

**20th Integrated Research on Disaster Risk (IRDR)
Science Committee Meeting**

**Chengdu, China
16 OCT, 2018**

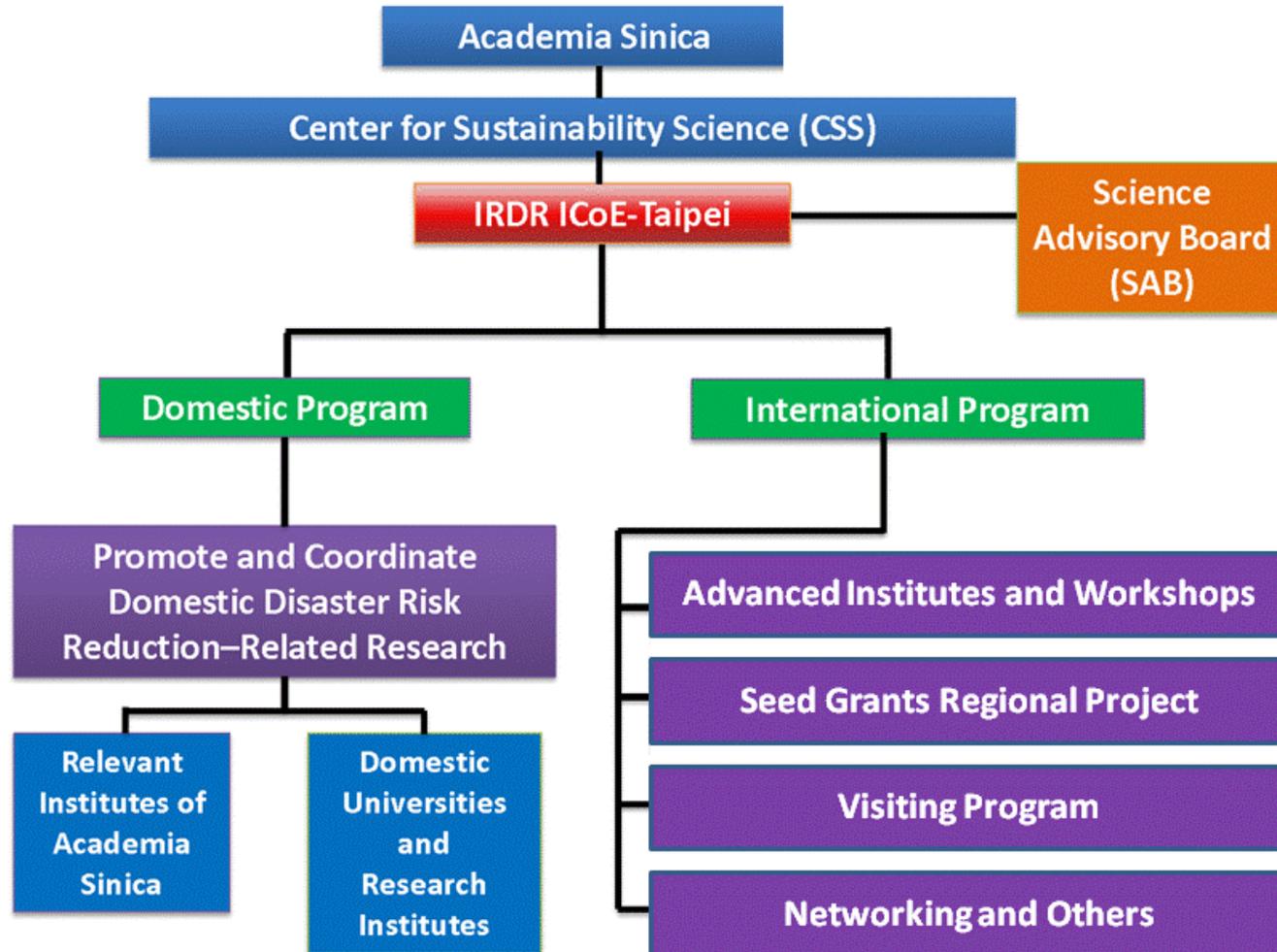
**Report from
Integrated Research on Disaster Risk (IRDR)
International Centre of Excellence (ICoE)- Taipei**

Jian-Cheng LEE

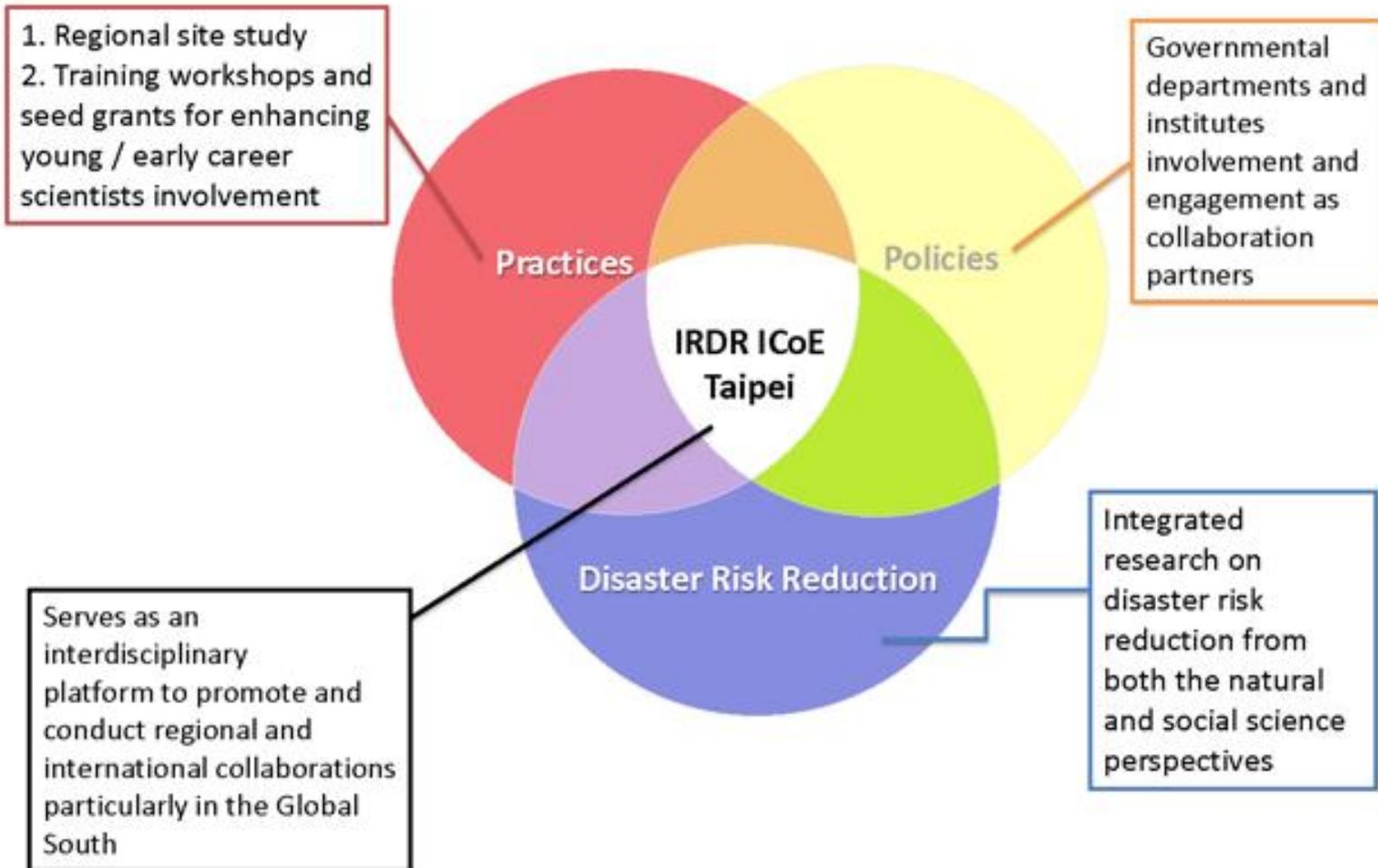
Executive Director, IRDR ICoE-Taipei

Research Fellow, Institute of Earth Sciences, Academia Sinica

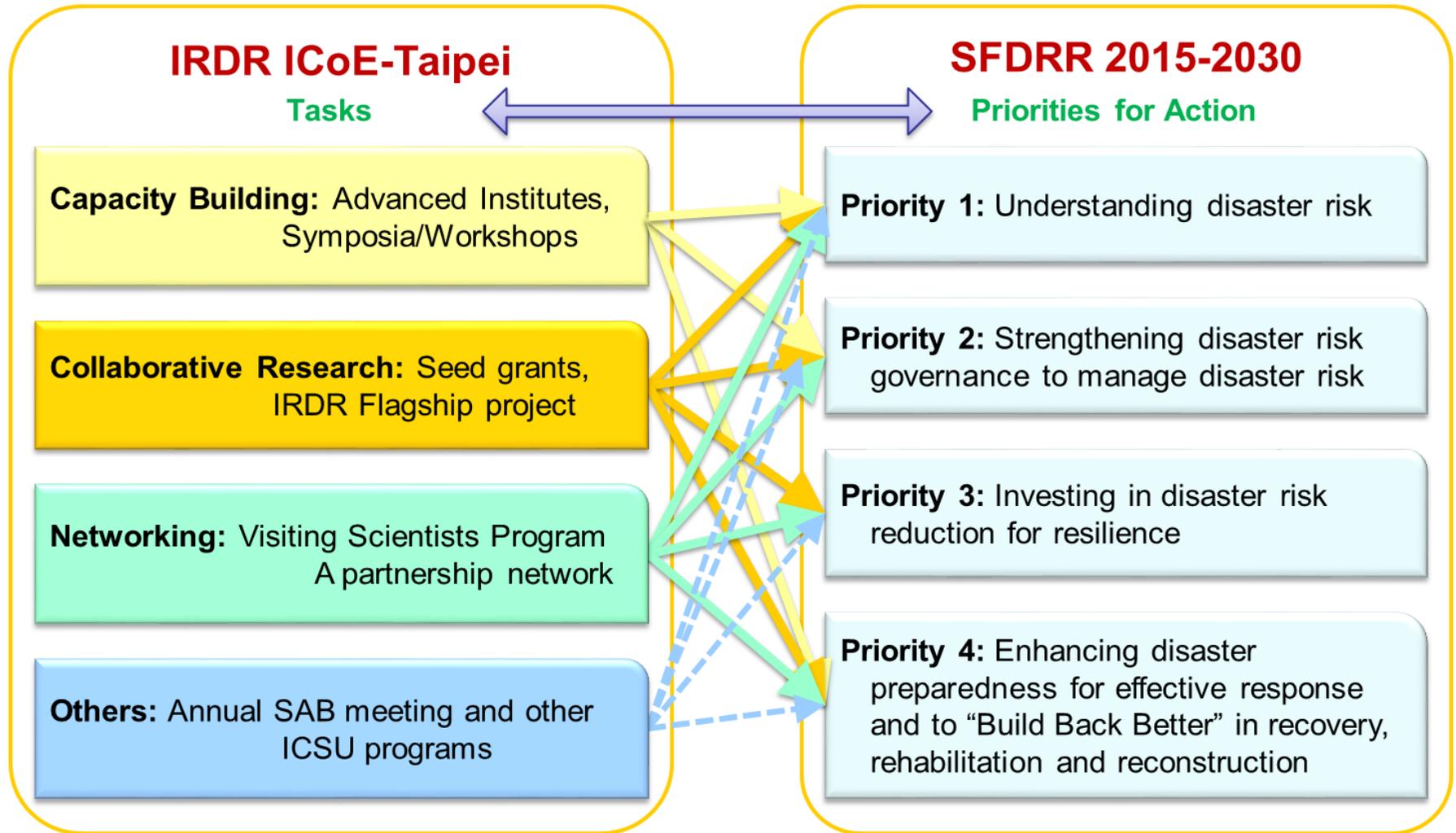
- IRDR ICoE - Taipei has been established since **November 2010** at Academia Sinica and become *the first ICoE*.



Mission Statement of ICoE-Taipei-1



Mission Statement of ICoE-Taipei-2



Capacity Building and Activities-1

Since 2012, we have held DRR related Advanced Institutes / training workshops as following:

- " Forensic Investigations of Disasters, **AI-FORIN**" (March, 2012),
- " Data for Coastal Cities at Risk, **AI-DATA**" (October, 2012),
- "Regional Networking", " Sustainable Urbanization", " Disaster Risk Reduction (DRR) and Loss Mitigation (LM), **AI-DRR & LM**" (April, 2015),
- "Knowledge-based Actions for Disaster Risk Reduction, **AI-KBA**" (April, 2017), and
- "Disaster Risk Reduction with Systems Approach for Slow-Onset Climate Disasters, **AI-SOCD on Air Pollution, Sensors, and Big Data**" (July, 2017).
- "Disaster Risk Reduction with Systems Approach for Slow-Onset Climate Disasters, **AI-SOCD on Heat Stress Sensors, Early Warning, and Information Technology**" (June, 2018)
- "**Landslide Risk Reduction Training School (AI-LRRTS)** - Landslide Hazards: From Site Specific to Regional Assessment" (August, 2018)
- "**Training Course on Earthquake Hazard and Risk Assessment in East Asia**" (October, 2018)

Capacity Building and Activities-2

- Since 2015, for each Advanced Institutes, we also have initiated “**Seed Grant Projects**” to encourage participants of AIs and training workshops to start their research and establish the foundation for regional collaboration in the near future.
- IRDR ICoE called proposals for the one-year research grant programme with limited financial of USD 15,000 support for collaborative inter-disciplinary research that falls within the areas of interest.

AI-KBA Seed Grant Projects:

There are 4 projects are granted for one year (NOV, 2017 – NOV, 2018). The grantees will be requested to submit a formal research report by the end of execution duration.

Project Title	Earthquake Resilient Communities in ASEAN Region: A Transdisciplinary Approach	Developing Indicators for Resilience of Micro Small Medium-Sized Enterprises (MSMEs) in Asia	Developing Humanitarian Aid Distribution Process Information System Framework for ASEAN Countries	Evidenced Based analysis of Flood Risk Management and Social Vulnerability - A System Approach in Sakon Nakhon Province, Thailand
Research team	5 members of participants from Malaysia, Pakistan, Singapore, and Thailand / 7 Collaborators from Australia, Germany, and Malaysia / 2 Consultants (Advisors) from Malaysia and Taiwan.	3 members of participants from, Malaysia, New Zealand, and Thailand / 3 Collaborators from Malaysia, Nepal and Thailand	6 members of participants from Malaysia, Philippine, and Thailand	2 members of participants from Thailand / 4 experts from Japan, Malaysia, Singapore, and Taiwan
Expected outcomes	<p>1. Disaster resilient index for sub-district</p> <p>Indicator for freshwater ecological impact induced by disaster</p> <p>2. Advisory report for policy implication on mainstreaming DRR into development planning</p> <p>3. Geo-Portal on Multi-Sector Disaster Resilient</p> <p>4. Synthesis report covering state of knowledge and strategies</p>	<p>The proposed MSMEs indicators can contribute towards national agenda for localizing Sendai Framework for DRR;</p> <p>1. The proposed MSMEs indicators will assist in self-monitoring thus lessen the government role and responsibility; and</p> <p>2. The proposed MSMEs indicators that contribute to MSMEs resilience towards natural disaster will better suit the MSMEs particularly in the context of Nepal and Malaysia.</p>	<p>1. Novel theories/New findings/Knowledge</p> <p>-Develop a humanitarian aid distribution process information system framework for disaster management stakeholders</p> <p>2. Research Publications -The finding of the research work will be presented in one international conference</p> <p>3. Specific or Potential Applications</p> <p>-A disaster management team competency framework for humanitarian aid distribution process for the ASEAN level.</p> <p>-Potential mobile application for humanitarian aid distribution process.</p>	<p>-Developing comprehensive indicators through System Approach for social vulnerability assessment and flood resilience.</p> <p>-Developing a Local level framework for flood resilience through Multi Stakeholder approach.</p> <p>-Mapping of critical drivers for flood risk and vulnerability at various level of the social system.</p> <p>-System based Recommendations for community based resilience framework for the flood prone community.</p>

AI-SOCD Seed Grant Projects:

There are 4 projects are granted for one year (SEP, 2018 – SEP, 2019). The grantees will be requested to submit a formal research report by the end of execution duration.

Project Title	The influence of biomass burning on high concentration of PM _{2.5} in selected areas in Southeast Asia	Building urban resilience: A systems approach to analyzing social and personal health risks of jeepney commuters and drivers to PM _{2.5} in Metro Manila, Philippines	Urban transportation-related air quality and their impact on human health	Interface between science based data and policy action to improve the existing Mandalay City Waste Management
Research team	3 members of participants from Malaysia and Thailand / 1 Consultants (Advisors) from Taiwan.	2 members of participants from Philippine/ 5 Consultants (Advisors) from Philippine and Taiwan.	6 members of participants from Indonesia and Taiwan.	3 members of participants from Myanmar and Taiwan/ 2 consultants from Thailand and Japan
Expected outcomes	<p>PM_{2.5} compositions in the biomass burning prone areas</p> <p>The impact of PM_{2.5} and its composition especially during biomass burning episode to human health</p> <p>Suggestion on mitigation procedures on how to reduce risk from PM_{2.5} from biomass burning episode.</p>	<ol style="list-style-type: none"> 1.Quantified personal exposure of commuters and drivers 2.Preliminary assessment of potential health risks 3.Preliminary design of statistical analysis of the socio-economic data on exposure and vulnerability 4.Preliminary design of cost benefit analysis 5.Preliminary policy and program recommendations for consideration related to the jeepney modernization program 	<ol style="list-style-type: none"> 1.Understanding the determinants of personal exposure to PM and CO in transport microenvironment/ the knowledge and perspective of citizens on transport-related air pollutants/ the impact of pollutant exposure to human health in certain environmental/ meteorological conditions 2.An input for stakeholders in designing and implementing policy related to air pollution, especially in transport microenvironment 3.A platform of regular meeting and discussion between researchers, academia, and citizens to seek for effective solution 4.International and local publications on scientific journals/ proceedings 	<ol style="list-style-type: none"> 1.Reveal the existing air quality status 2.Determine the PM2.5 exposure level of the waste workers working around the waste disposal sites 3.The data obtained will be processed to identify health risk of the exposed community potentially affected by particulates generated from the waste disposal sites 4.The community perception, awareness as well as policy inputs will be processed depending on the science based data 5.The mitigation measures will be developed in order to be the sustainable sanitary landfill through the long term policy paradigm.

Collaborative Research

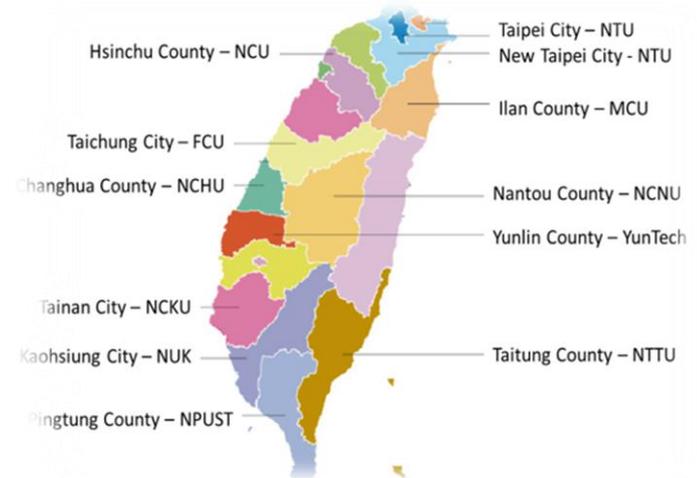
Flagship Project: Disaster Risk and Loss Reduction

– Integrated Research, Policy, and Practice

- The Flagship Project is led by the National Science and Technology Center for Disaster Reduction (NCDR) with the collaboration of IRDR ICoE-Taipei
- Focus on the Implementation of integrated science and technology to empower local governments on disaster risk reduction and emergency preparedness

➤ Expected outcomes:

- To build up an **information sharing mechanism** to understand disaster risks better;
- To **enhance DRR planning** focusing on local characteristics;
- To **strengthen efficiency of emergency response**
- **International experience transfer** through PARR fellowship program



The flagship project engages one university as a partner of each local government for the science-policy collaboration. 12 pairs of partners between the university and local government have been built up.

Scientific Advisory Board (SAB) of IRDR ICoE-Taipei

- Last SAB Annual Meeting was held on **January 26, 2018**.
- Strategic directions and future plans
 - Capacity building programs and follow-up activities
 - Collaborative IRDR research and flagship project
 - Visiting scientist program and networking with international research organizations

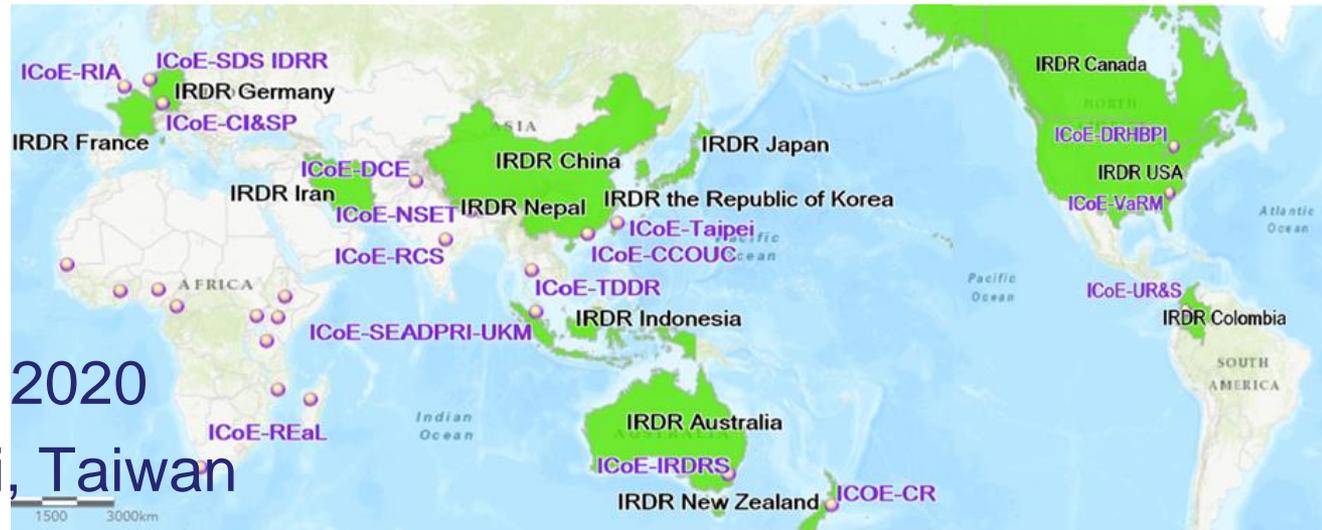


Future Plan: 2019~ 2020 Activities

Organizing Activities in 2019-2020

- 1 PIAD Conference
- 2 AI **Seismic hazards II** + Seed grants
- 3 AI **Volcanic hazards** + Seed grants
- 4 AI **Knowledge-based Actions II** + Seed grants
- 5 Short course in Southeast Asia
- 6 IRDR Joint inter ICoEs Workshop
- 7 Bi-lateral conference between EOS and Taiwan
- 8 Visiting Scholars Program
- 9 Annual SAB meeting

1st IRDR Joint inter ICoEs Workshop



- Time: 2019 or 2020
- Venue : Taipei, Taiwan
- Participants: 16 ICoEs and IPO
- Expectation:
 - Exchange insights and ideas among ICoEs
 - Learn experiences from each other
 - Establish new collaboration among ICoEs
 - Better overview the outcomes of ICoEs

Thank you
for your attention

Highlights of past activities connected to IRDR

- 2012 Advanced Institute – Forensic Investigation of Disasters (FORIN)
 - ICoE/NCDR published a 37-page FORIN report on “Forensic Investigation of Typhoon Morakot Disaster: Nansalu and Daniao Village Case Study” on May 2014.
- 2012 Advanced Institute on Data for Coastal Cities at Risk
- 2013 Young Scientists’ Conference on Integrated Research on Disaster Risk, Future Earth, and Sustainability
- 2015 Advanced Institute on Disaster Risk Reduction & Loss Mitigation
- 2016 The 23rd Pacific Science Congress. Two sessions:
 - Plenary Speech by Dr. Gordon McBean: “Integrated research for reducing disaster impacts for a sustainable future earth”
 - “Regional and local efforts on implementation of the Sendai Framework for disaster risk reduction”.

Highlights of past activities connected to IRDR

- 2016, 2017 The 1st and 2nd Workshops to Strengthen Scientific Advisory Capacities for Disaster Risk
- 2016 The International Training Workshop on Natural Disaster Reduction – Natural Disaster Risk Modeling and Applications
- 2016 The 5th and 6th Workshop on Psychological Intervention after Disasters (PIAD)
- 2017 Advanced Institute on Knowledge-based Actions for Disaster Risk Reduction
- 2017 Advanced Institute on Systems Approach for Slow Onset Climate Disasters :Air Pollution, Sensors, and Big Data
- 2018 Disaster Risk Reduction with Systems Approach for Slow-Onset Climate Disasters, AI-SOCD on Heat Stress Sensors, Early Warning, and Information Technology”
- 2018 Landslide Risk Reduction Training School (AI-LRRTS)
- 2018 Training Course on Earthquake Hazard and Risk Assessment in East Asia

Future Plan: being an active part of the ICoE family

Share Taiwan's Integrated DRR knowledge, technologies, and experiences with countries mainly in Asian region.

- Following the agreement between **Academia Sinica and ICSU**.
- **Enhancing capacity** in integrated DRR research and practice in Asia, with a global perspective
- Facilitating integrated DRR **knowledge transfer** and collaboration among scientists from different disciplines, practitioners, and policy-makers.
- Providing solutions for problems encountered in one of the four phases of disaster management.

Future Plan: being an active part of the ICoE family

- Work closely with governmental agencies and institutes (Academia Sinica, NCDR, CWB, NCREE etc.) and **strengthens the capability in engagement as collaboration partners in regional site studies**
- Concentrate on **younger/ early career scientists**' training and providing them with seed grants for initiating regional DRR theme projects especially within the Global South
- IRDR ICoE – Taipei will build close partnerships with ICoEs, ICSU ROAP, START, and other international organizations **for implementation as “action network”** rather than simply research-based collaborations