projections within the same time frame made it possible to assess how future flood risk will change. The results showed that future flood risk is affected not only by climate change but also by changes in land use and population.

Third, I advanced the assessment of future flood risk under climate change from a deterministic to a probabilistic approach. Future 100-year rainfall was evaluated not as a single value but as a range of possible amounts, and this uncertainty was propagated through flood simulations to damage estimation. The results showed that under higher-emission scenarios, not only future extreme rainfall but also the upper range of potential economic losses becomes larger.

Finally, building on these methods, I developed an analytical method for uncertainty-informed, impact-based flood early warning. The uncertainty in sub-seasonal rainfall forecasts, issued up to several weeks ahead, was analyzed, and the probability of heavy rainfall exceeding preparedness thresholds was quantitatively estimated. Potential damage was then calculated at the municipality level from these forecasts. This approach enables a gradual shift from low-regret actions, such as monitoring and information sharing, at an early stage to more specific actions, such as evacuation preparation and securing relief supplies, as the disaster approaches.

Overall, this research developed an integrated flood risk information framework that connects the stages of flood disaster management, from post-disaster damage assessment to future risk reduction and preparedness. By moving from deterministic to probabilistic approaches, the framework explicitly considers uncertainty and translates it into information that supports decision-making.

Reflection on my three years at ICHARM

ICHARM provided an ideal environment for me to pursue the research I had wanted to undertake. With the guidance and support of my supervisor and all the faculty members, I was able to successfully complete my doctoral research. Over the past three years, I not only deepened my understanding of natural science, but also gained valuable experience in how scientific knowledge can contribute to policy and practice through international cooperation. My time at ICHARM has been an important period of both academic and professional growth, and I will carry the experience and knowledge I gained here throughout my future career.



DROSS workshop at Davao on March 26, 2026
(Source: Hydrology for Environment, Life and Policy - Davao Network Facebook)

● Training & Education

<https://facebook.com/icharmtrainingcourse/>



Educational program updates

教育・研修活動報告

8月26日：IISSE / ICHARM 合同発表会

土木研究所 (PWRI) にて、今年で5回目となる ICHARM と建築研究所国際地震工学センター (IISSE) の合同発表会を行いました。ICHARM と IISSE は、JICA および GRIPS と連携して、防災にかかる修士課程教育を開発途上国の行政官等を対象に実施しています。今回はそれぞれ3名の学生が選抜され、ICHARM から、NADARAJAH Arunaruban 氏 (スリランカ)、WELIWITA Prageeth Chanaka 氏 (スリランカ)、MOHAMMAD Noor 氏 (バングラディシュ) が、各自の研究発表をしました。発表会には、GRIPS の先生方も参加されました。研究分野の違う発表を聞くよい機会となりました。

August 26: IISSE/ICHARM Collaborative Research Presentation

ICHARM and the International Institute of Seismology and Earthquake Engineering (IISSE) jointly held the fifth Collaborative Research Presentation for master's students at the Public Works Research Institute (PWRI). Both institutes provide master's degree programs in disaster prevention for government officials from developing countries in collaboration with the Japan International Cooperation Agency (JICA) and the National Graduate Institute for Policy Studies (GRIPS). The two institutes selected three students each for this occasion. ICHARM selected NADARAJAH Arunaruban (Sri Lanka), WELIWITA Prageeth Chanaka (Sri Lanka), MOHAMMAD Noor (Bangladesh) to present their research. Professors from GRIPS also joined this event. It was a good opportunity for the students to hear presentations in different research fields.



Participants in the joint presentation
合同発表会の参加者

(Written by FUJIKANE Masakazu)

August 27-28: Online pre-arrival guidance seminar for new students

On August 27 and 28, ICHARM held an online pre-arrival guidance seminar to help new master's students enrolled for October 2026 make thorough preparations before coming to Japan.

This initiative, launched last year, was developed in response to feedback from alumni who noted that there were many things they wished they had prepared for before arriving in Japan.

Participants included current master's students, incoming students, ICHARM faculty and staff, JICA Tsukuba director and staff, JICA local office staff in the incoming students' home countries, and alumni from those countries.

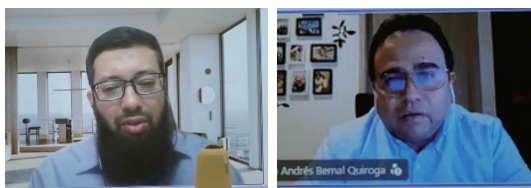
Former and current students offered advice particularly on preparation for thesis writing, emphasizing the importance of collecting data before departure, as well as practical tips for daily life.

The new students also actively participated in the Q&A session, raising questions about various topics, including health-related considerations.



Current students giving practical tips on living in Japan

日本で生活について役立つヒントを提示する在校生



Alumni from Bangladesh (left) and Columbia giving advice
アドバイスを送るバングラデシュ（左）とコロンビア（右）の卒業生



Research and Training Advisor SHIMIZU Yoshihiko provides advice on important points on clarifying their research directions and research interests, including selection of study areas, importance of required data (hydro-met data, socio-economic data, damage data, etc.) and collection of data in advance.

研究対象分野の選定、必要なデータ（水文気象データ、社会経済データ、被害データなど）の重要性、およびそれらデータの事前収集に関する事項などの研究の方向性や関心分野を明確にする際の重要なポイントについて助言する清水研究・研修指導監

(Written by FUJIKANE Masakazu)

September 1-2: PCM Follow-up Training

On September 1-2, students participated in a two-day follow-up session to the "Project Cycle Management (PCM)" training, which had been held in early March.

The PCM training is part of the master's program curriculum. Students first learn the necessary procedures to transform their master's thesis research into a project during the period between completing coursework (lectures) and beginning full-scale thesis research. Following the completion of their thesis presentations and submissions, the follow-up session is held to support them in structuring their research findings into projects and presenting them.

8月27～28日：新入生入国前オンラインガイダンスセミナーを開催

8月27日、28日に、2026年10月から新たに修士課程に加わる学生が事前準備をしっかりと行えるように入国前オンラインガイダンスセミナーを昨年に続いて実施しました。

これは過去に卒業生からの「先輩の経験に基づき入国前に事前に準備しておけばよかったと思うことが多々あった」という意見を受けたものです。

セミナーには、現修士課程学生、新入生、ICHARM教員スタッフ、JICA筑波の所長はじめ関係者、さらに、新入生の出身国のJICA事務所の担当者の方、そしてその国のアルumnaiも参加しました。

先輩の学生から、論文執筆のための事前準備、特に出国前のデータ収集の重要性や生活上の注意点についてアドバイスがありました。

また新入生からも健康上の留意点を含め活発に質疑応答がなされました。

9月1～2日：PCMフォローアップ研修

9月1日、2日の2日間に渡り、学生は「Project Cycle Management」(PCM)研修のフォローアップ研修に参加しその成果を発表しました。

PCM研修はICHARM修士課程の授業の一環です。まず、一連のコースワーク（講義）が終了し、修士論文研究が本格化する前（3月初旬）に、

学生自身の修士論文の研究成果をプロジェクト化するために必要な手続きを学びます。そして、修士論文発表、論文提出を終えた今回、修士論文の研究成果をプロジェクト化し、それを発表することを支援する研修を実施しました。

本年度は、その成果発表会（9月2日）に、学生出身国のJICA事務所担当者*にも参加してもらい、発表に対してコメントを頂きました。中には、帰国後すぐ相談しようというコメントもあり、修士論文研究がプロジェクト化される可能性が窺えました。

* 休日等で参加できなかった国を除き7か国（スリランカ、ケニア、インドネシア、マラウイ、バングラデシュ、ブータン、マダガスカル）のJICA事務所

On the 2nd, students delivered presentations on their projects. On this occasion, representatives from local JICA offices in the students' home countries also participated online. Participating countries included Sri Lanka, Kenya, Indonesia, Malawi, Bangladesh, Bhutan, Madagascar, except for a few unable to attend due to holidays and other reasons. JICA officers provided valuable comments on the presentations, and some even suggested holding meetings on the proposals immediately upon the students' return, opening up the possibility that the master's thesis research could be developed into actual projects.



Scenes of the PCM training
PCM 研修の様子

(Written by FUJIKANE Masakazu)

9月4日：記念プレート設置セレモニー開催

ICHARM では 2014 年より、修士課程・博士課程を修了する学生が、修了前に桜の植樹式に参加することが恒例になっています。桜の苗木は 4 月に ICHARM 敷地内に植えられ、約半年間成長していました。そこに学生たちが 2026 年修了生の記念プレートを立てました。

プレートを設置した後、清水義彦研究・研修指導監より「この桜は来年の春の開花にむけてこれから 6 か月間成長していきます。ICHARM を卒業する皆さんは ICHARM 在籍中しっかり成長されましたが、これから母国でこの桜のように成長し続けてください。」という激励のお言葉をいただきました。

September 4: Sakura plaque placement ceremony

Since 2014, it has been a tradition at ICHARM for students graduating from the master's and Ph.D. programs to participate in a sakura plaque placement ceremony before graduation. This year, the ceremony was held on September 4, and the Class of 2026 placed a commemorative plaque to mark their sakura tree. The tree was planted near ICHARM's building last April and has been growing for about half a year.

After the plaque was installed, Research and Training Advisor SHIMIZU Yoshihiko offered words of encouragement: "This sakura tree will continue growing over another six months, preparing to bloom next spring. Just as you have grown significantly during your time at ICHARM, I hope you will continue to grow in your home countries, just like this tree."



The commemorative plaque marking the sakura tree for students graduating in September 2026

2026 年 9 月に卒業した学生が植樹した桜であることを記した記念プレート



Students and staff smiling around the young sakura tree
桜の苗木を囲む卒業生と研修スタッフ

(Written by FUJIKANE Masakazu)

September 10 & 11: Graduation ceremonies of the 19th ICHARM master's program

The closing ceremony of the 19th ICHARM master's program, "Water-related Disaster Management Course of Disaster Management Policy Program," was held at JICA Tsukuba on September 10, 2026. Fourteen students from nine countries graduated from the program: one each from Bangladesh, Bhutan, Kenya, Timor-Leste, and Vietnam; two each from Indonesia, Madagascar, and Sri Lanka; and three from Malawi. This one-year master's course, operated jointly by JICA, GRIPS, and ICHARM, is designed primarily for individuals who have work experience in water or river management at governmental agencies in their countries.

At the ceremony, JICA Tsukuba Director General MORIGUCHI Kanako, ICHARM Executive Director KOIKE Toshio, and GRIPS Professor TAMURA Hideyuki gave congratulatory speeches. Following the presentation of certificates, KAPATSA Jonathan (Malawi) spoke in return on behalf of the graduating class. The ceremony also featured two awards: the Best Research Award to NADARAJAH Arunaruban (Sri Lanka) and MOHAMMAD Noor (Bangladesh) for their excellent research work and academic performance, and the Sontoku Award to TRAN Ba Hoang Long (Vietnam) for his outstanding contribution to the class throughout the program.



Mr. TRAN Ba Hoang Long (left) receiving the Sontoku Award from Executive Director Koike
トラン バオワン ロン氏への尊徳アワードの授与



Students and guests after the closing ceremony at JICA Tsukuba
JICA 筑波閉講式後の学生と参列者

9月10～11日：ICHARM 修士課程卒業式及び修士博士学位授与式

2026年9月10日、JICA 筑波において、ICHARM 第19期修士課程「防災政策プログラム水災害リスクマネジメントコース」の閉講式が執り行われました。バングラデシュ、ブータン、インドネシア2名、ケニア、マダガスカル2名、マラウイ3名、スリランカ2名、東ティモール、ベトナムの計14名がプログラムを修了しました。JICA、政策研究大学院大学（GRIPS）、ICHARM の三者で運営しているこの1年間の修士課程プログラムは、自国の政府機関で水や河川の管理に関連した実務経験を持つ人を対象に設計されています。

式では森口加奈子 JICA 筑波所長と小池俊雄 ICHARM センター長、田村英之 GRIPS 教授から祝辞が述べられました。修了証書授与の後には KAPATSA Jonathan 氏（マラウイ）が学生を代表して答辞を述べました。式では2つの賞も授与されました。学業と研究成果を称える最優秀研究賞は NADARAJAH Arunaruban 氏（スリランカ）と MOHAMMAD Noor 氏（バングラデシュ）に贈られ、プログラム全体を通してクラスに最も貢献した尊徳賞（学生による互選）は TRAN Ba Hoang Long 氏（ベトナム）に贈られました。

翌日の9月11日には GRIPS において2名の博士課程学生も含めて学位記授与式が開催されました。学生たちは式に先立って卒業式用のガウンと帽子を着用し建築研究所国際地震工学センター（IISEE）の学生らと記念撮影をしました。学位授与式においては、修士課程の Weliwita Prageeth Chanaka 氏（スリランカ）、博士課程の栗原悠太氏（日本）が成績優秀な学生に送られる Dean's Award を受賞しました。ICHARM スタッフ一同、卒業生の益々のご活躍を心よりお祈りしております。

On September 11, a graduation ceremony was held at GRIPS. Ahead of the ceremony, the master's and two doctoral students, wearing a graduation caps and gowns, took commemorative photos with students graduating from the International Institute of Seismology and Earthquake Engineering (IISEE). At the ceremony, master's student Weliwita Prageeth Chanaka (Sri Lanka) and doctoral student KURIHARA Yuta (Japan) received the Dean's Award for academic excellence. ICHARM faculty and other staff members were also in attendance to wish the graduates all the best in their future endeavors.



Doctoral graduate KURIHARA Yuta (left), who received the Dean's Award, with his supervisor, Senior Researcher MIYAMOTO Mamoru
Dean's Award を受賞した博士課程の栗原悠太氏（左）と指導教官の宮本守主任研究員



Master's graduate Weliwita Prageeth Chanaka, who received the Dean's Award
Dean's Award を受賞した修士課程の Weliwita Prageeth Chanaka 氏



Graduating students of ICHARM and IISEE with their faculty members (in red gowns) at GRIPS
政策研究大学院大学にて国際地震工学センターの学生と記念写真を撮る卒業生

(Written by FUJIKANE Masakazu)

Thesis summaries and comments from graduating master's students

研究論文14件と修士課程研修生のコメント

Since 2007, ICHARM, in cooperation with the Japan International Cooperation Agency (JICA) and the National Graduate Institute for Policy Studies (GRIPS), has provided a master's program, the "Water-related Disaster Management Course, Disaster Management Policy Program (JICA Knowledge CO-Creation Program on Flood Disaster Risk Reduction)," which is mainly designed for foreign government officers to obtain a master's degree in one year. As of September 2026, 216 students have graduated from the program.

In this section, 14 students who graduated this September briefly present their thesis research, along with some reflections on their year at ICHARM.

ICHARM では、2007年から、（独）国際協力機構（JICA）及び政策研究大学院大学（GRIPS）と連携して、主に外国人行政職員を対象として、約1年間で学位を取得できる修士課程「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」）を実施しています。2026年9月までに216名の学生が修了しました。

今年9月に卒業した修士学生14名がこの1年間で完成させた修士論文の概要と、コース全体の感想についてご紹介します。



NUMERICAL ANALYSIS OF THE INFLUENCE OF THE ESTUARY CLOSURE DAM AND REGULATOR ON FLOOD AND SEDIMENT DYNAMICS IN THE LITTLE FENI RIVER, BANGLADESH

MOHAMMAD Noor, Bangladesh

The Musapur Closure Dam and regulator, located near the mouth of the Little Feni River, were constructed to prevent saline water intrusion and create a freshwater reservoir. This study investigates the post-construction morphological impacts of these structures using remote sensing, basin-scale hydrological modelling, and depth-averaged flow and bed-variation analysis. Remote sensing shows that regulator operation enhanced vegetation but induced downstream deposition and upstream channel narrowing. Bed-variation analysis showed that moderate floods interacting with tidal currents promoted mid-channel bar growth, indicating net depositional conditions. As the bar grew, it stabilized the low-flow channel and concentrated flow within it, driving significant localized bed degradation. Three alternative river-management measures were evaluated against the current no-regulator baseline, ranging from reinstalling a regulator in the existing channel to combining a new, wider channel with compound channel and spur dyke protection. Relocating the regulator to a straight, wider channel with a compound channel and spur dykes performed best, suppressing both channel siltation and bed degradation.

Keywords: closure dam, sediment deposition, bank erosion, river-morphology management

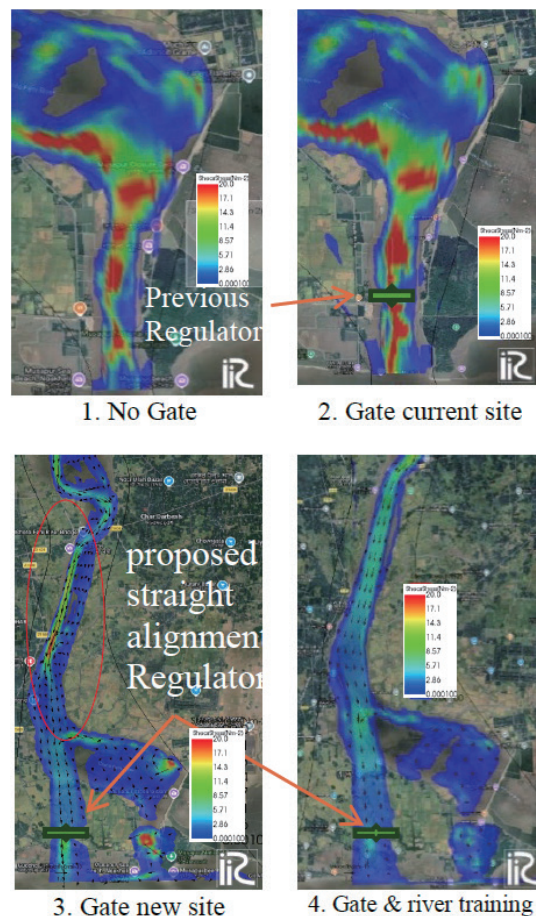


Fig. Shear Stress Comparison

Completing my master's degree at ICHARM has been an incredibly rewarding experience that has shaped my professional growth in meaningful ways. The supportive academic environment encouraged genuine curiosity, allowing us to ask questions freely and engage confidently in discussions. Working alongside peers from many countries broadened my understanding of global water issues and enriched every learning moment. The program offered an excellent blend of classroom learning and field exposure, equipping us with practical skills essential for addressing real-world water challenges. The coursework focused on the tools we needed most—modelling, GIS, and Google Earth Engine—subjects that would have felt overwhelming without the patient, judgment free guidance of our instructors. Field visits further deepened our understanding, revealing Japan's approach to river management and disaster preparedness in a way no textbook could match. I owe sincere gratitude to my supervisor, Prof. Yoshihiko Shimizu, whose steady guidance supported my research on the Little Feni River estuary closure dam from its beginning to the final thesis. I am also thankful to Dr. Qin Menglu and Dr. Kattia Rubí Arnez Ferrel for their thoughtful instruction in iRIC and for encouraging deeper analytical thinking.

Life in Tsukuba taught me lessons beyond academics. The quiet discipline of Japanese daily life—the punctuality, the respect for nature, and the care given to even the smallest details—left a lasting impression on me, and these are values I hope to carry home.

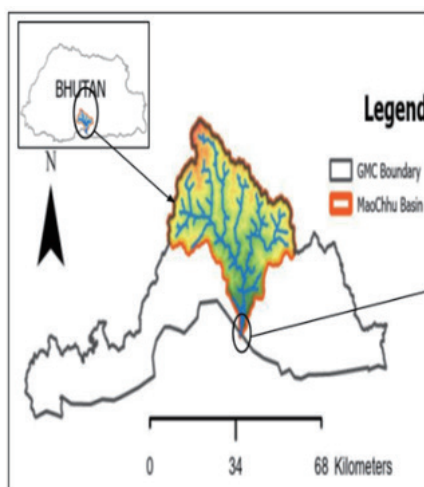
I am sincerely thankful to ICHARM, JICA, and GRIPS for this opportunity, and to BWDB for trusting me with it. I sincerely hope to continue working with ICHARM and JICA in the future, and to keep building on the foundation you have given me.



ASSESSING CLIMATE CHANGE IMPACT ON HYDROLOGICAL EXTREMES IN THE MAO CHHU BASIN

TENZIN Sangay, Bhutan

Bhutan's planned Gelephu Mindfulness City (GMC) faces severe monsoon flood risks within the highly active Mao Chhu basin. To quantify climate-driven hydrological extremes despite data scarcity, I utilized a coupled modeling framework combining CMIP6 climate projections with 2D hydrodynamic simulations. My findings reveal that under the SSP2-4.5 scenario, 100-year design rainfall is projected to increase by 40%, drastically expanding critical hazard zones with flood depths exceeding 3.0 meters. To protect the GMC, I propose targeted structural embankments paired with a 4.62-square-kilometer riparian "No-Build Zone" to safely route floodwaters. Ultimately, my research demonstrates that historical baselines are inadequate; future development demands climate-informed engineering.



Keywords: Mao Chhu, RRI, iRIC Nays2DH, climate change downscaling, braided river, flood risk management

As my Master's journey as a JICA scholar comes to an end, I am reflecting on what has undoubtedly been one of the most memorable and transformative experiences of my life. Studying at ICHARM has provided me with profound academic and personal growth, but it is the institution itself that has left the deepest mark on me.

A Noble Mission

Above all else, I have come to see ICHARM as a truly noble organization. Every day, the researchers, faculty, and students here work strenuously to combat the growing, existential challenges of climate change. The focus is never just on the environmental phenomena in isolation, but critically on how humanity interacts with, adapts to, and reacts to these adverse effects. Being immersed in this dedicated environment has fundamentally shaped my perspective on global water security.



Study on Nature-based Solutions in Flood Mitigation Planning in the Upper Citarum River Basin, Indonesia

RIYADI Farhan Putra, Indonesia

The Upper Citarum River Basin (UCRB), a critical watershed supporting millions of residents, faces escalating flood risks driven by rapid urbanization, severe deforestation, and intensifying monsoon rainfall. While the Indonesian government has planned structural retention basins, their long-term viability and social feasibility amid climate change remain uncertain. Utilizing the ICHARM-developed Rainfall-Runoff-Inundation (RRI) model, the study integrates CMIP6 climate projections (SSP5-8.5) to assess future flood hazards. The research reveals that extreme rainfall magnitudes will increase by 1.5 to 1.7 times, potentially expanding total flood inundation areas by up to 1.6 times compared to historical baselines, severely threatening both urban and agricultural lands. To evaluate mitigation strategies, the study modeled three proposed retention basins (Jelegong, Tegal Luar Utara, and Tegal Luar Selatan) as NbS interventions. Results demonstrate that these basins are highly effective for moderate climate-induced floods, reducing inundated urban areas by up to 93.2% during a 25-year return period event. However, their effectiveness diminishes significantly during 100-year extreme events, highlighting the critical need to upgrade storage capacities to match non-stationary climate realities and prevent catastrophic overflow. Drawing on Japan's comprehensive, multi-layered flood management framework, the thesis recommends a three-pillar approach for the UCRB: updating regulatory design standards to include climate-adjusted rainfall projections, institutionalizing RRI modeling for rapid NbS screening, and fostering multi-stakeholder coordination. By bridging advanced hydrological modeling with institutional lessons from Japan, this study offers a vital, actionable roadmap for sustainable water hazard management and climate adaptation across vulnerable tropical river basins in Southeast Asia.

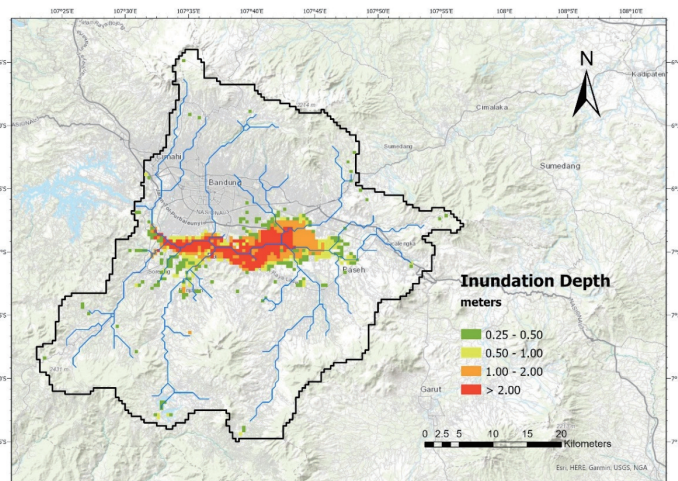
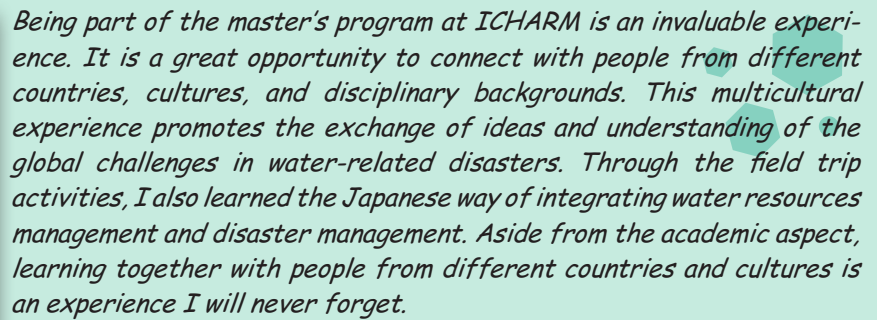


Figure 1: Inundation map of a climate-adjusted 25-year flood in the Upper Citarum River Basin



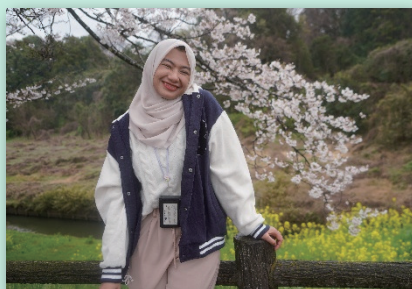
Upon returning to Indonesia, I would like to apply the knowledge and experience I gained in Japan to help develop practical flood disaster management measures at my organization, which I am confident can benefit the people of Indonesia on a larger scale.



OCTAVIA Tari Azanna, Indonesia

Figure 1. Study Area

Keywords: *land subsidence, climate change, flood risk, Bekasi River*



Completing a master's degree at ICHARM is an exceptionally intense journey because we are expected to master advanced technical methodologies while producing practical, policy-relevant research, all of this in such a short time. Beyond the late nights spent refining thesis work, the experience inherently shifts how we view disaster risk reduction.

Studying in Japan makes me realize how engineering and community preparedness work hand in hand. Field visits and direct exchanges with Japanese water management experts demonstrated how technical systems operate in practice,

forever changing how I approach and see flood risk reduction.

Looking back, the hardship of the program is precisely what makes the final milestone so memorable. Supported by my supervisors, my colleagues, and all staff from ICHARM, I found the strength and determination to adapt and overcome every challenge. Returning home feels a bit heavy, like leaving a part of myself behind. But as I step into the next chapter, I carry forward not just an academic degree, but a renewed purpose, cherished friendships, and a piece of Japan that will always remain with me.



EVALUATING SEMI-PERMANENT HOUSING RESILIENCE AND DAPTATION STRATEGIES IN LOWER TANA SUB-BASIN, KENYA

DAHIR Yahya Aden, Kenya

The Lower Tana Sub-Basin is one of the most flood-prone regions in Kenya, where recurring multi-day inundations severely damage housing stock, rural infrastructure, and riverine livelihoods. While government-led relocation initiatives, such as the Eco-Village Programme, aim to resettle vulnerable populations to dry upland terraces, these schemes routinely suffer high community abandonment rates because moving away from the river cuts off access to flood-recession agriculture, livestock grazing, and fishing. Consequently, complete upland relocation is impractical, highlighting an urgent need for affordable, in-situ housing adaptation strategies.

This study evaluated the suitability and economic viability of semi-permanent housing as a flood adaptation strategy in the Lower Tana Sub-Basin. A 2D Rainfall–Runoff–Inundation (RRI) hydrological model was calibrated ($NSE = 0.50$, $R^2 = 0.77$) and validated ($NSE = 0.70$, $R^2 = 0.83$) using bias-corrected GSMaP rainfall and observed streamflow at Garissa Station (4G01). Spatial overlay of simulated flood-depth rasters (hsmx) onto 3,679 building footprints revealed that 66.87% of exposed structures are in shallow hazard zones ($d \leq 0.5$ m). Depth–damage functions were formulated for mud-and-thatch, mud-and-iron-sheet, and concrete typologies, incorporating a 120-hour (5-day) floodwater stagnation threshold where prolonged submergence reduces earthen wall compressive strength (q_u) by over 90%.

The analysis revealed a critical "Concrete Economic Paradox": while concrete structures offer high physical resistance, their high baseline replacement costs cause catastrophic direct financial losses during major floods, imposing severe debt burdens on low-income families. Conversely, semi-permanent housing scored higher on a multi-indicator Housing Resilience Index because of lower replacement costs, reliance on local materials, community self-help labor, and rapid post-flood recovery. Furthermore, modeling a micro-structural 0.5-meter foundation elevation scenario showed that raising ground-floor levels eliminates direct water contact during shallow surges ($d \leq 0.5$ m), effectively

protecting two-thirds of the floodplain housing stock. This research reframes flood resilience from physical durability alone to economic affordability and livelihood compatibility, offering a practical framework for the Water Resources Authority (WRA) and local policymakers to support community-driven flood risk management.

Keywords: flood adaptation, semi-permanent housing, 120-hour stagnation, Rainfall–Runoff–Inundation (RRI) model, Lower Tana Sub-Basin, Water Resources Authority (WRA)

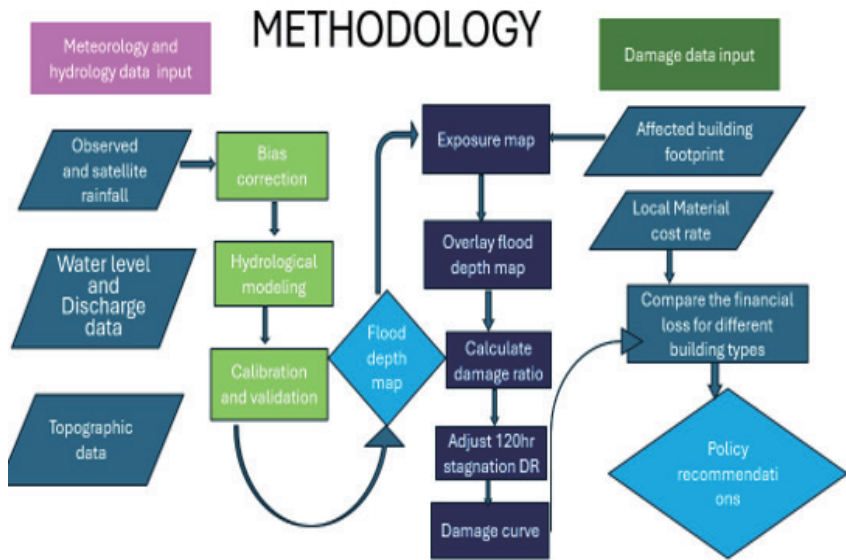


Figure 1: Flowchart methodology

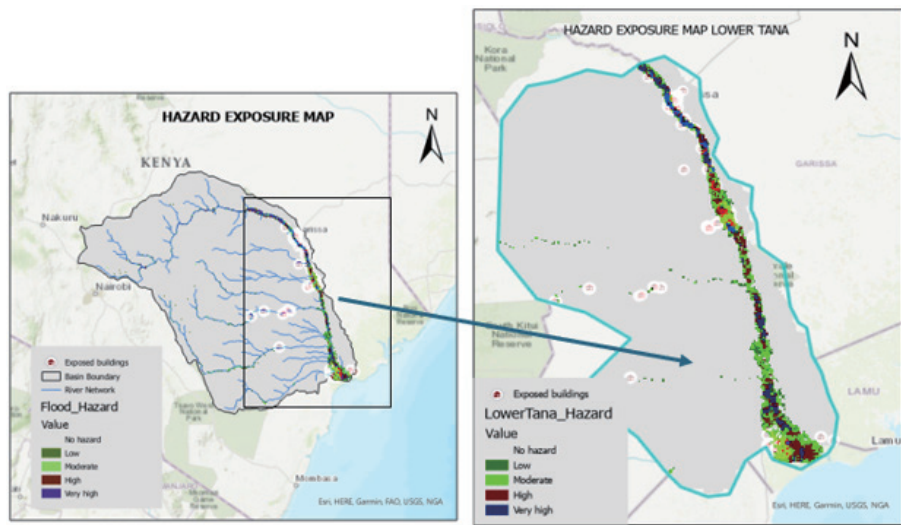


Figure 2: Hazard exposure map



REFLECTIONS ON MY JOURNEY IN JAPAN AND DISASTER RISK MANAGEMENT

My name is Dahir Yahya Aden, a principal hydrologist with the Water Resources Authority (WRA) in Kenya. Stepping onto Japanese soil a year ago felt like entering uncharted waters, but as the Swahili proverb says, "Mvumilivu kula mbivu (the patient one eats the ripe fruit)," this year under the GRIPS/ICHARM program has been truly life-changing

Beyond cutting-edge technology, Japan taught me profound lessons in discipline, respect, and quiet dignity. Whether cycling along the Sakura River in Tsukuba or standing before Ninomiya Sontoku's statue, I experienced the beauty of Omotenashi and learned that true resilience rests on service, order, and living in harmony with nature.



Under the expert guidance of Prof. Miyamoto, Prof. Rasmy, Prof. Ushiyama, and Prof. Hibino, my research evaluated semi-permanent housing resilience in Kenya's Lower Tana Sub-Basin. By combining 2D RRI modeling with 120-hour flood stagnation analysis, I uncovered the "Concrete Economic Paradox." I proved that a 0.5m elevated foundation for low-cost housing can protect 66.87% of exposed homes and supports the preservation of local livelihoods.

Returning to WRA, I carry the Japanese ethos "Nana korobi ya oki" (fall seven times, stand up eight) to lead community-driven flood adaptation across Kenya—my deepest gratitude to JICA, GRIPS, PWRI, ICHARM, and my dear classmates.

Asante sana and Sayonara, Japan. A home away from home!



NUMERICAL MODELLING OF SOLID WASTE CLOGGING IN URBAN DRAINAGE CANALS AND ITS EFFECT ON URBAN FLOODING IN ANTANANARIVO, MADAGASCAR

RAMBOLAMANANA Faranirina Sarindra, Madagascar

Antananarivo, Madagascar, lies on the low-lying Ikopa plain, cannot drain by gravity, and relies on three canals where uncollected waste accumulates at bridges. RRI-UDN couples a SWMM-type node-link drainage network with a grid-based distributed rainfall-runoff and inundation model. A solid waste transport and clogging module is solved inside the network, so blockage, backwater, and overflow emerge from the flow rather than being imposed as fixed roughness or area loss. Applied to the flood of 19 February 2025 (150–220 mm in 48 h; depths 0.5–1 m), the model gave canal overflow in every case with waste and none in the case without it and a much smaller inundated area. Clogging peaked in the central plain, yet all overflow lay on the Andriantany Canal within 8 km of the barrage, as downstream blockage raised levels successively upstream. Flooding occurs where backwater overtops the bank, not where waste accumulates, so better waste collection would cut flood risk and its health burden. This study develops a numerical model that simulates urban flooding while explicitly accounting for the effect of solid waste clogging, to understand the mechanisms and processes by which the two interact.

Keywords: urban flooding, RRI-UDN Model, solid waste, flood risk management, Antananarivo Madagascar



Figure 1. Solid waste blocking drainage canal at bridge crossing, Antananarivo

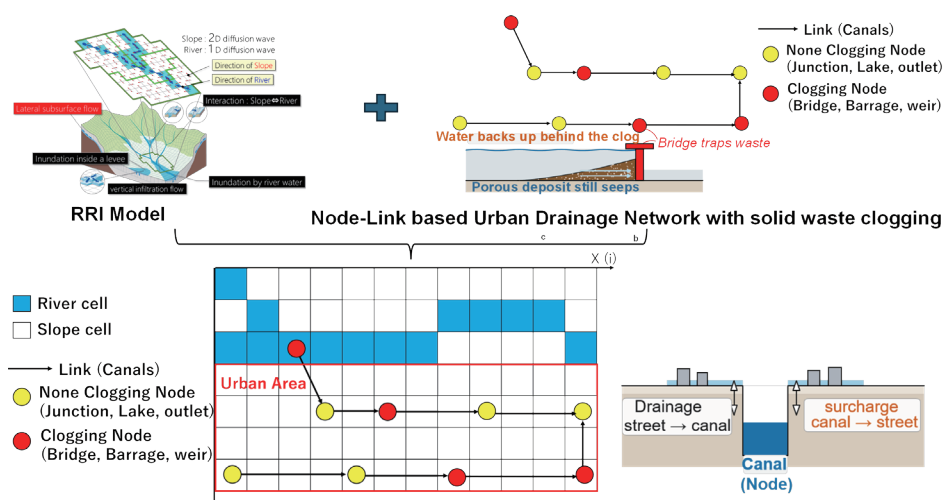
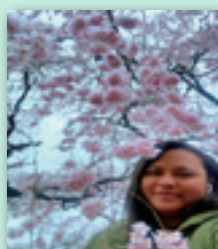


Figure 2. Urban Drainage Network Structure



My one-year journey at ICHARM was a highly valuable and transformative experience, both academically and personally. Coming from Madagascar, I particularly valued the opportunity to learn alongside participants from different countries, exchange perspectives, and develop a broader understanding of water-related disaster management.

Studying in Japan also gave me the opportunity to learn from advanced disaster management practices and to exchange experiences with professors, researchers, and classmates from different countries. Living in Japan also taught me important values such as discipline, cooperation, and resilience. These experiences broadened my perspective and strengthened my commitment to contributing to disaster resilience in Madagascar.

I return to Madagascar with new knowledge, stronger motivation, and a renewed commitment to helping build safer and more resilient communities.

I sincerely thank Qin Sensei and all ICHARM professors and staff, GRIPS, JICA, and my classmates for their guidance, support, and friendship throughout this unforgettable journey.



FLOOD RISK ASSESSMENT OF ANTANANARIVO PLAIN IN THE SISAONY RIVER BASIN, MADAGASCAR

RAZAFINDRAMASY Hortencia, Madagascar

This study analyzes the flood characteristics of the Sisaony River in the Antananarivo Plain to assess flood risks in the flood-prone communes of Ampitatafika, Anosizato-Andrefana, and Ambavahaditokana and to propose flood risk mitigation measures. Flood simulations using the RRI model were conducted to develop flood hazard maps for disaster management officials in these communes. The results show that inundation extends across the floodplain along the Sisaony River and that inundation depths are greater in areas constrained by dikes or hills, reaching more than 3 m at maximum. However, most important facilities for evacuation and emergency response in the communes are expected to remain unaffected during the event. Historical dike breach locations indicate weak sections of the river channel, and simulations using Nays2DFlood suggest that a retention pond with inlets at these locations would be an effective flood mitigation measure. In addition, land-use management should be implemented to clear dike servitudes, preserve flood storage capacity in the floodplain, prevent settlement expansion from the hills into the floodplain, and establish capacity-building programs for officials responsible for hydrological and hydraulic observation and disaster management.

Keywords: *Sisaony River, flood simulation, hazard map, retention pond, RRI Model*

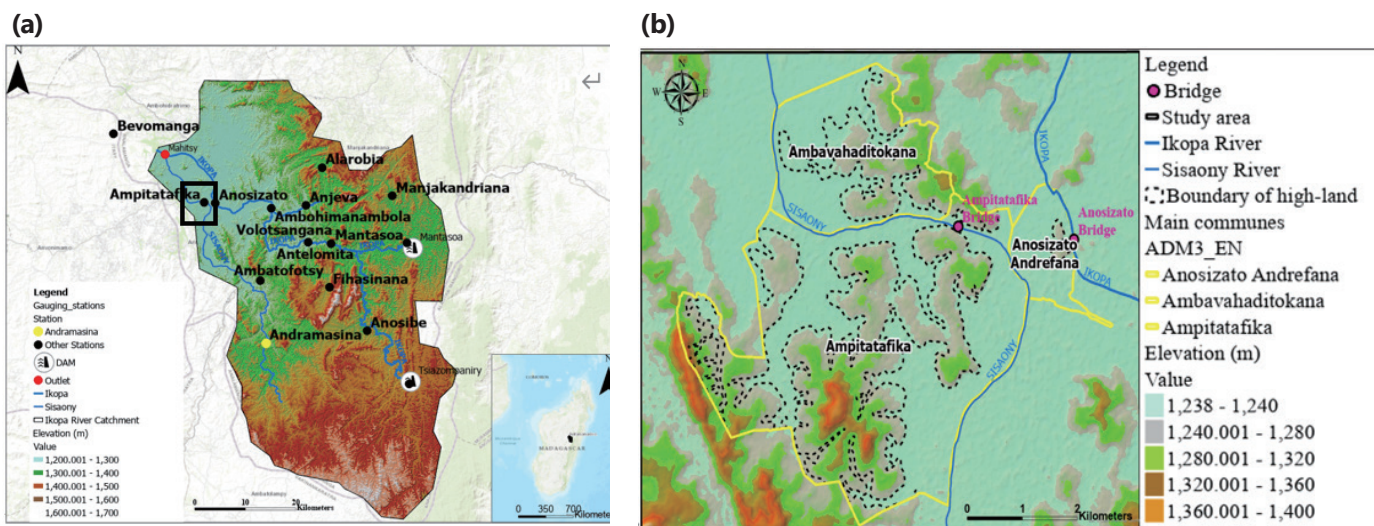


Figure 1: Map of study area

(a) Location of Ikopa and Sisaony River basin, (b) Location of Ampitafika, Anosizato-Andrefana, and Ambavahaditokana communes



Completing the master's program in Disaster Management Policy at ICHARM has been a truly transformative and unforgettable journey, both academically and personally. Over the past year, I have gained invaluable technical knowledge and specialized skills in water-related disaster risk reduction and data-driven policy design.

The well-balanced curriculum, combining rigorous academic coursework, interactive lectures by distinguished professors, and hands-on field visits, provided a clear bridge between theoretical concepts and practical, real-world solutions. Learning about Japan's advanced disaster management infrastructure, real-time hydrometeorological monitoring systems, and community resilience strategies has provided me with insights

that are directly applicable to the challenges faced by my home country.

Beyond the classroom, one of the most rewarding aspects of this experience was the opportunity to interact with an extraordinary cohort of international peers. Sharing diverse technical, social, and cultural perspectives fostered deep global connections, mutual learning, and lifelong friendships. Furthermore, immersing myself in Japanese culture and traditions has left an indelible mark on my personal outlook.

As I return home, I feel a renewed sense of purpose and confidence. I am deeply committed to applying the knowledge, tools, and research strategies acquired here to enhance national disaster risk reduction policies and build more resilient communities.

I extend my heartfelt gratitude to JICA, ICHARM, GRIPS, and PWRI for granting me this prestigious opportunity. I am also immensely thankful to my professors, supervisors, and the dedicated staff for their unwavering guidance, encouragement, and support throughout this incredible journey.



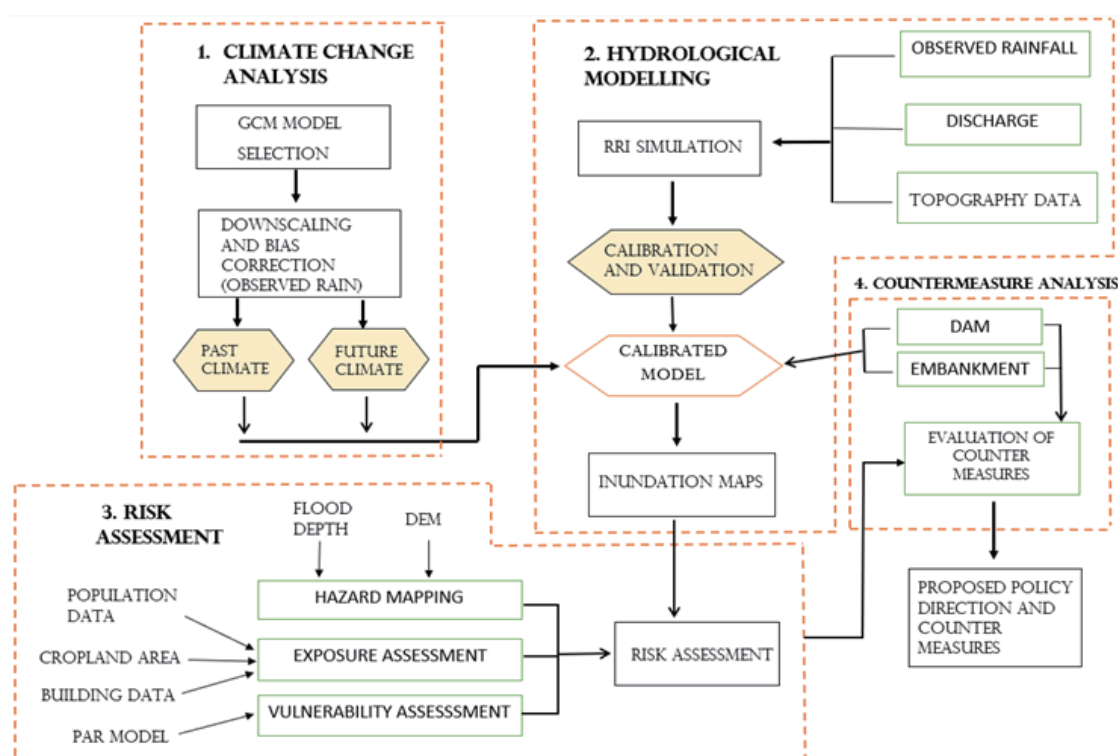


ASSESSMENT OF FLOOD RISK AND PROPOSED STRUCTURAL COUNTERMEASURE EFFECTIVENESS UNDER CLIMATE CHANGE SCENARIOS IN THE DWANGWA RIVER BASIN, MALAWI

KAPATSA Jonathan, Malawi

The Dwangwa River Basin faces escalating flood risks driven by climate change, threatening communities, agricultural systems, infrastructure, and transport corridors. This study presents a comprehensive flood risk assessment and countermeasure evaluation. Bias-corrected outputs from CMIP6 General Circulation Models (GCMs) were used to project extreme rainfall under SSP2-4.5 and SSP5-8.5 scenarios. Under the extreme SSP5-8.5 scenario, annual rainfall increases of up to 24.5% are projected by the GCMs. Inundation modeling reveals inundated areas expanding by up to 26.8% and 29.8% in the 50- and 100-year Return Period (RP), respectively, severely increasing exposure for populations and cropland. Vulnerability is deeply rooted in rural poverty and deforestation. Hydrodynamic simulations show that a combined upstream-dam and downstream-embankment system slashes extreme inundation exposure (>3 m) by 82.7% and overall flood volume by 46.6% in the 100-year RP. These findings advocate for integrated infrastructure and early warning systems.

Keywords: flood risk, climate change, countermeasures, RRI Model, PAR Model



I am Jonathan Kapatsa, a disaster risk management officer from Malawi, currently serving with the Department of Disaster Management Affairs (DoDMA). Pursuing my master's degree in Japan has been a truly rewarding and transformative journey, colored by many fond memories and invaluable cultural exchanges. Because Japan is globally recognized for its advanced approach to hazard mitigation and resilience, studying here under the guidance of world-class senseis provided the perfect environment to deepen my technical expertise. Through this rigorous program, I have acquired critical, cutting-edge knowledge that will stick with me for a lifetime. I am eager to apply these advanced concepts, such as improved early warning systems and resilient planning, to help transform Malawi's disaster risk reduction (DRR) landscape and protect our vulnerable communities.

Beyond the classroom and field excursions, one of the most enriching aspects of this experience has been the opportunity to connect with colleagues from across the globe. Discussing our unique national challenges and exchanging localized strategies has greatly broadened my perspective on climate adaptation and disaster management. I have learned immensely from my peers, and together, we have built a strong, international network of practitioners who share a unified goal of creating a safer, more resilient world.

None of this would have been possible without the unwavering support of the institutions that championed my educational pursuit. I would like to express my heartfelt appreciation to DoDMA, JICA, GRIPS, ICHARM, as well as PWRI for the instrumental roles they have all played in helping me acquire this master's degree. Their collaborative commitment to empowering global DRR professionals is deeply inspiring, and I look forward to utilizing the tools they have given me to make a lasting, positive impact in Malawi.



Assessing the Impacts of Land Use and Land Cover Change and Climate Change on Urban Flood Hazards: A Spatiotemporal Analysis of the Lilongwe River Basin, Malawi

NEDSON Mphatso Kapako, Malawi

Urban flooding in the Lilongwe River Basin, Malawi, is increasingly exacerbated by rapid urbanization, land-use/land-cover (LULC) change, and climate variability. This study quantified the individual and combined impacts of future LULC change and climate variability on flood hazards, physical asset exposure, and socio-institutional vulnerability. An integrated framework combining the Modules for Land Use Change Simulations (MOLUSCE), bias-corrected SSP2-4.5 climate projections, the Rainfall-Runoff-Inundation (RRI) model, and the Pressure and Release (PAR) model was applied to project future LULC, simulate flood inundation, and assess disaster risks. Results showed that between 2000 and 2020, built-up areas increased by 172.9% (+219.9 km²), while natural vegetation declined by 20.7% (-335.2 km²), increasing surface runoff and reducing infiltration. MOLUSCE projections indicated that built-up land will expand to 32.0% (896.7 km²) of the basin by 2060. Under the combined future scenario (SSP2-4.5 and 2060 LULC), a 100-year return period flood is projected to inundate 64.0 km², exposing approximately 42,459 people and 5,957 buildings. The PAR analysis identified poverty and livelihood insecurity, limited access to safe land and housing, and weak institutional capacity for disaster risk management as key drivers of flood vulnerability in this basin. These findings provide robust evidence to support risk-informed land-use planning, resilient infrastructure development, and disaster risk reduction in the Lilongwe River Basin.

Keywords: urban flooding, LULC change, RRI model, Lilongwe River Basin, PAR model

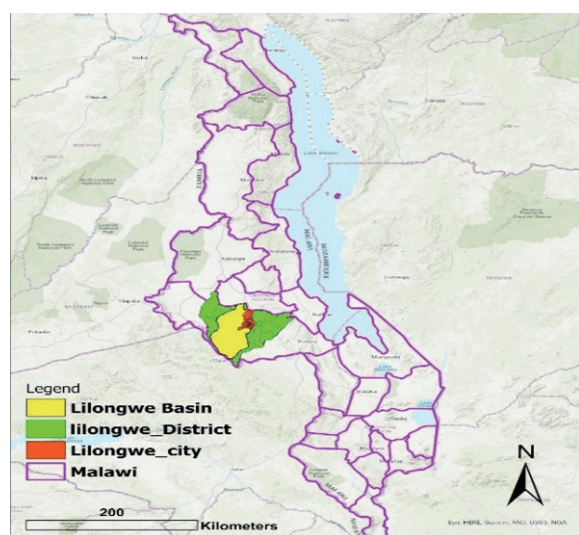
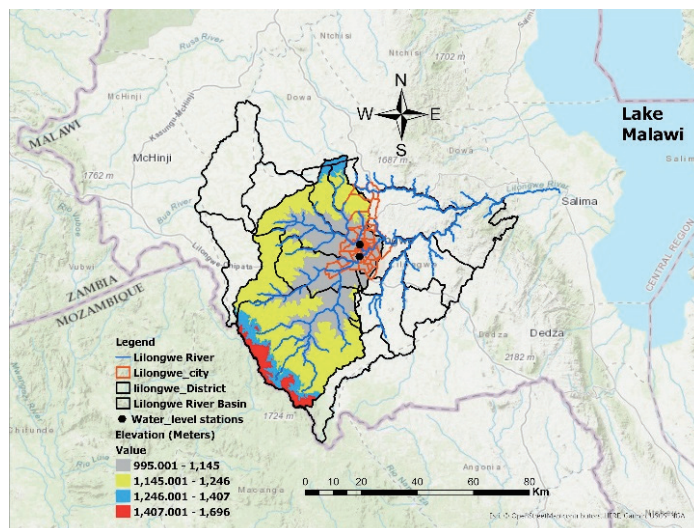


Figure 1: Location of Lilongwe River Basin



FROM MALAWI TO JAPAN: A JOURNEY TOWARDS DISASTER RESILIENCE – A Malawian disaster risk management officer's journey from frontline experience to advanced flood-risk research–

For Nedson Mphatso Kapako, disaster management is more than an academic field—it is a professional commitment shaped by his frontline experience in Malawi. As a disaster risk management officer with the Department of Disaster Management Affairs (DoDMA), he has witnessed the impacts of floods, changing weather patterns, and environmental pressures on vulnerable communities. These experiences motivated him to strengthen his knowledge and seek science-based approaches to disaster risk reduction.

Through the JICA Knowledge Co-Creation Program (KCCP), Nedson came to Japan to pursue the Disaster Management Program (DMP), jointly offered by the National Graduate Institute for Policy Studies (GRIPS) and the International Centre for Water Hazard and Risk Management under the auspices of UNESCO (ICHARM).

The program provided him with a unique opportunity to connect policy, science, and practice. At GRIPS in Tokyo, he strengthened his understanding of disaster management policy, governance, planning, and institutional coordination. At ICHARM in Tsukuba, he developed practical skills in hydrological analysis, geospatial techniques, spatial modeling, and flood-risk assessment. This combination broadened his understanding of how scientific knowledge and effective policies can work together to reduce disaster risks.

Nedson's master's research focuses on the Lilongwe River Basin in Malawi, examining how land-use and land-cover change and climate change may influence future urban flood hazards. Using geospatial analysis, land-use modelling, climate projections, and flood inundation modelling, his research seeks to provide scientific evidence to support flood-risk-informed urban planning and climate-resilient development in Malawi.

His learning extended beyond the classroom and laboratory. Through field visits across Japan, Nedson had the opportunity to observe practical disaster management measures and community preparedness. One of the most memorable experiences was participating in a flood disaster drill along the Kinu River, where he observed coordinated action among government authorities, emergency responders, and local communities. The experience highlighted the importance of preparedness, communication, coordination, and clearly defined responsibilities in effective disaster response.

As he prepares to return to Malawi, Nedson hopes to apply the knowledge and skills gained in Japan to strengthen evidence-based disaster risk reduction, flood-risk assessment, preparedness, spatial planning, and community resilience. He also hopes to promote stronger collaboration among government institutions, academia, development partners, and communities.

His journey reflects the broader values of the JICA Knowledge Co-Creation Program, such as bringing professionals together to learn from one another, exchanging experiences, and transforming knowledge into practical solutions for their home countries. From the communities of Chitipa to the classrooms of Tokyo and the laboratories and field sites of Tsukuba, Nedson returns to Malawi with new knowledge, practical experience, and a renewed commitment to building a safer and more resilient Malawi.

"My greatest hope is to translate what I have learned in Japan into practical action in Malawi, where scientific evidence can support better decision-making and help communities become more prepared and resilient to future risks."

From Malawi to Japan, and back to Malawi with knowledge for resilience.





INTEGRATION OF INDIGENOUS KNOWLEDGE AND ADVANCED FLOOD SIMULATION FOR FLOOD RESILIENCE IN THE SHIRE RIVER BASIN, MALAWI

MANDALA Daniel Issac, Malawi

Malawi's Shire River Basin suffers increasing damage from recurrent, climate-driven floods. Combating this requires combining predictive climate science with local realities. This research introduces a framework that integrates down-scaled General Circulation Models with the Rainfall-Runoff-Inundation model. These scientific tools work together to simulate past and future flood dynamics. The study incorporates indigenous knowledge indicators to validate these models and assess future safety. Projections indicate a severe expansion of the inundation area, from 1996.22 km² to 6167.92 km² for a 100-year return period. Flood depths are forecasted to rise by up to 2.93 meters across various return periods. The traditionally safe community avoidance zone has drastically shrunk from 73.2 km² to 20.67 km². This reduction means that local populations face severe threats unless their traditional indigenous flood indicators are urgently updated. Ultimately, this integrated methodology provides practical, evidence-based recommendations for settlement zoning and long-term disaster risk reduction.

Keywords: indigenous knowledge (IK), Rainfall-Runoff-Inundation (RRI), community avoidance zones, simulate

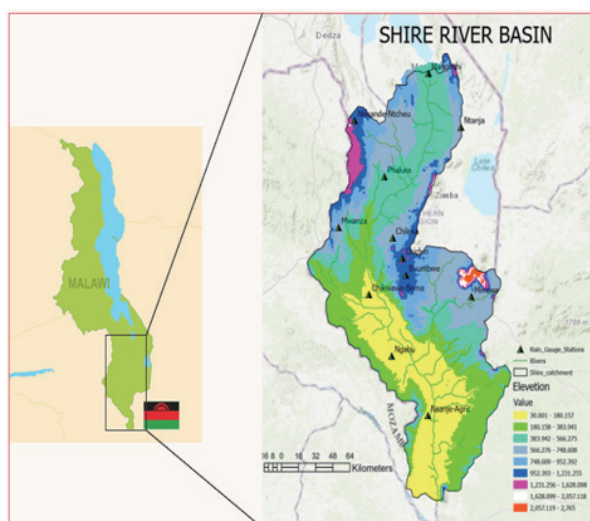


Figure 1: Location of Shire River Basin: Study Area

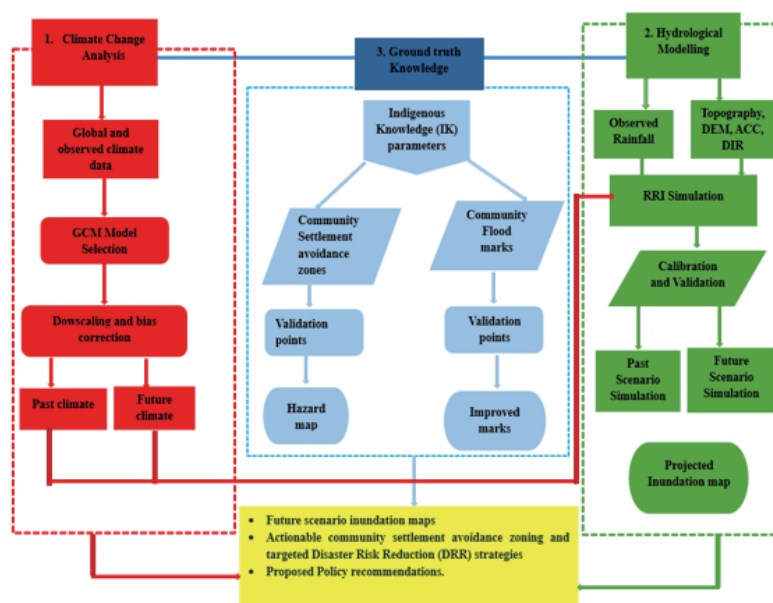


Figure 2: Methodology framework

My name is Daniel Issac Mandala, and I am working as a disaster risk management officer in the Ministry of Local Government with technical support from the Department of Disaster Management Affairs (DoDMA). My role is to coordinate and direct the implementation of all disaster risk management programs at the local authority level. Completing a one-year master's program at ICHARM in Japan has been a transformative whirlwind of academic rigor and profound personal growth. Navigating complex hydrological models, advanced climate adaptation frameworks, and disaster risk reduction strategies within such a compressed timeframe was undeniably demanding, yet it stands as the most deeply rewarding endeavor of my professional journey.

Sharing this journey with classmates from nine different countries meant that every discussion was packed with fresh, global perspectives. Our field trips to Japan's massive flood control facilities were truly amazing. Seeing those real-world solutions up close bridged the gap between classroom math and actual, life-saving infrastructure. Experiencing all of this against the beautiful backdrop of Japan's changing seasons made the hard work unforgettable.

As I return to my work in Malawi, I am ready to turn this theory into action. The practical skills I gained in water-related disasters and project design will completely change how we build local resilience. By adapting ICHARM's sophisticated technical frameworks into actionable, community-based early warning systems, I am now empowered to design robust, evidence-based interventions to protect our most vulnerable river basins from seasonal devastation.

Finally, I extend my most profound gratitude to JICA for their visionary sponsorship and steadfast commitment

to global capacity building. To the brilliant faculty at ICHARM and my incredibly patient, insightful supervisors, your tireless mentorship transformed overwhelming challenges into moments of profound clarity. You have done far more than educate an individual; you have equipped an entire community in Malawi with the tools to build a safer, more resilient future.



INVESTIGATING THE DAM–FLOOD–EQUITY NEXUS UNDER CLIMATE CHANGE IN THE MALWATHU OYA BASIN, SRI LANKA

WELIWITA Prageeth Chanaka, Sri Lanka

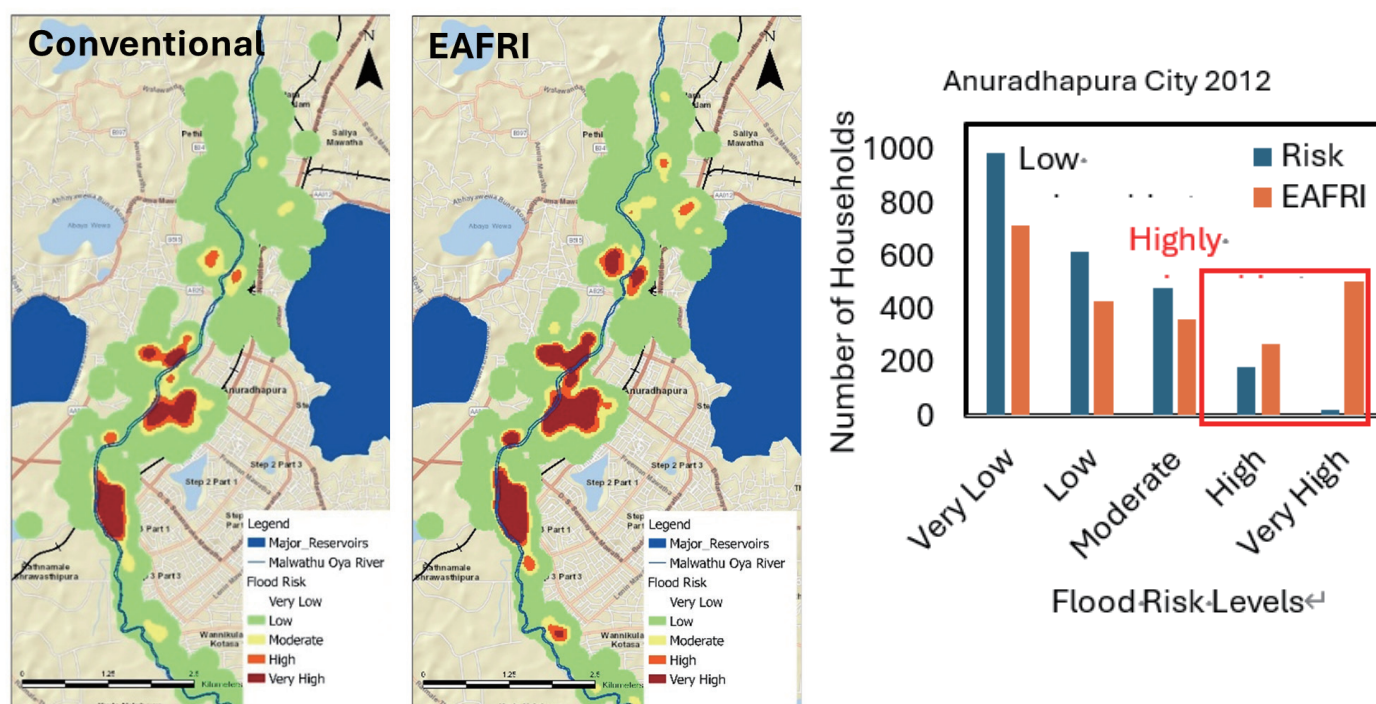
My research focused on “Investigating the Dam–Flood–Equity Nexus under Climate Change: A Case Study of Reservoir-Induced Flooding in the Malwathu Oya Basin, Sri Lanka.” Conventional flood-risk assessment and disaster risk reduction (DRR) approaches generally focus on flood hazards, exposure, and vulnerability, but often give limited attention to how flood impacts are distributed among socially vulnerable communities. In this study, I developed an Equity-Adjusted Flood Risk Index (EAFRI) to incorporate social equity into flood-risk assessment by linking household-level vulnerability with flood hazard and exposure.

The methodology combined climate change assessment, rainfall–runoff–inundation (RRI) modelling, reservoir operation analysis, hydraulic flood simulation, and household vulnerability assessment. A Household Flood Equity Indicator (HFEI) was developed by considering household economic vulnerability, female population sensitivity, and elderly population sensitivity. This approach helped identify communities that may require greater priority even when their physical flood exposure is similar to that of others.

The methodology was demonstrated in the Malwathu Oya Basin, where reservoir operations have an important influence on downstream urban and agricultural flooding. The results showed that future climate conditions could increase extreme rainfall and flood risk, while optimized reservoir operation could reduce severe household flood impacts while maintaining a better balance with agricultural impacts.

Overall, the study highlights the importance of moving from conventional flood-risk assessment towards equity-integrated flood risk management, where the needs of vulnerable communities are explicitly considered in reservoir operation and DRR decisions. Although demonstrated in the Malwathu Oya Basin, the framework has potential to be applied to other river basins where reservoirs play an important role in flood management, supporting climate-resilient and equitable disaster risk reduction while ensuring that no one is left behind.

Keywords: dam–flood–equity nexus, equity, flood risk assessment, disaster risk reduction, EAFRI, HFEI, reservoir operation, climate change



Comparison of Household Flood Risk – 2012 Flood (Conventional vs. Equity-Adjusted Flood Risk - EAFRI)

My name is Prageeth Chanaka Weliwita, and I am working as a chief engineer in the Department of Irrigation, Sri Lanka. My professional work is closely connected with irrigation, reservoirs, and water resources management. Coming to Japan to pursue my master's studies in disaster management policy at ICHARM and GRIPS has been a truly valuable and unforgettable experience.

During this one year, I learned much more than I expected. Through lectures, research, field visits, and site inspections, I gained a deeper understanding of water-related hazards, flood disaster risk reduction, reservoir operation, and integrated water and disaster management. Learning from Japan's experience showed me how science, technology, engineering, and effective policies can work together to reduce disaster risks.

My research on the Dam-Flood-Equity Nexus under Climate Change in the Malwathu Oya Basin, Sri Lanka, also gave me a new perspective on flood management. I learned that reducing flood risk is not only about protecting infrastructure, but also about understanding vulnerable communities and considering how flood impacts and benefits are distributed among people.

Living in Japan was itself an important learning experience. I was deeply impressed by the discipline, punctuality, cleanliness, safety, respect, and sense of responsibility in Japanese society. The kindness of Japanese people and the friendships I made with colleagues from different countries made this journey even more meaningful.

I would like to express my heartfelt gratitude to the Government of Japan and JICA for this incredible opportunity. I also want to sincerely thank ICHARM and GRIPS, along with my professors, supervisors, staff, and all my colleagues and friends, for their guidance, support, and encouragement.

I return to Sri Lanka with new knowledge, new perspectives, and a stronger determination to contribute to safer, more resilient, and more equitable communities through better flood and water resources management.





INTEGRATING ANCIENT AND MODERN WATER MANAGEMENT STRATEGIES TO COEXIST WITH FLOODS AND DROUGHTS UNDER CLIMATE CHANGE IN THE KALA OYA BASIN, SRI LANKA

NADARAJAH Arunaruban, Sri Lanka

Under present climate conditions, river management systems face increasing challenges due to climate change driven hydrological extremes. Many contemporary dams are no longer adequate to absorb sudden and intense floodwaters, as extreme rainfall now exceeds their design capacities. As a result, several countries have begun using additional available storage, for example, paddy fields as temporary flood retention areas to support modern reservoirs. While effective in emergencies, these solutions remain short-term. In dry zone environments, a more sustainable approach is needed. Sri Lanka's dry zone presents a unique opportunity because it contains an extensive network of ancient minor-tank distributed storage systems historically used for flood moderation, drought buffering, and agricultural support. These tanks are located on government owned land, making them suitable for systematic rehabilitation and integration with modern dams as a permanent flood absorption solution. This concept is highly relevant for dry zone basins where both floods and droughts occur cyclically, and where communities must increasingly adopt strategies for living with floods and droughts rather than attempting to eliminate them entirely.

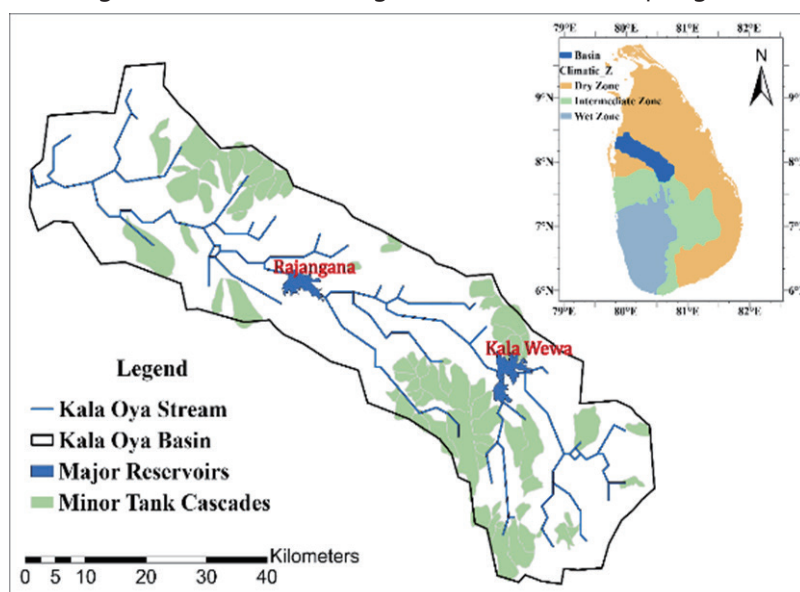


Figure 1: Kala Oya basin

The Kala Oya Basin is one of the few dry zone basins with a dense ancient tank network. Many tanks have become abandoned due to land use changes, institutional fragmentation, and modernization, leaving them disconnected from major reservoirs. This study therefore evaluates how integrating ancient hydraulic systems with modern reservoirs can enhance climate resilience and support a long term philosophy of coexisting with hydrological extremes. A hybrid framework was developed combining climate change information, hydrological modelling, reservoir operation analysis, and ancient tank systems. Past and future hydro meteorological behavior was assessed using observational rainfall data, trend analysis, extreme rainfall indices, and bias corrected CMIP6 SSP2 4.5 projections. A Rainfall–Runoff–Inundation (RRI) model was calibrated and validated for the basin.

Integrating ancient tanks reduced peak discharge from 1100 m³/s to 770 m³/s and decreased inundation from 534 km² to 243 km². Future 25 year return period simulations showed inundation expanding to 734 km². Operational analysis revealed that keeping minor tanks empty and reserving 25% of storage in major reservoirs can reduce flood volumes by 159 MCM. Agricultural benefits include increased Yala season cultivation by 3,600 ha and enhanced paddy production by 10,800 MT. The study concludes that merging ancient hydraulic systems with modern engineering provides several benefits for “living with floods and droughts” in Sri Lanka’s dry zone.

Beyond these core findings, the research demonstrates that ancient minor tanks once central to Sri Lanka’s hydraulic civilization remain scientifically relevant under modern climate conditions. Their distributed nature allows them to intercept runoff at multiple points across the landscape, reducing downstream flood peaks while simultaneously enhancing groundwater recharge. When integrated with modern reservoirs, these tanks create a multi layered storage system capable of absorbing extreme rainfall, delaying peak flows, and supporting dry season agriculture. This hybrid approach directly supports the emerging national and global paradigm of living with water, where societies adapt to hydrological extremes through resilience building rather than relying solely on large infrastructure.

The modelling results also highlight the growing urgency of climate adaptive water management. Bias corrected CMIP6 projections indicate substantial increases in extreme rainfall intensities, suggesting that future flood inundation zones will expand significantly if no intervention is made. Under modern dam only conditions, future 25 year return period floods produce hydrographs with sharper peaks and wider inundation extents. In contrast, hybrid operation with ancient tanks produces smoother hydrographs, lower peak discharges, and reduced inundation depths. These outcomes demonstrate that ancient hydraulic systems are not merely historical artefacts but functional climate resilience infrastructure that can help communities live with floods and droughts in a controlled, predictable, and beneficial manner.

The agricultural benefits further strengthen the case for hybrid water management. By storing additional water during the wet season, the integrated system supports expanded Yala season cultivation, improving food security and generating substantial economic gains for rural communities. This aligns with national development priorities and global sustainability goals, particularly SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation), and SDG 13 (Climate Action). Ultimately, the study provides a scientifically robust and operationally feasible pathway for enhancing water related disaster resilience in Sri Lanka's dry zone. By combining ancient hydraulic wisdom with modern engineering and climate science, the Hybrid Water Resources Management (HWRM) framework offers a practical model for living with floods and droughts, a concept that is increasingly essential for dry zone regions worldwide.

Keywords: ancient minor tank systems, RRI, CMIP6, Hybrid Water Resources Management (HWRM), flood and drought resilience



My name is Nadarajah Arunaruban from Sri Lanka, and I am currently pursuing a master's degree under the JICA Knowledge Co Creation Program in Flood Disaster Risk Reduction, jointly conducted by ICHARM, PWRI, and GRIPS. Studying at ICHARM has provided a unique academic environment that blends scientific rigor with rich sociocultural learning. I serve as a civil engineer at the Mahaweli Authority of Sri Lanka, where I work on water infrastructure development, flood management, disaster risk reduction, and community based resilience initiatives.

The one year master's program at ICHARM has been a profoundly transformative experience. While I joined with the aim of strengthening my expertise in water related disaster management, the program offered far more than technical knowledge. Through lectures, seminars, field visits, and hands on exercises, I deepened my understanding of hydrology, flood control, and disaster policy. Exposure to Japan's advanced systems including SABO facilities, river basin management, satellite data applications, the RRI model, remote sensing, and Google Earth Engine greatly enhanced my analytical capacity and demonstrated how science and technology can be effectively integrated into disaster risk reduction.

Equally meaningful was the multicultural learning environment. Studying alongside colleagues from Bhutan, Vietnam, Kenya, Bangladesh, Indonesia, Malawi, Madagascar, Sri Lanka, and Timor Leste created a global classroom where diverse perspectives enriched every discussion. These interactions broadened my worldview and strengthened my belief in collaborative, inclusive approaches to disaster management. Living in Japan further shaped my experience: the country's discipline, respect, and resilience left a lasting impression. Observing Japan's achievement of 95% implementation of Integrated Water Resources Management (IWRM) highlighted the importance of strong institutional coordination and real time data integration areas where many countries, including Sri Lanka, continue to face challenges.

As I complete this program, I return home with renewed purpose. The knowledge, skills, and global perspectives gained at ICHARM will directly support my work in water infrastructure, flood management, and disaster risk reduction. I am committed to contributing to systems that are scientifically informed, technologically advanced, and socially inclusive, ensuring that vulnerable communities receive the support they need. I express my heartfelt gratitude to ICHARM, JICA, GRIPS, and PWRI, as well as to all professors, lecturers, supervisors, mentors, and staff whose guidance shaped this journey. This year in Japan has strengthened my professional capabilities, broadened my horizons, and reaffirmed my dedication to serving my country and contributing to global disaster resilience.





STRENGTHENING FLOOD GUIDANCE AND EARLY WARNING TO COMMUNITY RESILIENT UNDER CLIMATE CHANGE AND SOCIAL IMPACTS IN THE SEICAL RIVER BASIN, BAUCAU, TIMOR-LESTE

BAPTISTA FREITAS Angelina, Timor-Leste

The Seical River Basin in eastern Timor-Leste is vital to our local agriculture and daily life. However, extreme weather driven by climate change brings severe yearly challenges, ranging from intense flooding to water scarcity.

To help my community build resilience, my research focuses on developing effective flood forecasting tools. During a heavy storm on May 9, 2023, when 107 mm of rain fell in a single day, our forecasting models successfully predicted both the rainfall and peak flooding. These insights will now be published as technical bulletins for disaster risk management agencies and shared in simplified formats with local teams to support early warning actions.

My time studying at ICHARM in Japan has been truly transformative; starting with zero research experience, I learned invaluable lessons from my professors:

1. Prof. Koike and Prof. Shimizu taught me that meaningful progress requires long-term dedication, passion, and cross-cultural learning.
2. Prof. Ushiyama showed me the value of patience, guiding me step-by-step to build my research skills and confidence in evidence-based decision-making.

I also carry with me a special message from Dr. Hiroi's book: always be gentle in decision-making and surround yourself with good people.

I am deeply grateful to JICA, GRIPS, ICHARM, and my home institution (MTC-DNMG) for this opportunity. Surrounded by supportive friends and mentors, Japan truly felt like a home away from home. I return to Timor-Leste, equipped, inspired, and ready to use science to protect lives and build a safer future.

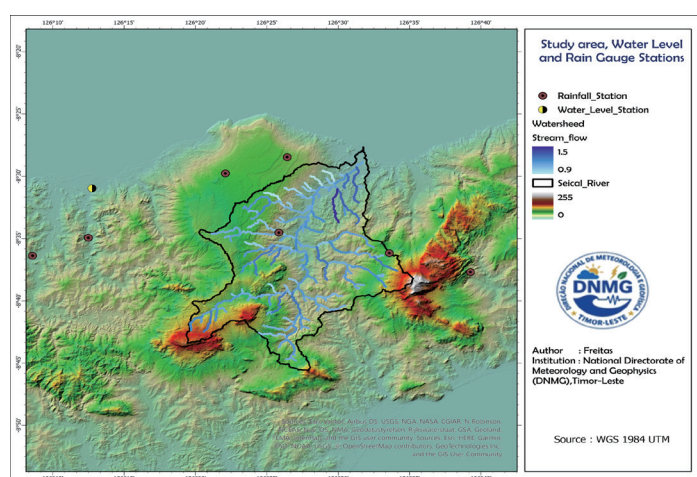
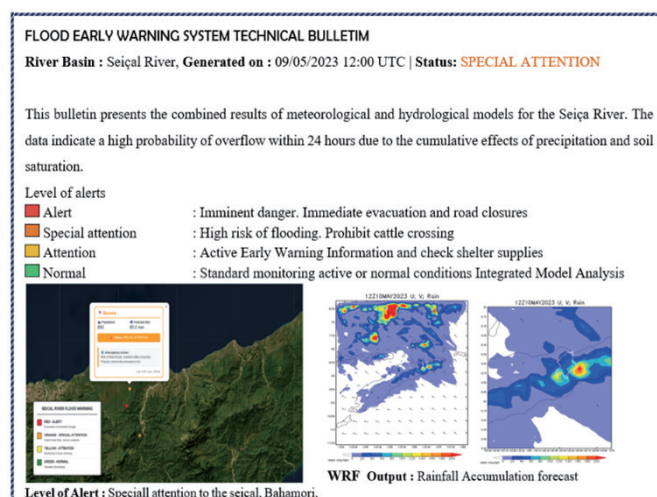


Figure 01: Catchment area of Seical River Basin (left) and Technical Bulletin (right)

My studies in Japan offered profound insights into advanced river management and flood fighting countermeasures. Japanese engineering goes far beyond simple flood protection: it integrates disaster prevention with local community development.

Key structural approaches include:

- a. Sabo Dams and Shingen Dikes: Controlling sediment buildup and reducing river impact.*
- b. Diversion Channels and Levee Systems: Safely redirecting and containing peak floodwaters.*

The most valuable takeaway is how Japanese engineers manage infrastructure for social impact. Dams are not built solely to store floodwater; they are strategically designed to generate hydroelectric power and distribute water for local agricultural use. This dual focus on disaster risk reduction and community utility provides an inspiring model for sustainable river management.



ASSESSMENT OF RIVERBED CHANGES AND CHANNEL INSTABILITY UNDER SAND MINING IN THE TIDAL CO CHIEN RIVER

TRAN Ba Hoang Long, Vietnam

The Co Chien River is currently experiencing channel instability in several locations, driven by complex interactions between hydrodynamic processes and human activities such as sand mining. This study applies the two-dimensional numerical model Nays2DH to investigate the hydrodynamic behavior and sediment transport processes governing the river. Simulation results show that sediment transport mechanisms change depending on morphological characteristics as well as different seasonal conditions. From the simulation results, the study reach was classified into three areas based on the characteristics of sediment transport and morphological change. Area 1 was identified as unsuitable for sand mining because it tends to experience erosion under high-discharge and low-tide conditions. In contrast, Areas 2 and 3 include locations that are suitable for sand mining, particularly where depositional tendencies are maintained and erosion risk is limited.

Keywords: *sediment transport, tide, seasonal flow, sand mining, Nays2DH model*

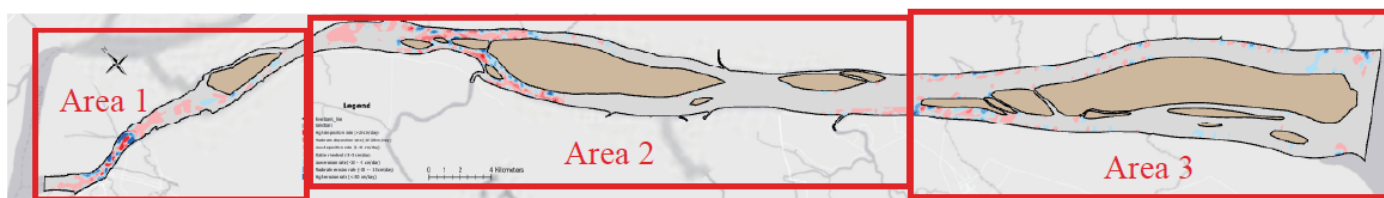


Figure 1. Erosion and deposition trend map in dry season

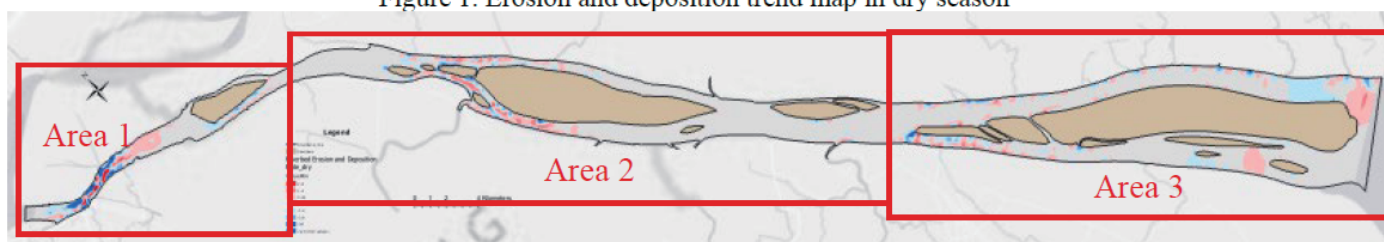


Figure 2. Erosion and deposition trend map in flood season

Studying at ICHARM has been a truly valuable and rewarding experience for me. Through this program, I had the opportunity to gain new knowledge, learn practical approaches, and interact with experts and fellow participants from diverse backgrounds. The experience has broadened my perspective, strengthened my professional capacity, and inspired me to continue learning and growing.

I would like to express my heartfelt gratitude to GRIPS, PWRI, ICHARM, JICA, and the Southern Institute of Water Resources Research (SIWRR), the organization where I am currently working, for making this opportunity possible. Their support and dedication have provided me with invaluable knowledge, experiences, and connections that will remain an important part of my professional journey.

As a researcher, I am committed to applying the knowledge and skills gained from this program to my work and to contributing to the sustainable development of Vietnam, particularly in the areas of water resources management, climate resilience, and environmental sustainability. I sincerely appreciate this opportunity and will carry these lessons forward in my future career, striving to create positive impacts for both local communities and the country.

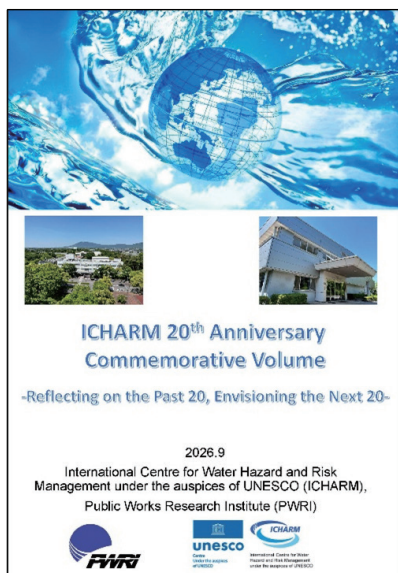


Miscellaneous

Publication of "ICHARM 20th Anniversary Commemorative Volume" 「ICHARM 20 周年記念事業誌 【完全版】」の公表

2026年6月17日に開催したシンポジウム「持続可能な社会構築のための水災害リスクの軽減」にあわせて、「ICHARM 20 周年記念誌（暫定版）」を公表しましたが、種々の20周年記念事業（博士課程特別講義、シンポジウム、アルムナイフォローアップセミナーなど）、の内容を加えた版を、「ICHARM 20 周年記念誌【完全版】」として公表しました。

https://www.pwri.go.jp/icharm/publication/pdf/2026/20th_anniversary_j_complete_ver.pdf



ICHARM published the tentative version of the ICHARM 20th Anniversary Commemorative Volume as part of commemorative events alongside the special symposium, "Reducing water-related disaster risk to build a sustainable society," held on June 17, 2026. ICHARM has now released an updated version, the "ICHARM 20th Anniversary Commemorative Volume [Complete Edition]," which includes reports on anniversary events such as the special lectures on new Ph.D. courses, the special symposium, and the alumni follow-up seminar.

https://www.pwri.go.jp/icharm/publication/pdf/2026/20th_anniversary_e_complete_ver.pdf

(Written by KURIBAYASHI Daisuke)

Comments from internship students

インターンシップ生からのコメント

ICHARM accepted two internship students: Mr. OKADA Haruhisa from the Department of Civil and Environmental Engineering, Nagaoka University of Technology, and Ms. OTSU Yukino from the Water Environment and Civil Engineering Course, Shinshu University.

They kindly shared the following messages reflecting on their research activities at ICHARM.

ICHARMでは、岡田 悠久さん（長岡技術科学大学大学院環境社会基盤工学分野）と大津 柚稀乃さん（信州大学 工学部・水環境土木工学科）をインターンシップ生として受け入れました。

ICHARMでの活動を振り返ってコメントをいただきました。

Mr. OKADA Haruhisa

Duration: August 24-28, 2026

I participated in a five-day summer internship from August 24 to 28 under the supervision of Senior Researcher DENDA Masatoshi and Researcher YAMASHITA Daiki. During the internship, I helped develop the Virtual Flood Experience System, which is designed to help people view disasters as personal concerns. My main task was to create and edit Minecraft world data for the Akihabara area.

My interest in an internship at ICHARM stemmed from my own experience of being affected by the July 2018 torrential rain disaster in western Japan when I was in my third year of junior high school. This experience sparked my interest in ways to encourage residents to evacuate, as well as research on evacuation behavior and psychology.

In editing the Minecraft world, I worked on roads and landmark buildings so that users could easily identify their current location and evacuation destination. I learned the importance of selecting and emphasizing features that are easy to recognize rather than reproducing every detail.

Through discussions on analyzing behavioral data obtained from the virtual flood experience, I learned that cognitive and behavioral psychology, which I study at university, are also applied in disaster research. I also came to appreciate the importance not only of explaining disaster risks in words but also of helping people perceive them as their own concern through simulated experiences.

This internship further strengthened my desire to pursue research on disaster prevention and mitigation in the future. I would like to express my sincere gratitude to Senior Researcher DENDA Masatoshi, Researcher YAMASHITA Daiki, and everyone at ICHARM for their guidance and support throughout the five days.



Modified Minecraft world of the Akihabara area

Ms. OTSU Yukino

Duration: August 31-September 4, 2026

During my internship, I developed a three-dimensional urban model in Minecraft for use in the Virtual Flood Experience System and participated in meetings on the practical implementation of research outcomes. When recreating buildings, I simplified their shapes and colors while preserving the character of the streetscape so that users could easily identify their current location while evacuating. Through the process of developing the model on my own, receiving advice, and making improvements, I learned the importance of trial and error.

Seeing Senior Researcher DENDA Masatoshi discuss the project with external organizations also made me realize that researchers need not only specialized knowledge but also the ability to organize issues and communicate their ideas clearly. This experience helped me form a clearer picture of the kind of work I hope to do in the future. In my undergraduate and master's research, I hope to strengthen my ability to think based on evidence, identify problems on my own, and find solutions to them.

Business trips / 海外出張リスト

* July - September 2026

- July 6-10, Abdul Wahid Mohamed RASMY, USHIYAMA Tomoki, Ralph Acierto and TAMAKAWA Katsunori, The Philippines, for the NEXUS-Philippines Project: (1) Attendance at the first meeting (2) Field visit
- August 9-16, KOIKE Toshio, Washington DC, USA, to attend the International Geoscience and Remote Sensing Symposium (IGRASS 2026)
- September 5-8, KOIKE Toshio, Beijing, China, to attend "the 28th HELP meeting" and "the 6th International Forum on Big Data for Sustainable Development Goals"
- September 7-9, Abdul Wahid Mohamed RASMY, Nepal, to participate in the Sentan-Pro Climate Change Projection Workshop
- September 7-11, MIYAMOTO Mamoru, MOROOKA Yoshimasa and KAKINUMA Daiki, Kuala Lumpur, Malaysia, to participate in the 15th Hydrological Working Group (WGH) meeting of the Typhoon Committee (TC)
- September 12-19, Shrestha Badri Bhakta, Kathmandu, Nepal, to participate in Emergency Investigation into a Large-Scale Rockfall in Northern Nepal
- September 12-26, QIN Menglu, Kattia Rubí ARNEZ FERREL and NAGUMO Naoko (September 12-25), Ghana, for the SATREPS Ghana project: (1) Field observations (2) Research coordination meetings
- September 15-19, OKADA Tomoyuki, Turpan, China, to participate in the 33rd UNESCO IHP RSC-AP Meeting and the 6th International Seminar on Water culture
- September 23-27, KOIKE Toshio, New Delhi, India, to participate in the 9th India International Water Week (IIWW2026)

Visitors / 訪問者リスト

* July - September 2026

- July 27, Senior officials from Japan and abroad
- For a laboratory tour at PWRI and research presentations at ICHARM
*See "Visit by senior officials from Japan and abroad for a laboratory tour and research presentations" on page 12
12ページ「国内外高官らに対する土研実験施設見学およびICHARM研究紹介の実施」参照

Publications / 对外発表リスト

* July - September 2026

1. Journals, etc. / 学術雑誌 (論文誌、ジャーナル)

None / 該当者無し

2. Oral Presentations (Including invited lectures) / 口頭発表 (招待講演含む)

- KOIKE Toshio, TSUTSUI Hiroyuki, KAIHOTSU Ichirow, KACHI Misako and IMAOKA Keiji, Development Standard and Research Soil Moisture Products of the AMSR Series, 2026 The International Geoscience and Remote Sensing Symposium (IGARSS2026), IEEE Geoscience and Remote Sensing Society (GRSS), Washington DC, USA, August 9-14, 2026
- 南雲 直子, ボルタ川河口域の地形分類図作成に向けた予察, 日本地形学連合2026年学術大会, 京都大学 宇治キャンパス, 2026年9月27日

3. Poster Presentations / ポスター発表

None / 該当者無し

4. Magazines, Articles / 雑誌、記事 (土技資含む)

- 清水 義彦, 巻頭言 河川を磨く研究のアプローチ, 土木技術資料, 土木研究センター, 令和8年8月号, pp.5, 2026年8月
- 古本 一司, ICHARMにおける研修・能力開発に関する取り組みと今後の展開, 土木技術資料, 土木研究センター, 令和8年8月号, pp.6-7, 2026年8月
- 南雲 直子, 岡田 智幸, 小池 俊雄, ガーナにおける洪水・渇水統合型早期警戒システムを基にした能力開発研修プログラムの提供, 土木技術資料, 土木研究センター, 令和8年8月号, pp.8-11, 2026年8月
- 秦 夢露, 菊森 佳幹, 物理過程に基づいた流域の降雨土砂生産・流出モデルの開発と検証, 土木技術資料, 土木研究センター, 令和8年8月号, pp.12-15, 2026年8月
- 宮本 守, アンソニー・サレス, フィリピン・ダバオ地方における知の統合システムの開発, 土木技術資料, 土木研究センター, 令和8年8月号, pp.40-43, 2026年8月
- 牛山 朋来, 宮本 守, アブドゥル ワヒド モハメッド ラスミ, 小池 俊雄, ケニア人専門家のためのファシリテーター研修と専門家研修の実施, 土木技術資料, 土木研究センター, 令和8年8月号, pp.44-47, 2026年8月
- 栗林大輔, シェレスバドリバクタ, 気候変動下において都市化が洪水リスクに与える影響分析〜ネパール・カトマンズ盆地を対象に〜, 土木技術資料, 土木研究センター, 令和8年9月号, 2026年9月
- カティア ルビ アルネス フェレル, 秦 夢露, 数値解析と経験式に基づく鉄道橋脚の洗掘評価手法, 土木技術資料, 土木研究センター, 令和8年9月号, 2026年9月

5. PWRI Publications / 土研刊行物 (土研資料等)

None / 該当者無し

6. Other/ その他

- ICHARM 20周年記念誌【完全版】、2026年9月、https://www.pwri.go.jp/icharm/publication/pdf/2026/20th_anniversary_j_complete_ver.pdf
- ICHARM 20th Anniversary [Complete Edition], September, 2026, https://www.pwri.go.jp/icharm/publication/pdf/2026/20th_anniversary_e_complete_ver.pdf
- パネル展示、特別イベント「土木研究所ミュージアム ーくらしをささえるインフラのひみつー」、つくばエキスポセンター、9月26日～11月3日、アフリカやインドにおいてユネスコや世界銀行と共同で実施したプロジェクトなどをパネルで紹介

Editor's Note

編集後記

Dear readers,

We recently celebrated our students' graduation and are extremely proud of their achievements. We hope that the knowledge and skills they acquired at ICHARM will continue to support them in their future work and help their communities prepare better for disasters. Congratulations to our graduates. You will always be part of the ICHARM family!

At the same time, we would like to extend a warm welcome to our new students. Welcome to ICHARM and to Tsukuba! We hope that your time here will be filled with meaningful learning, lasting friendship, and exciting discoveries.

Recent water-related events in countries such as Nepal and Japan demonstrate how quickly intense hazards can turn into devastating disasters. Meanwhile, climate variability, including the influence of the approaching El Niño, adds further uncertainty, increasing the risk of flooding in some regions while bringing drought to others. These challenges highlight the importance of strengthening the knowledge, capacity, and tools required for disaster preparedness and response. Through research, education, training, and international cooperation, ICHARM will continue to collaborate with communities worldwide, translating knowledge and information into timely action to help build safer, more resilient societies.

We hope you have enjoyed this issue, which showcases our recent activities, research, capacity building, and networking initiatives.

Thank you for being part of the ICHARM community!

ICHARM Newsletter Editorial Committee
Abdul Wahid Mohamed RASMY

読者の皆様へ。

私たちは先日、ICHARM が実施する博士・修士課程の学生の卒業をお祝いしました。彼らの功績を大変誇りに思っています。ICHARM で習得した知識や技術が、彼らの今後の活動やコミュニティにおいて、引き続き役立つことを願っています。卒業生の皆様、おめでとうございます。皆さんはこれからずっと、ICHARM ファミリーの一員です！

併せて、新入生の皆様の心より歓迎いたします。ICHARM およびつくばへようこそ！ここでの時間が、学びと友情、そして新たな発見に満ちたものとなることを願っています。

ネパールや日本などでの最近の出来事は、激しい事象がいかに急速に壊滅的な災害へと変わり得るかを示しています。一方、接近するエルニーニョの影響を含む気候変動性はさらなる不確実性をもたらし、一部の地域では洪水の、また別の地域では干ばつのリスクを高めています。こうした課題は、災害への備えと対応に必要な知識、能力、およびツールを強化することの重要性を浮き彫りにしています。ICHARM は、研究、教育、研修、国際協力、世界各地の地域社会と連携し、知識や情報を適時適切な行動に落とし込み、より安全で強靱な社会の構築に貢献していきます。

ICHARM の活動、研究、能力育成、そしてネットワーク構築の取り組みをご紹介します本号を、どうぞお楽しみください。

ICHARM コミュニティの一員となっただき、ありがとうございます！

メーリングリストへ登録ご希望の方は、下記 ICHARM ホームページの登録フォームか QR コードからご登録ください。

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<http://www.icharm.pwri.go.jp/mailmag/index.html>

また、今後の配信を希望されない方やメールアドレスが変更になった方は下記アドレスまでご一報ください。ご意見・ご感想もお待ちしております。

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We welcome your comments and suggestions.

