



## International Centre for Water Hazard and Risk Management under the auspices of UNESCO, Public Works Research Institute (PWRI), Japan



ICHARM will contribute to the mitigation of water disaster damage around the world by combining research activities, capacity building activities, and information network activities with keywords such as "climate change," "sustainability," and "food and energy."



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



# Launch of ICHARM under the auspices of UNESCO

On 6th March 2006, based on the agreement between UNESCO and the Government of Japan, the International Centre for Water Hazard and Management (ICHARM) was officially Risk established as a UNESCO category II center and under the Public Works Research Institute of Japan.



# Organization



(About 40 staff)

Chief Researcher (Training)

Chief Researcher

(Risk Management)

Chief Researcher (Water-related Hazard)

Chief Researcher (Special Assignment)

## **Mission**

The mission of ICHARM is to serve as the Global Centre of Excellence for Water Hazard and Risk Management by, inter alia, observing and analyzing natural and social phenomena, developing methodologies and tools, building capacities, creating knowledge networks, and disseminating lessons and information in order to assist governments and all stakeholders in managing risks of water-related hazards at global, national, and community levels.









### 2. Effective capacity building

## 1. Innovative Research < End-to-end approach >

#### hydrology **Interdisciplinary Meteorology Observation/Modeling/Prediction Observation/Modeling/Prediction Decision Making Support** Engineering Approach Socio-economical Approach Scientific Approach Climate Water Integrated Observed Extreme Model Adaptation options simulation, events Outputs Data Sets prediction & management Early warning system Impact assessment Environment flood Climatology Innovative Check irrigation Decision making technology Socio-- Flood hydro power economics Downcontrol scaling water supply quality Culture & control water quality Bias history Correction Allocation Urban sewage policy ground water Regime shift Quantifying Land use drought Uncertainty



# 1. Innovative Research < End-to-end approach >



Observed water level

Predicted water level



## Sediment transport / Channel change



### **Risk Assessment and Risk** Communication

		Scénario d'urgence pour la ville :
Phase		Phase Initials
Nove de semaines Date		from from from terms from
Precipitations		a a a a a a a a a a a a a a a a a a a
Distribution de fi la ville de	rondation dans. Mango	
Niveau de rejet	Blation de Mango	
	Station & la limite (en amont)	

**Risk communication** 

water

2019

water + sediment

**Regional Circulation Model** 



# 2. Effective Capacity Building

### ✓ Master's and Ph.D. courses of disaster management program, in collaboration with National Graduate Institute for Policy Studies (GRIPS) and Japan

International Cooperation Agency (JICA)

\*Most students are Government Officials coming from Developing Countries, to do practical study & research based on the water-related disaster issues of their own countries.

182 graduates from Master's course ♦ 17 graduates from Ph.D course Total 199 graduates from 37 countries









**ICHARM** was presented the Japan Construction **International Award** 

by national government for its Master's program.

graduates

> To share and discuss their experience and challenges among the alumni. > To provide advice and information of the latest knowledge and good practices.





# **Follow-up Seminar for ICHARM**

### **Global Networking of Experts and Practitioners**

# 3. Efficient Networking



#### International Flood Initiative (IFI)

International Flood Initiative (IFI) is a joint initiative in collaboration with such international organizations as UNESCO-IHP, WMO, UNDRR, UNU, IAHS and IAHR since 2005. ICHARM is the secretariat of IFI.





#### **Platform on Water Resilience and Disasters**

This Platform is a national framework in which various entities such as government agencies and organizations related to flood disaster management, NGOs, resident representatives, and academia participate, discuss, and collaborate to promote activities for water resilience and disaster mitigation.

#### **Plenary meeting on the Platform in each country**



**The Philippines** 

### Typhoon Committee (TC)

TC is an intergovernmental community jointly organized in 1968 by the Economic and Social Commission for Asia and the Pacific (ESCAP) and WMO <u>to promote and</u> <u>coordinate the development and</u> <u>implementation of plans to minimize human</u> <u>and physical damage caused by typhoons</u> <u>in the Asia-Pacific region</u>.

Senior Researcher of ICHARM currently chairs the Working Group of Hydrology (WGH), leading its activities with support from MLIT.



Thailand



Participants in the WGH meeting (28<sup>th</sup> Nov. – 1<sup>st</sup> Dec., 2023)











Sri Lanka

Indonesia

Participants in TC's 56th Annual session (27<sup>th</sup> Feb. – 2<sup>nd</sup> Mar. 2024)

# "Platform on Water Resilience and Disasters"



## **In the Philippines**

Online Synthesis System for Sustainability and Resilience (OSS-SR) in **Davao City, Philippines** 



<Reference>

"Co-design for enhancing flood resilience in Davao City, Philippines", M. Miyamoto, D. Kakinuma, T. Ushiyama, A. W. M. Rasmy, M. Yasukawa, D. G. Bacatos, A. C. Sales, T. Koike and M. Kitsuregawa, Water 2022, 14, 978



## Water Disaster Platform to Enhance Climate Resilience in Africa (WaDiRe-Africa)









WaDiRe-Africa is a collaborative project with the **UNESCO** Intergovernmental Hydrological Programme and the AGRrometeorology, HYdrology, (IHP), METeorology (AGRHYMET), the Niger Basin Authority (NBA), the Volta Basin Authority (VBA), and Ministry of Foreign Affairs of Japan.



**Kick-off Meeting in** Lome, Togo, in June 2019

### **Development of Flood Early** Warning System for West Africa

Near real-time flood simulation by Water and **Energy Budget Rainfall-Runoff-Inundation Model** (WEB-RRI Model) on Data Integration and Analysis System (DIAS)





1 . C DIAS

Flood Early Warning System for West Africa

### e-Learning **Training Course**



Tutorial of flood simulation



**Tutorial of hazard** mapping



#### **1.Training for Experts**

-Lecture, Tutorials, Q&A Session -288 participants, 197 certificated

### **2.Training for Facilitators**

-Lecture, Q&A Session -44 participants, 30 certificated



**Tutorial of Contingency Planning** 

# **3. Efficient Networking**

ICHARM continues its efforts to support collaboration and coordination among organizations and mainstream disaster risk reduction by holding sessions and side events at major international conferences while sharing good practices and knowledge of water-related disaster risk management.





4<sup>th</sup> Asia Pacific Water Summit held in Japan, Apr 2022





9<sup>th</sup> International conference on Flood Management (ICFM9) hosted by GRIPS and ICHARM in Japan in Feb.2023



**The 6th UN Special Thematic Session** UN 2023 Water Conference: in NY, USA in March 2023







Through these conferences, ICHARM advocated concepts of "Water Cycle Integrator (WCI)" consisting from <u>"knowledge integration"</u>, <u>"capacity integration</u>", and <u>"process integration."</u>

The WCI were registered in the "Water Action Agenda" as one of a commitment.



Side event during the UNESCO International symposium "Climate Risk, Vulnerability and Resilience Building" held in Apr. 2023

1()

# Thank you for your attention!

FEEN

PWRI building and Mt. Tsukuba



. .