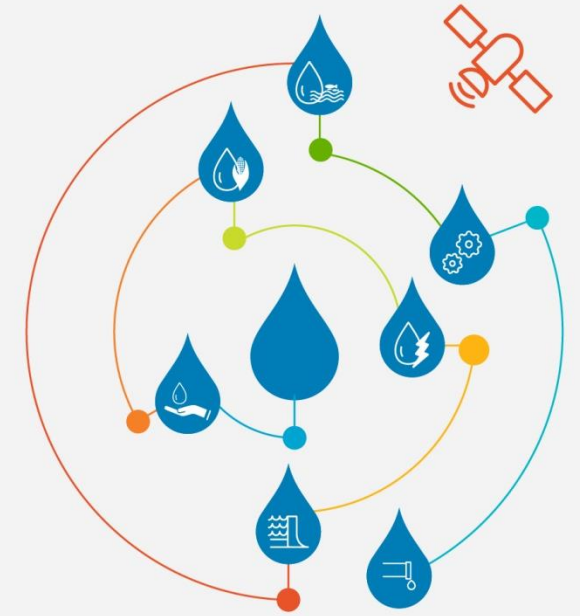


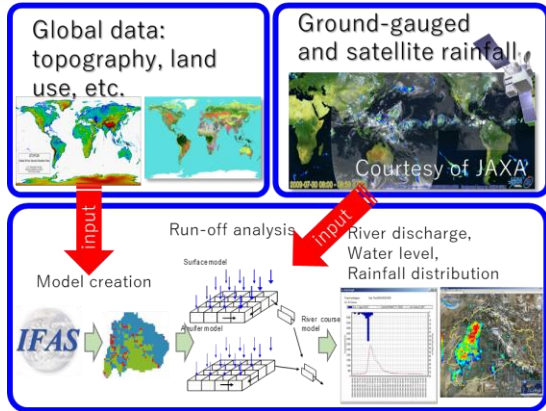
ICHARM's contribution on water-related disaster risk reduction in Asia and the world



Tetsuya IKEDA, PhD
International Centre for Water Hazard
and Risk Management under the
auspices of UNESCO (ICHARM)
October 2-4, 2018

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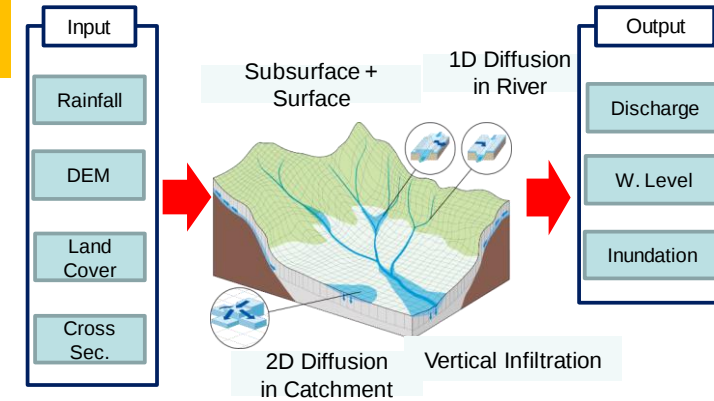
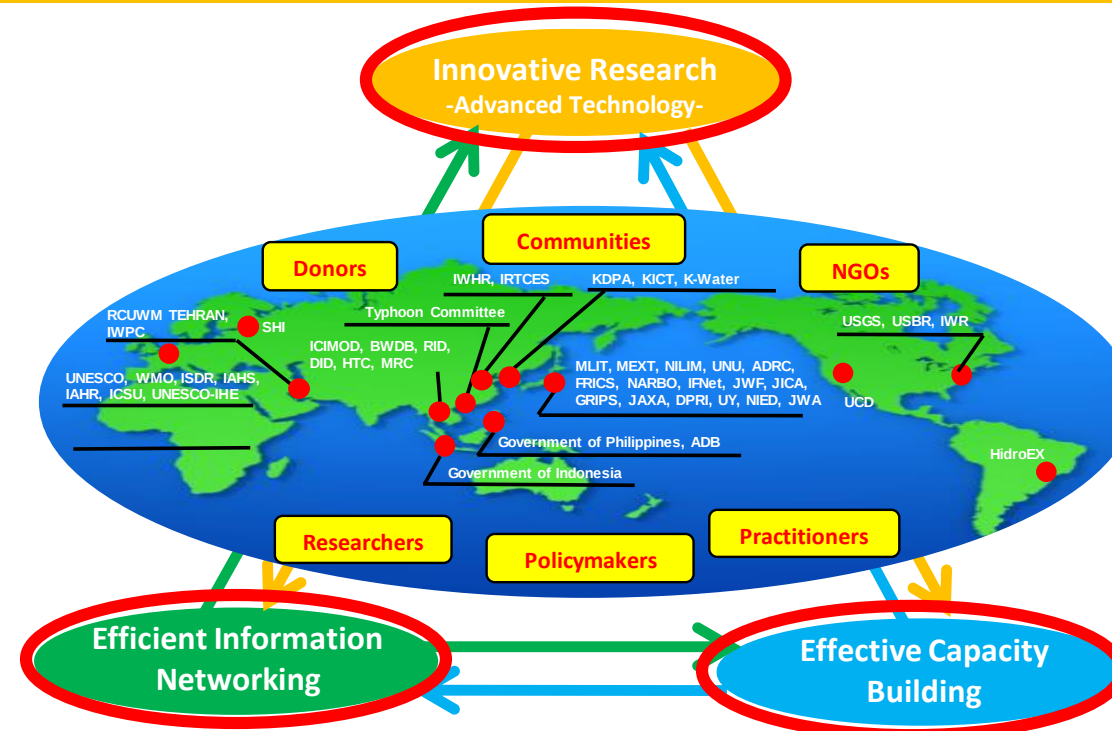
Three Pillars of ICHARM Activities



Integrated Flood Analysis System (IFAS)

- UNESCO-IHP
- International Flood Initiative (IFI)
- UN agencies
- Typhoon Committee
- Governments, NGOs, Academia etc.

Hydro-meteorological models developed by ICHARM



Rainfall Runoff Inundation (RRI) model

- Short-term training courses
- Master course
- Ph.D. course
- Follow-up seminars
- Local training (IFAS, ADCP)



APWS3@Yangon

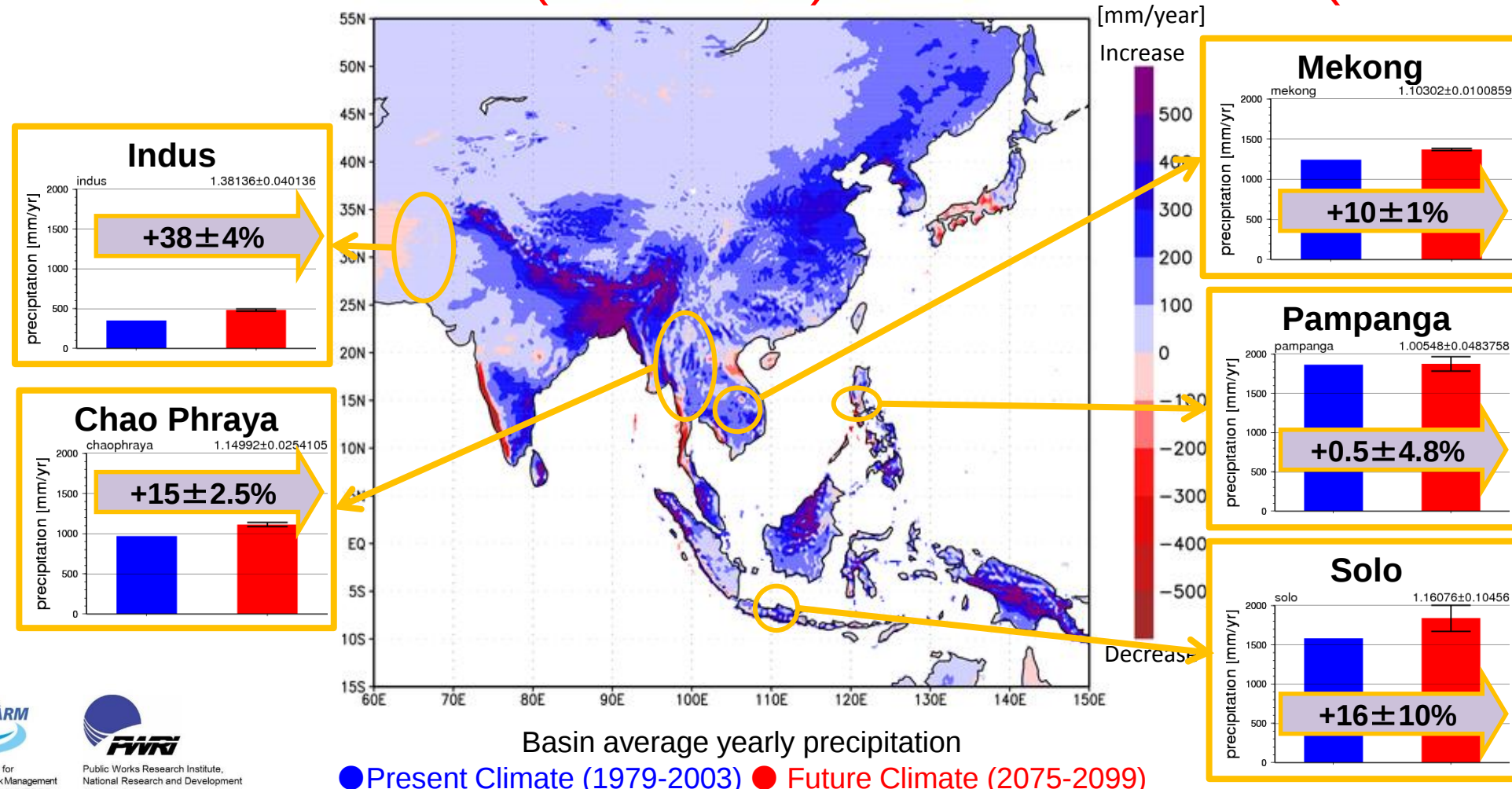


WWF8@Brasilia



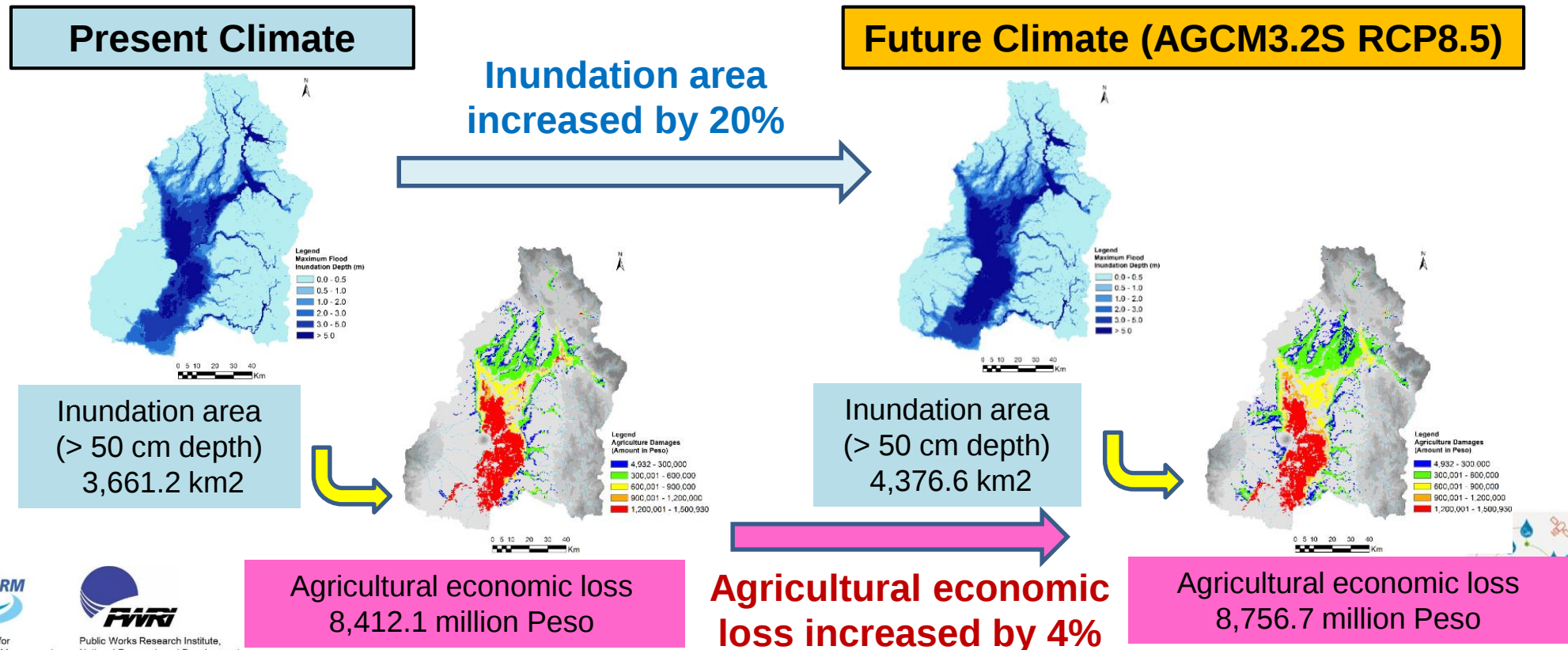
Innovative Research – Advanced Technology – Program for Risk Information on Climate Change (SOUSEI)

Comparison of 5 River Basins' Average Yearly Precipitation between **Present Climate (1979-2003)** and **Future Climate (2075-2099)**



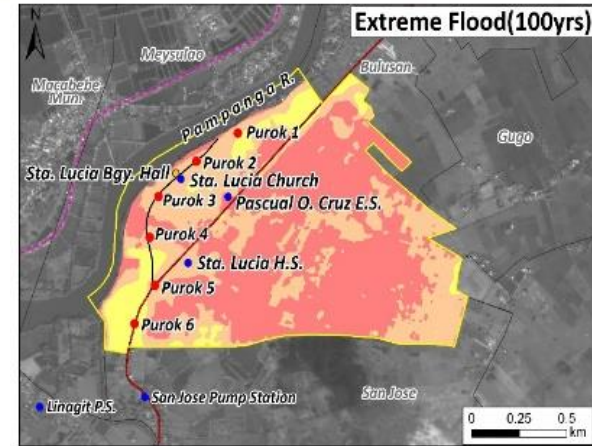
Innovative Research – Advanced Technology – Program for Risk Information on Climate Change (SOUSEI)

ICHARM estimated **inundation depth, inundation area, inundation period, agricultural damage quantity and agricultural economic loss** by 100-year precipitation under the **present and the future climate** for 5 Asian river basins: **Pampanga (Philippines)**, **Indus (Pakistan)**, **Chao Phraya (Thailand)**, **Solo (Indonesia)** and **Mekong (Cambodia)**.

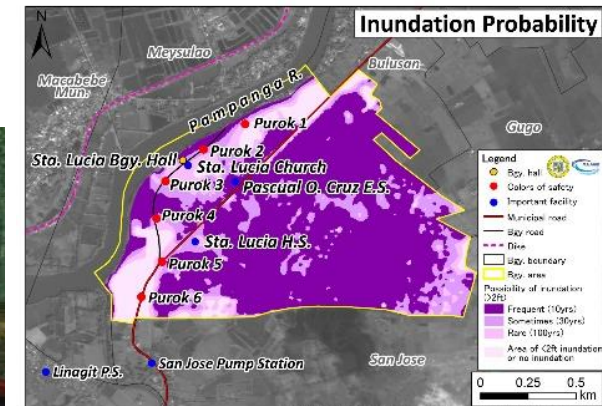


Innovative Research – Advanced Technology – Community-level Flood Contingency Plans

- ICHARM conducted the research to support the **creation of community-level flood contingency plans based on scientific approaches using the RRI model** in Calumpit in the Pampanga river basin of the Philippines.
- **Flood hazard maps and inundation probability maps** were created for 29 Barangays of Calumpit.
- ICHARM supported to organize **workshops with residents** in 2 Barangays.



Flood Hazard Map using RRI model



Inundation Probability Map



Open discussion
with residents



Mayor of Calumpit Municipality issued
a letter of appreciation to ICHARM
(February 18, 2016)

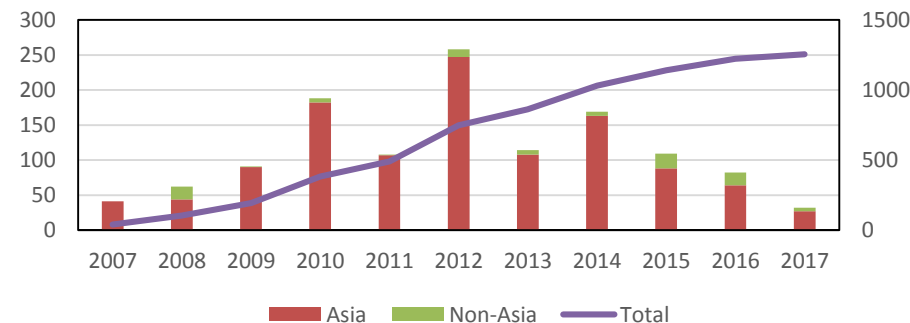


Training Courses / Capacity Development Programs

- **Short-term training courses**: 252 trainees in 14 years
 - Flood hazard mapping, IFAS & local preparedness (2004~ , JICA)
 - Tsunami (2008, ISDR), Climate change adaptation (2010, JICA)
 - Pakistan flood workshops (2011~12 & 2016~17, UNESCO) etc.
- **Follow-up seminars** for the ex-trainees to support their activities in the countries (2006~): 11 times in 12 years
- **Master course** on Water-related Disaster Management with GRIPS and JICA (2007~): 118 graduates in 10 years
- **Ph.D. course** on Disaster Management with GRIPS (2010~): 7 graduates in 5 years
- **IFAS training workshops** (2007~): over 1,250 trainees mainly from Asia



IFAS Trainees by ICHARM



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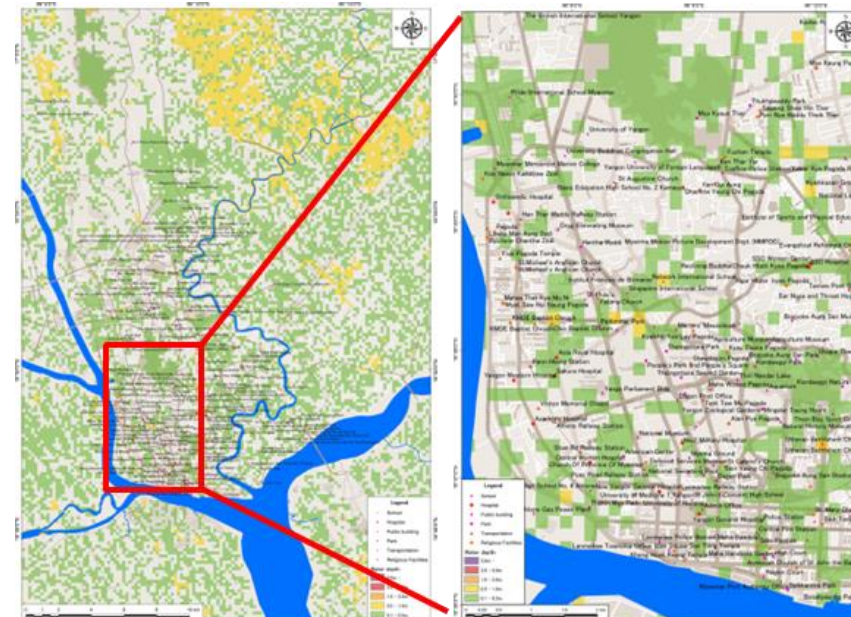


Public Works Research Institute,
National Research and Development
Agency, Japan

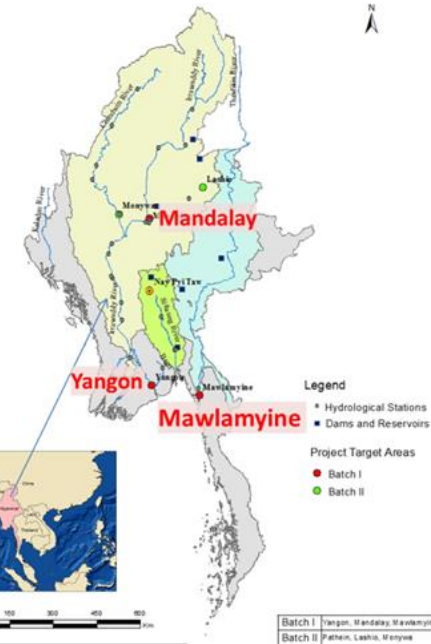


Local practices – ADB project for Myanmar – Transformation of Urban Management

- ADB implemented a project “Transformation of Urban Management” to promote **sustainable urban development for three large cities (Yangon, Mandalay and Mawlamyine)** in Myanmar.
- ICHARM participated as the project leader, mainly responsible for **technical transfer on flood management**.
- ICHARM led the **enhancement of the organizational capacity of the Myanmar government** in flood risk reduction by providing with the knowledge and skill in flood risk assessment.

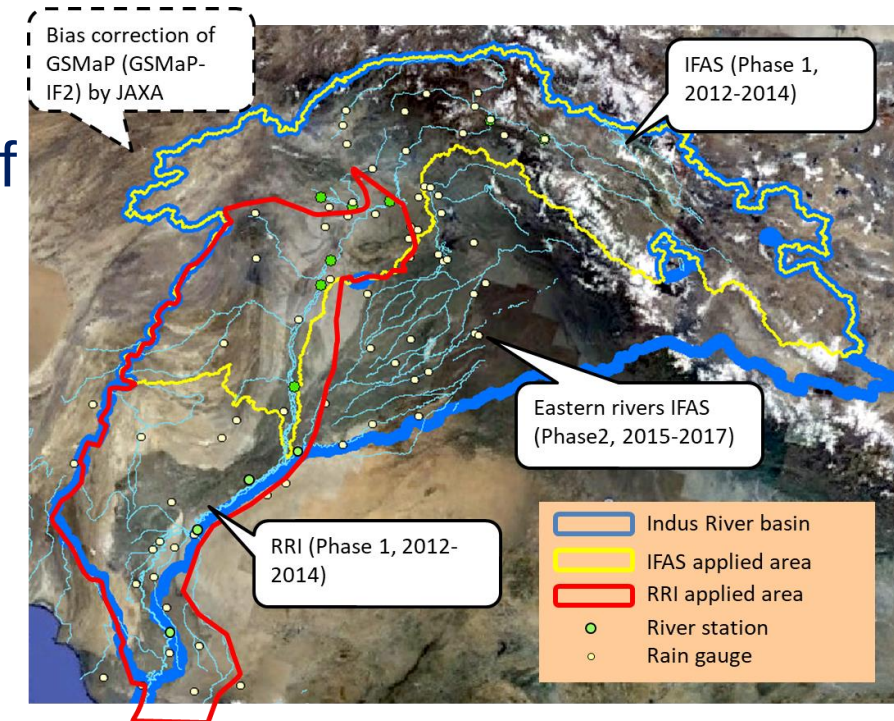


Flood Hazard Map in Yangon for 100-year flood
(Green(0.1-0.5m), Yellow(0.5-1.0m))



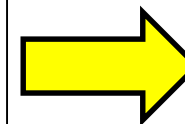
Local practices – UNESCO Pakistan project – Indus-IFAS in Pakistan

- After the unprecedented floods of 2010, ICHARM conducted a cooperation project with UNESCO to provide the technical assistance for the development of **the flood forecasting system in the Indus river basin (Indus-IFAS), flood hazard mapping and capacity building** (Phase 1).
- Due to its successful achievement, PMD (Pakistan Meteorological Department) provides flood forecast information based on Indus-IFAS on its website.
- Since 2015, **Indus-IFAS for the integration of eastern rivers and development of calculation module for melting snow** in the upstream are being implemented (Phase 2).



Phase 1 (2012-2014) :

- Model in main river (Indus-IFAS)
- Capacity building



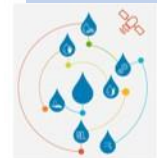
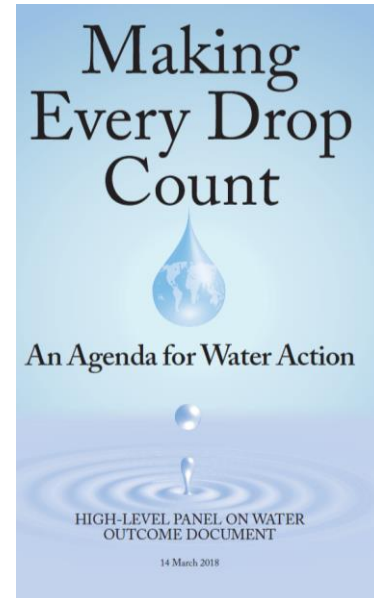
Phase 2 (2015-2017) :

- Eastern rivers model
- Snowmelt module
- ADCP observation
- Capacity building



International Flood Initiative (IFI)

- IFI is a worldwide framework to promote collaboration in flood management among international organizations such as UNESCO, WMO and UNISDR, of which ICHARM has been the secretariat since its establishment.
- Under the scheme of IFI, ICHARM supports the establishment of Platforms on Water Resilience and Disasters in each country by involving all the government organizations concerned with water-related disaster management.
- In the outcome document of March 2018 by High-Level Panel on Water (HLPW) convened by UN and World Bank, it was recommended “Platforms on Water Resilience and Disasters among all stakeholders should be formulated in countries to facilitate dialogue and scale up community-based practices”.



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International
Hydrological
Programme



WMO



UNITED NATIONS

UNITED NATIONS
UNIVERSITY



UNISDR

The United Nations Office for Disaster Risk Reduction



IAHR



IAHS



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Platform on Water Resilience and Disasters

Philippines



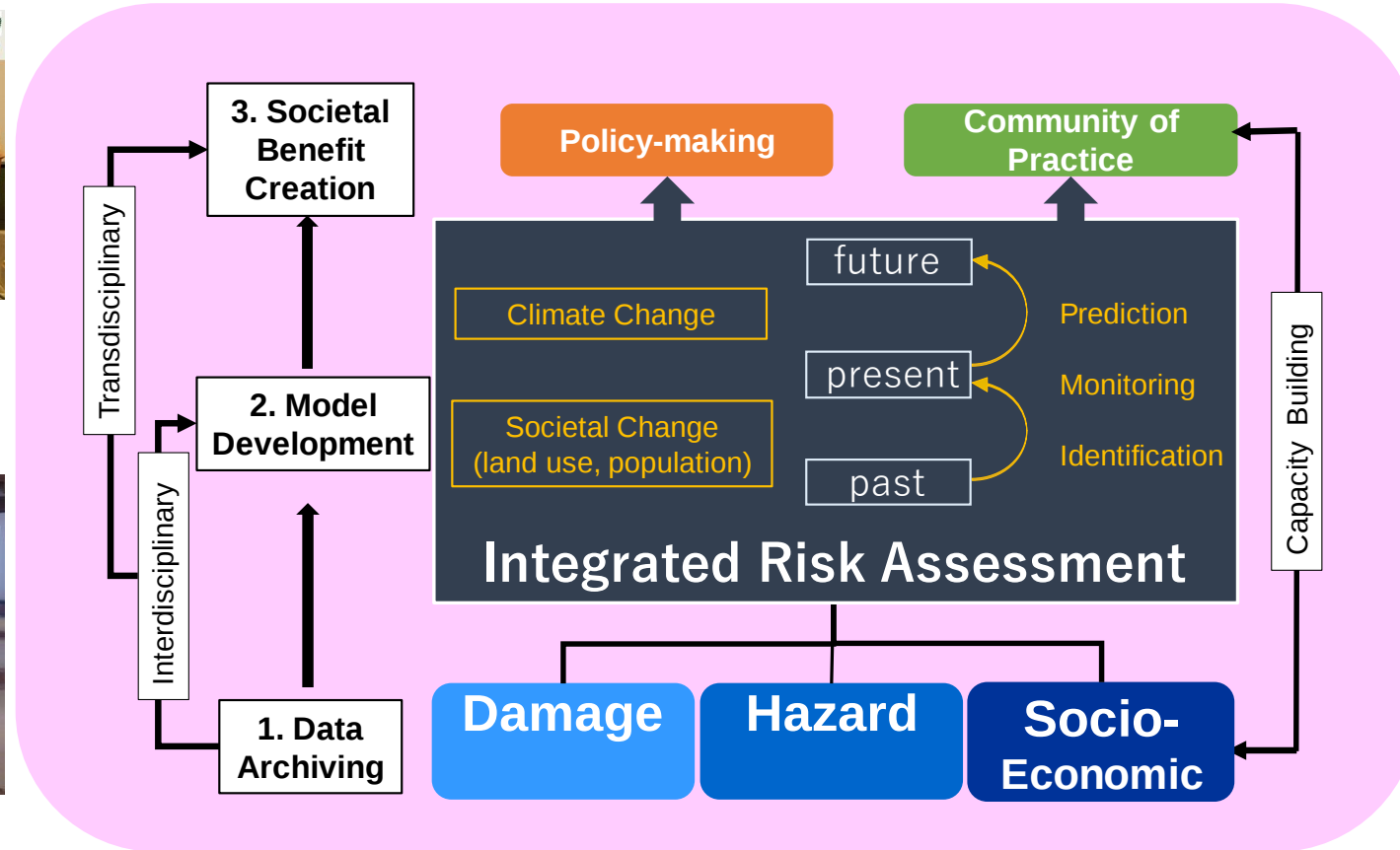
Pakistan



Sri Lanka



Myanmar



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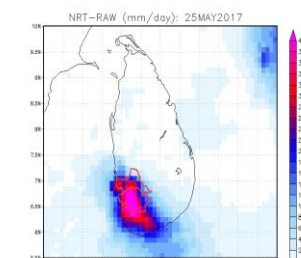
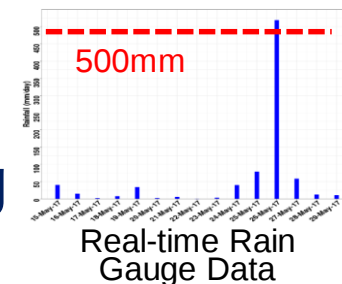
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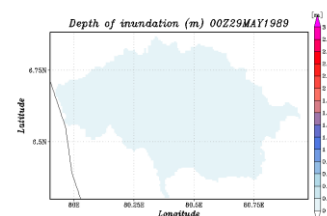
DIAS-ICHARM:

Support for Sharing Flood Information in Sri Lanka

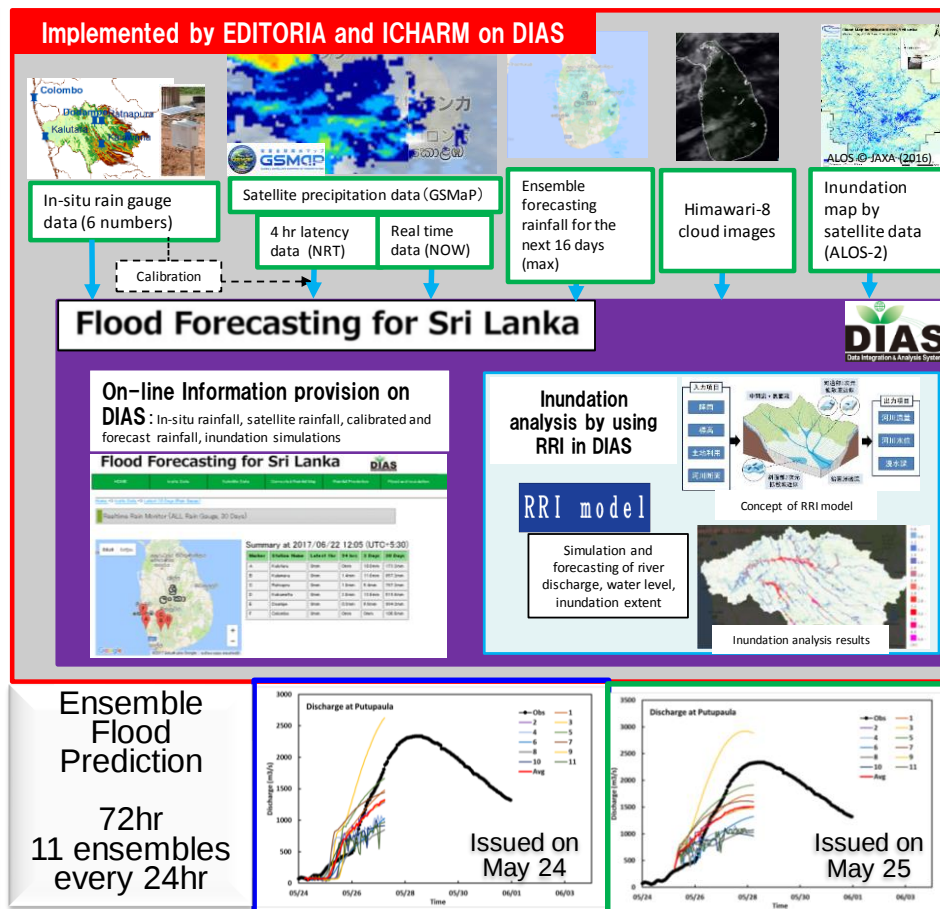
- After large-scale flood disaster in Sri Lanka in late May 2017, ICHARM and EDITORIA started continuously providing useful information for flood management (flood forecasts and early evacuation alerts) through the newly developed website on the DIAS.
- Since then, ICHARM supports the establishment of the Platform on Water Resilience and Disasters in Sri Lanka.
- Until today, the plenary sessions were held 2 times through the participation of all the relevant government organizations.



Bias-corrected Satellite Rainfall



Inundation



*Thank you very much
for your kind attentions*



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