

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

## **Activity Report**

**Dr. Shih-Chun Candice LUNG, Executive Director**

**Dr. PK WANG, Director General**

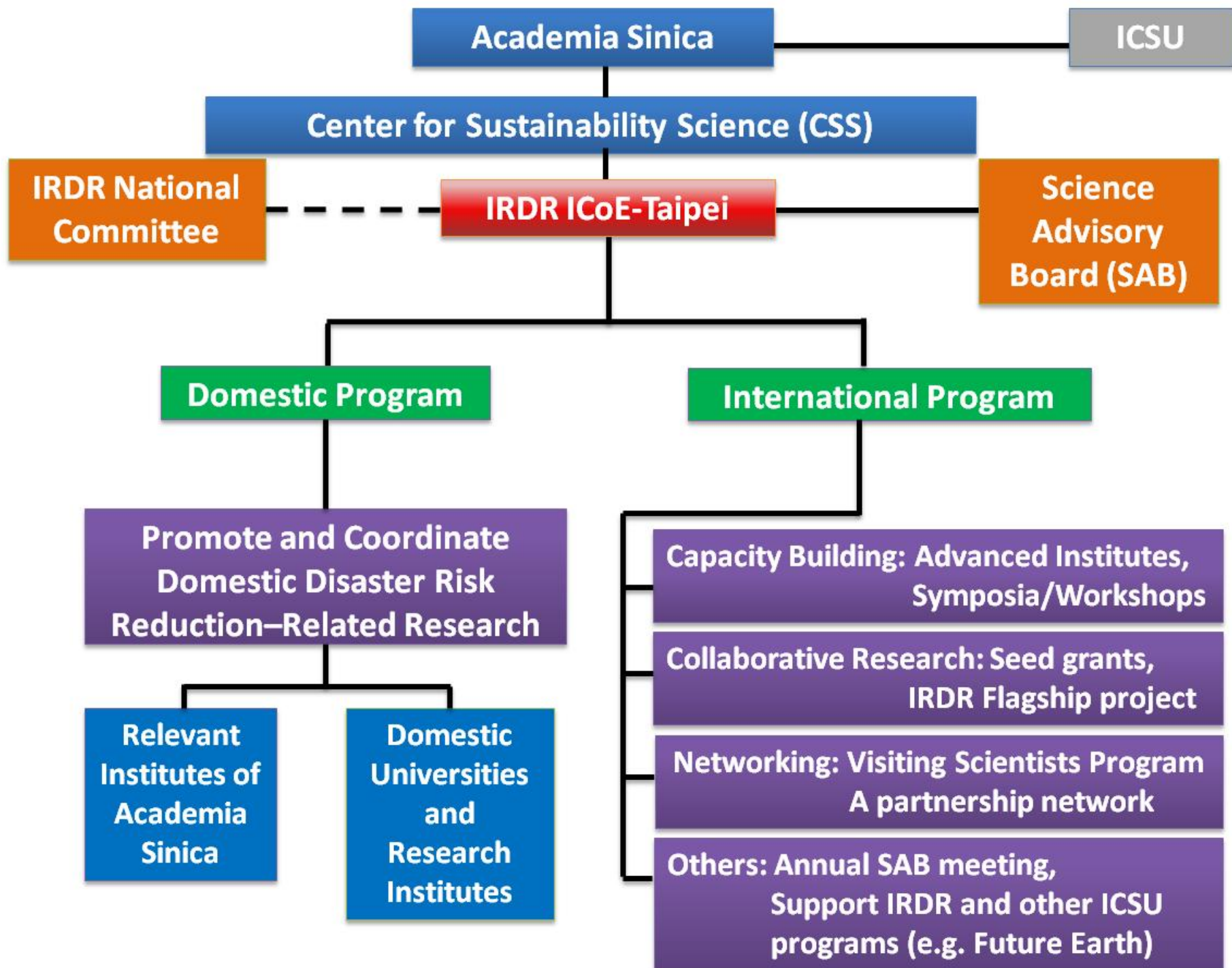
**IRDR ICoE-Taipei**

**Academia Sinica, Taipei**

# ICoE-Taipei

(Second Term: November 21, 2015-November 19, 2020)

- Established based on a MOU signed between ICSU and Academia Sinica
- Mission:
  - The center shall serve as an **international platform** for conducting disaster risk reduction (DRR) research, using an **integrated multi-disciplinary approach** from the perspectives of both natural and social sciences
- Tasks:
  - Exchange of scholars between research institutes
  - Exchange of ideas and information
  - Collaborative research
  - Education and training
  - Establish a partnership network of disaster reduction research
  - Have both international and domestic components



# Scientific Advisory Board

---

**Dr. Gordon McBean (Chair)**

President, International Council for Science (ICSU)

**Dr. Hassan Virji**

Executive Director of START

**Dr. Kuniyoshi Takeuchi**

Advisor, International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO

**Dr. Mohd. Nordin Hasan**

Director of ICSU Regional Office for Asia and the Pacific (ROAP)

**Prof. Ching-Hua Lo**

President, National Applied Research Laboratories

**Prof. Liang-Chun Chen**

President, Disaster Management Society of Taiwan (DMST)

**Prof. Chao-Han Liu**

ex-Vice President, Academia Sinica

**Prof. Hongey Chen**

Director, National Science and Technology Center for Disaster Reduction (NCDR)



# 2015 Scientific Advisory Board Meeting

- Chaired by Dr. **Gordon McBean** on 21 November 2015 at Academia Sinica.
- **Strategic directions** were discussed
  - Focus on four priority areas of Sendai Framework for Disaster Risk Reduction (**SFDRR**)
    - 1. Understanding disaster risk
    - 2. Strengthening disaster risk governance to manage disaster risk
    - 3. Investing in disaster risk reduction for resilience
    - 4. Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction
  - a **people-centered** preventive approach and an **action-oriented** framework
- Annual and longer-term activities were presented
  - Capacity Building Program, Collaborative Research, Networking and others

# Map ICoE-Taipei's work to

## Sendai Framework for Disaster Risk Reduction (SFDRR)

- International Program
  - **Capacity building**: Advanced Institute and workshops (SFDRR-capacity training)
  - **Collaborative Research**: Research Seed Grants and Flagship project (SFDRR-capacity training and integrated research)
  - **Networking**: Visiting Scientist Program and a partnership network with NCDR, IRDR IPO, START, ICSU-ROAP, Pan-Asia Risk Reduction (PARR), other ICSU programs, etc. (SFDRR-exchange of scholars, ideas and information)
- Domestic Program
  - Research projects (SFDRR- integrated multi-disciplinary research)

# Domestic Program: Research Projects

- Promote and coordinate **domestic IRDR-related research projects**:
  - Open Information System for Disaster Management (2012-2015)
  - Mega-seismic risk and multi-geological disasters in Taiwan (2013-2015)
  - Adaptation and Impacts of Climate and Land Use Changes on Environmental Disasters (2013-2015)
  - Integrated Multi-source and High-resolution Heat Wave Vulnerability Assessment of Taiwan (2015-2017)
  - Taiwan Drought Study: Change, Water Resource Impacts, and Risk Perception and Communication (2016-2018)
  - Disaster Resiliency through Big Open Data and Smart Things (DRBoaST) (2016-2018)
  - Facing " Risk Society" in Taiwan: Issues and Strategies (2016-2018)
- Up to June 2015, the IRDR-related research projects have at least twelve publications and presentations



# Activity of International Program, ICoE-Taipei (November 2015-May 2016)

- Capacity Building:
  - The Fourth Workshop on Psychological Intervention after Disasters (PIAD) (November 9-12, 2015, Academia Sinica)
  - Pan-Asia Risk Reduction (PARR) Fellowships
- Collaborative Research:
  - Seed Grants— follow-up of Advanced Institute on Disaster Risk and Loss Reduction (20th-25th April, 2015, Academia Sinica)
  - IRDR Flagship Project
  - Affiliated Scientist Program
- Networking:
  - Visiting scientist programme: Dr. Shen-En Chen and Dr. Michelle Huang
- Others
  - Seminars and conferences



# Capacity Building: The Fourth Workshop on Psychological Intervention after Disasters (PIAD)

- Held on **November 9-12, 2015**, in Academia Sinica, Taipei, Taiwan
- Co-sponsors:
  - International Union of Psychological Science (IUPsyS), Chinese Psychological Society (CPS), the Jacobs Foundation, the ICSU Regional Office for Asia and the Pacific (ICSU-ROAP), United Nations University International Institute for Global Health (UNU/IIGH), and the Center for Applied Developmental Science (CADS), Friedrich Schiller University, Jena, Germany
- **25 participants from 8 Asian countries**
- Lectures by 7 faculty members, break-out sessions, poster presentation and a field trip to NCDR were arranged
  - Topics: psychological resilience, psychological and social impact of disasters, post-traumatic psychological studies, and social science research methodology
- Professor **Sue-Huei Chen** of the **National Taiwan University** shared her experience in psychological intervention after **Chi-Chi earthquake and Morakot typhoon** during the workshop



# Capacity Building: Future Planning for AIs and Workshops

- Capacity building activities will be in context of the **Sendai priority areas**
- Two series of AIs:
  - One series on “**Disaster Risk Reduction and Loss Mitigation**” (DRRLM)
  - Another series of AI on “**SysTems Approach for Transdisciplinary Research (STAR)**” to promote systems approach within scientific community and among scientists and stakeholders for transdisciplinary research
- Workshop:
  - The Fifth and Sixth Workshop on **Psychological Intervention after Disasters (PIAD)**

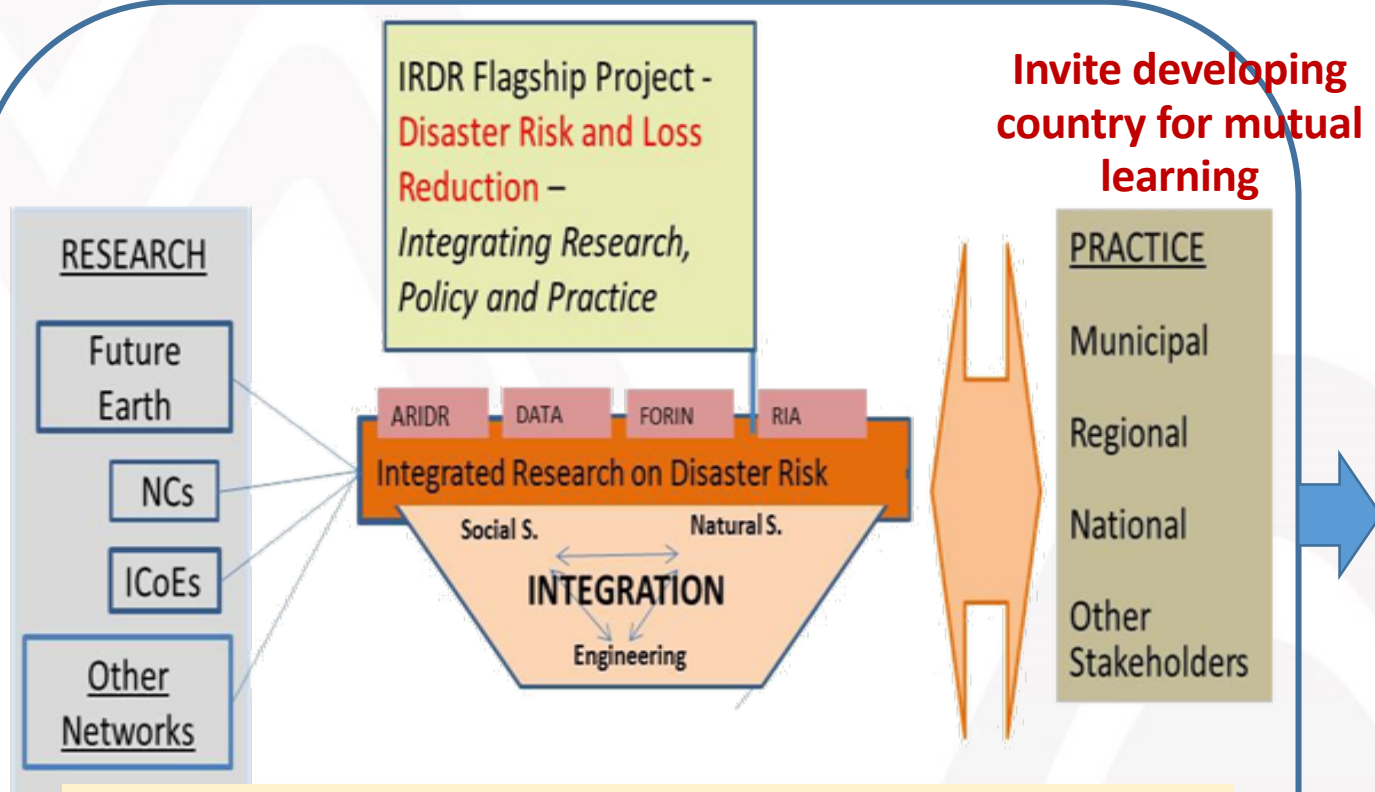
# Collaborative Research: Follow-up on Als--Seed Grants

- **Fellows of 2015 AI** on “Disaster Risk and Loss Reduction” (18 researchers and practitioners from Southeast Asia, April 20-25, 2015, Taipei)
- Seed grants awarded to four pilot projects out of eight proposals (max 15K/proposal)
  1. Strengthening community Resilience: The case of Coastal and Island Communities in **the Philippines**
    - Ven Paolo Valenzuela (PI), Kristoffer Berse, Eldin Lumanog and Joan Talubo
  2. Web-Based Decision Support System for Hazard Mitigation, Coastal Planning under Storm Surge in **Ho Chi Minh & Chennai Cities**
    - Nguyen Hong Quan (PI), Pradeep Chandra Bose
  3. Socio-Ecological Resilience as a Sustainable Development Strategy under the context of Emerging Disaster Risks for Rural Settlements in Different Geo-Climatic Zones of **India**
    - Sameer M. Deshkar (PI)
  4. Strengthening Community Resilience on the Coastal and Isolated Islands of **Indonesia**: A case study in the Mentawai Islands – West Sumatera
    - Agnes Patongloan (PI) Rahmat Pratomo, Anna Napieralska, Ven Paolo Valenzuela

# Collaborative Research: IRDR Flagship Project

- Initiation:
  - Tony Liu and Kuniyoshi Takeuchi had proposed in previous IRDR SC meetings
- Project goal:
  1. Reviewing regional and sub-regional plans of disaster management to understand the current status of **physical and social vulnerabilities**
  2. Hosting dialogues with representatives of local governments to **find out gaps and demands** on science-based disaster management
  3. Seeking **trans-boundary comparisons** with others and interdisciplinary collaborations with IRDR working groups and relevant scientific programs
  4. Compiling a final report to address the ideal approaches to **introduce science and technology for better disaster risk reduction**
- Core spirits of the project
  - **Co-design** , **Co-work** and **Co-implement** with local governments
- Two local governments suggested by **ICoE-Taipei and NCDR**

# Flagship Project based on outcomes of all scientific research achievements and four IRDR groups



- 1. To integrate sciences;
- 2. To work with policy makers/practitioners;
- 3. To provide the vision as well as the practical steps to be followed;
- 4. To reduce loss.

- A pilot project in 2015
- “Focus on real application of science for reducing risk”**
- Selected Hazards: typhoon and earthquake
  - Target stakeholders: governments and communities
  - Focal issues:
    1. Plans for risk reduction
    2. Common emergency operation
    3. Capacity building

# Profiles of New Taipei City



- **The most populous municipality**
  - Population: 3,967,571 (Jan, 2015)
  - Total area: 2,052.57 Km<sup>2</sup> divided into 29 districts
- **Major natural hazards:**
  - typhoon, flood, landslide, debris flow and earthquake
- **Major vulnerabilities**
  - urban areas suffer from flash floods
  - inadequate seismic capacity in existing old buildings
  - improper cultivations along hillsides
  - aging infrastructure
  - active seismic faults running through the city

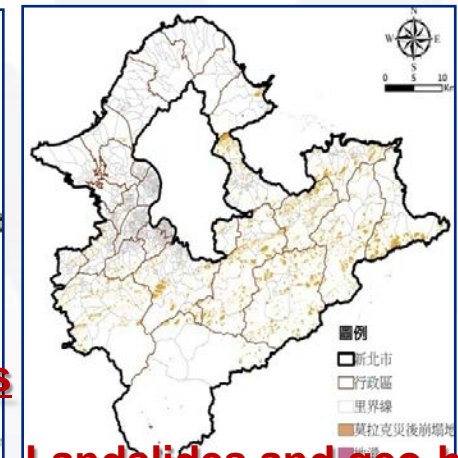
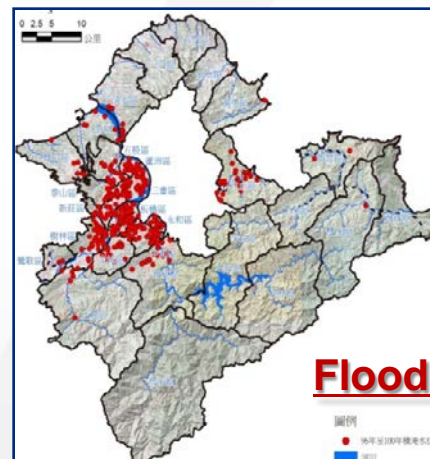


# Discussion Meeting of IRDR Flagship Project 20th April 2015 in NCDR



www.ncdr.nat.gov.tw

- Japan: Kuniyoshi Takeuchi, Kenichi Tsukahara
- ICoE Taipei: Tony Liu
- NCDR: Wei-Sen Li
- IRDR IPO: Rudiger Klein
- New Taipei City: Tony Lee ( Vice Commissioner of Fire Department)
- Hsinchu County: Jen-kuo Tai (Section Chief of Fire Department)
- START: Hassan Virji



Landslides and geo-hazard



# Progress in 2016 to fill information gaps

## Project leader: NCDR (Jan. 2016 ~ Dec. 2016)



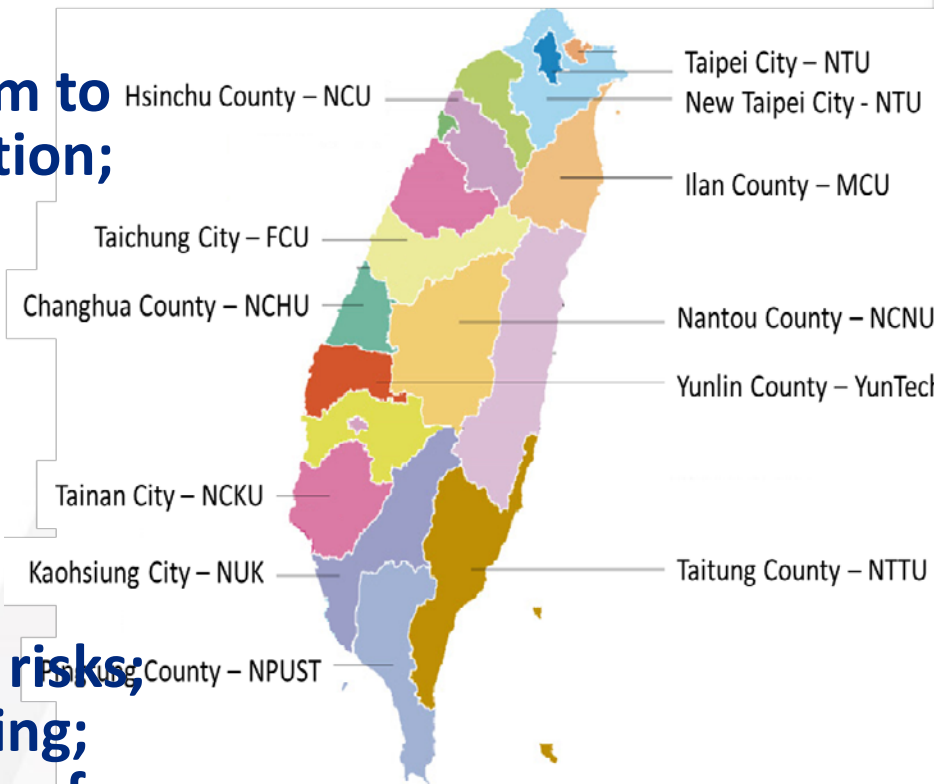
www.ncdr.nat.gov.tw

- **Targets: 12 local governments and 11 local universities**
- **Goals:**

- 1) To build up a mechanism to collect and share information;
- 2) To focus on local characteristics of hazards;
- 3) To support disaster risk reduction and emergency preparedness

- **Expected outcomes:**

- 1) To deliver better understanding of disaster risks;
- 2) To enhance DRR planning;
- 3) To strengthen efficiency of emergency response



# Collaborative Research and Networking: Pan-Asia Risk Reduction (PARR) Fellowships

- The PARR offers unique research, training, and educational opportunities to **Asian scientists, practitioners, and policy-makers** to enhance their capabilities for advancing and applying knowledge on the critical issues of **vulnerability and disaster risks** in the Asia-Pacific regions
- **ICoE-Taipei** is one of the PARR Core Partners. Other core partners include: START, Oscar M. Lopez Center (Manila), Kyoto University, and others
- First phase (July - December 2014) with the initial focus on **urban disaster risk** and vulnerability under global environmental change (5 fellows)
- **NCDR** was one of the host institutes and hosted 4 PARR Fellows in October 2014 for a month-long training in NCDR
- **Second phase starts in 2016, transfer the experience in Flagship Project in Taiwan to the Philippines**



# Collaborative Research & Networking: Visiting Scientist and Affiliated Scientist Programs

- Visiting scientists
  - Prof. Shen-En Chen, University of North Carolina, Charlotte
    - Project: “Taiwan Carbon Capture and Storage Potential Assessment Including Classical and Innovative CCS Techniques” (Nov-Dec 2015)
  - Dr. Yung-Feng (Michelle) Huang
    - “Hillslope erosion tendency in the storm event series” (Jan.-Dec. 2016)
- Affiliated Scientists
  - Prof. Robert Mendelsohn, Yale University and Prof. Daigee Shaw, Academia Sinica
  - Proposed a project titled “Build Decision Making Tools That Identify Promising Climate Adaptation Projects For Water and Flood Management and Coastal Protection.” to Green Climate Fund on January 2016

# Others: Seminar and Conference

- Organized seminar on “On Pope Francis' Encyclical on Climate Change and Inequality: Is technology to blame for climate change?” by Prof. **Naomi Oreskes** (The Department of the History of Science at Harvard University, USA) on September 7, 2015, in Taipei
- Organized **Pathway to Deep Decarbonization** Symposium was held on September 15, 2015, in Taipei
  - **Speakers: Hans Joachim (John) Schellnhuber**, Daniel Ronald Klingefeld, Frank Jotzo, Fredrich Kahrl, Leena Srivastava, and Pao-Kuan Wang
- Organized **Future Earth Asian Perspective Symposium on Air Pollution Transdisciplinary Collaboration**, Feb 29-Mar 1, 2016, Taipei, Taiwan, with 153 scientists from 13 Asian countries
- Dr. Shu-Li Cheng participated in the UNISDR Science and Technology Conference on Jan27-29, 2016 in Geneva



# International Program: 2016 Activities

- Capacity building
  - Advanced Institute (AI)
  - 5th PIAD workshop
- Collaborative research
  - Research Seed Grants for AIs
  - IRDR Flagship project
  - Affiliated Scientist Program
- Networking
  - Visiting Scientist Program
  - A partnership network with NCDR, IRDR IPO, START, ICSU-ROAP, Pan-Asia Risk Reduction (PARR), other ICSU programs, etc
- Others
  - Hold 2016 Scientific Advisory Board Meeting



# THANK YOU

<http://irdr-icoe.sinica.edu.tw>