

NATURAL DISASTERS

Biological

Epidemic

- Viral Infectious Disease
- Bacterial Infectious Disease
- Parasitic Infectious Disease
- Fungal Infectious Disease
- Prion Infectious Disease

Insect Infestation

- Animal Stampede

Geophysical

Earthquake

Volcano

Mass Movement (Dry)

- Rockfall
- Landslide
- Avalanche
- Subsidence

Hydro-Meteorological

Hydrological

Flood

- General Flood
- Flash Flood
- Storm Surge / Coastal Flood

Mass Movement (Wet)

- Rockfall
- Landslide
- Avalanche
- Subsidence

Meteorological

Storm

- Tropical Cyclone
- Extra-Tropical Cyclone
- Local Storm

Climatological

Extreme Temperature

- Heat Wave
- Cold Wave
- Extreme Winter Condition

Drought

Wildfire

- Forest Fire
- Land Fire

Natural Disasters Classification

Source:

Guha-Sapir, D., Hoyois, Ph., and Below, R. Annual Disaster Statistical Review 2013: The Numbers and Trends. Brussels, CRED, 2014

The Association of Pacific Rim Universities' (APRU) Academic Contributions to Disaster Risk Reduction

The intensity and frequency of natural hazards are increasing globally. To tackle this challenge, there is an urgent need for comprehensive and multi-stakeholder approaches with the involvement of new and non-traditional actors such as academia and the private sector.

Implementation of disaster risk reduction (DRR) in the most effective and efficient manner on the ground must be on the basis of large amount of data and information. Moreover, research results developed in academia and private research facilities must be utilized by and shared with various stakeholders such as governments, international and regional organizations, non-governmental organizations (NGOs), the private sector, and especially communities with higher risks of disasters due to factors as simple as their geography. Natural disaster-related policies and decision making must be ideally supported by scientific data and evidence.

In addition, the needs for the elements of social science including education and training, awareness raising, policy development, community empowerment, networking and partnership building are increasing. It has already been proven that science and technology alone are not enough to reduce the underlying causes of natural disasters; individual level of disaster preparedness is extremely important too. Academia must support and be involved in DRR initiatives from both ways—technology and science and social science, utilizing their research results and outcomes.

Major Issues and Challenges for the APRU-IRIDeS Multi-Hazards Program

- 1. Data sharing is difficult among different countries/economies.** Without a well-recognized means of data sharing, it is nearly impossible to address the problems that cross national boundaries. Data sharing can be a sensitive issue that lacks mutual understanding and strong collaboration. For instance, GPS and other earth system data should be openly available for research, but this is not always the case.
- 2. Lack of research into causes and consequences of Pacific Rim disasters.** This is a multifaceted problem with research needs in the physical sciences, social and economic sciences, and technology. The following lists the needs:
 - A. Disaster modeling for improved forecasting
 - B. Internet approaches to disseminate critical information including warnings and mitigation approaches
 - C. Economic models and approaches for building resilience in communities before disasters strike
 - D. Best practices to develop and provide insurance
 - E. Improved public policy approaches that are prepared to anticipate and mitigate natural and man-made disasters
- 3. Lack of higher education specialized in disaster management and DRR.** While higher education is the key to develop professionals in the subject, very little focus is given so far on the higher education. It results in lack of disaster experts in the region and DRR elements and knowledge are not fully reflected in national and local plans and strategies. For instance, politicians and finance officials must understand the importance of including DRR budget, and city planners need to know how to design cities and towns resilient to natural disasters. Disaster management as a profession has not taken off in the region yet.
- 4. Linkages and platforms are missing between academia, practitioners, governments, and policy-makers to encourage an ongoing dialogue that crosses all borders.** There are few opportunities for these various stakeholders to meet and exchange information and lessons learnt. In particular, it is necessary for academia and universities to understand what kind and types of data and information are required and useful for other stakeholders. Moreover, the actual and real needs on the ground are difficult to be understood without active involvement of local stakeholders such as local governments, local NGOs, civil society organizations, and small- and medium-sized enterprises.
- 5. Lessons learnt, and scientific reports and findings not being fully assimilated in societal learning environments to feed institutional, legal and political changes.** Especially in Asia, where there is one of the most disaster prone regions in the world, many lessons have been learned and many disasters have been experienced. However, the knowledge gained from these events has not been broadly shared so as to be reflected in decision-making processes for new policies and regulations.
- 6. Disaster awareness and knowledge at community level is insufficient.** To build community resilience, the involvement of communities in the DRR process and their awareness raising is crucial. In general, the focus of DRR efforts is on a national level. The local level is often overlooked. Although, advocacy to national level is critical, direct communication and information sharing to community level is equally important. Without community empowerment, community resilience cannot be established and maintained.

Universities and academia should commit to and need to work on :

- 1. Supporting further technology development.** Technology can further contribute to creating excellent tools and improving capacity and skills, but it requires investment. Shared investment along with policy development for data sharing, instrument development and maintenance, infrastructure software, and modeling and forecasting are all necessary.
- 2. Strengthening and encouraging innovative, creative, and interdisciplinary research in science, technology, social science, engineering and other various fields related to disaster management.** Universities and scholars have to understand the importance of active collaboration among different departments and fields to facilitate true improvement in disaster management. A DRR concept needs to be incorporated into various subjects. Such interdisciplinary research can further contribute to implementing practical DRR and is required to enhance community resilience on the ground.
- 3. Making efforts to create and adopt the effective curriculum and courses for disaster and emergency management.** DRR encompasses all faculties of knowledge ranging from engineering, science, social science, humanities and so on. How to combine and link it with other subjects is challenging, but nonetheless necessary and crucial. Furthermore, universities should look into a possibility to develop a diverse range of topics, courses and curriculum to provide the academic and technical skills necessary to intervention in DRR and disaster management.
- 4. Supporting the development of a link, platform, and opportunity for various stakeholders** such as a DRR national platform. Facilitating the creation of opportunities to work and collaborate with other stakeholders, including the private sector, governments, international and regional organizations, donor agencies, as well as NGOs, trading advice and suggestions in the development and research process. Furthermore, making efforts to create opportunities to have a dialogue and to advocate DRR issues to policy makers is crucial. Any suggestions and recommendations in this regard must be based on research results and findings. Collaborating with universities and academia can thus be of great value. Because there are only a few opportunities for these groups to meet and discuss these critical issues, the APRU could play a tremendous role in facilitating such meetings as it is obvious that clear lines of communication are the missing link.
- 5. Working with local stakeholders and encouraging their involvement and participation in DRR process.** Science and technology communities must find a way to communicate with the stakeholders, and also deliver knowledge and tools to them. It is possible for universities to contribute to such activities and advocacy through seminars, materials development and distribution, joint community activities, and simulation exercises and so on. It is of utmost importance to consider that the communities, both actors and receivers, are the key for DRR actions.
- 6. Strengthening their own capacity of disaster preparedness on campus.** Universities have the responsibility of protecting the lives of students, faculty, and staff as well as assets from natural disasters. It can be done by conducting thorough risk assessment and simulation/evacuation exercises, strengthening early warning system and emergency communication system, developing response guideline, plans and disaster resistance infrastructure, and providing disaster handbook and guidance to students. Universities should invest on their own safety by securing the budget for human resources, infrastructure, material/guideline development, and so on.

APRU

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The Association of Pacific Rim Universities (APRU) is a network of 45 premier research universities from 16 economies across the Pacific Rim. APRU's Strategic Framework reflects the priorities of member universities in education, research and contribution to society:

1. Shaping Asia-Pacific Higher Education and Research

APRU universities together aim to shape the policy environment for higher education and research in the region.

2. Creating Asia-Pacific Global Leaders

APRU universities cooperate to enhance their global leadership as institutions and the leadership of faculty, administrators and students.

3. Partnering on Solutions to Asia-Pacific Challenges

APRU universities work together and with partners from government and business, international organizations, other universities and community leaders on solutions to global and regional challenges.

APRU-IRIDeS Multi-Hazards Program

APRU and the International Research Institute of Disaster Science (IRIDeS) at Tohoku University launched the APRU-IRIDeS Multi-Hazards (MH) Program in April 2013. IRIDeS provides administrative services as the regional program hub to the MH Program. The Pacific Rim region is subject to high risks of natural disasters and the universities and research institutions in the region are expected to contribute to reducing disaster vulnerability and risks and strengthening disaster management capacity to tackle these challenges. The main objectives of this program are to harness the collective capabilities of APRU universities for cutting-edge research on DRR and to contribute to international policy-making processes to steadily improve DRR.

Activities of the Multi-Hazards program

- Annual Multi-Hazards Summer School to share the lessons learnt from large disasters and to contribute to fostering regional disaster experts.
- Supporting the organization of the annual Research Symposium on Multi-Hazards.
- Conducting collaborative research and sharing results and data among the APRU institutions.
- Contributing to discussions, and international and regional DRR decision-making processes like the Post-2015 Framework for DRR.
- Promoting natural disaster preparedness capacity on university campuses by conducting a survey on campus safety and by publishing a report on the outcomes.

CONTACTS

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