

Report of the  
**APRU-IRIDeS**  
**Multi-Hazards Program**  
Campus Safety Workshop 2016



**APRU-IRIDeS Multi-Hazards Program**

**CAMPUS SAFETY WORKSHOP 2016**

**Building Disaster-Resistant Universities: *Is Your University  
Ready for the Next Disaster?***

2-4 February 2016

Tohoku University

Sendai, Japan

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## INTRODUCTION

The International Research Institute of Disaster Science (IRIDeS) at Tohoku University and the Association of Pacific Rim Universities (APRU) held a workshop, “Building Disaster-Resistant Universities: Is Your University Ready for the Next Natural Disaster?” on February 2–4, 2016 at the IRIDeS. Ms. Amy Aiken, director of the Department of Emergency Management at Florida International University (FIU), was the invited trainer and facilitator. More than 30 participants attended, including faculty, staff, and students from 16 universities in the United States, Australia, China, Chinese Taipei, Japan, Korea, Indonesia, Singapore, the Philippines, and Thailand. The workshop discussed lessons learned from other universities, common challenges and issues, and tools to develop an effective emergency plan that enhances overall university preparedness.

In 2006–2007, the United Nations Office for Disaster Risk Reduction (UNISDR) implemented a campaign entitled “Disaster Risk Reduction Begins at School.” This campaign highlighted the importance of disaster risk reduction (DRR) efforts, countermeasures, and education at elementary and secondary schools; however, disaster preparedness on university campuses was not covered. At universities, the number of students, faculty members, and staff is much larger than at lower schools. If a major disaster strikes a university that does not have adequate risk reduction measures in place, the damage and impact on university assets, buildings, and lives could be enormous. Universities must prepare for these emergencies so that they can implement appropriate response strategies in the initial stage of a disaster event.

A campus safety survey conducted by the APRU Multi-Hazards (MH) Program in 2014 identified weaknesses and challenges with regard to implementing campus safety steps. Most universities have a disaster management and response plan, but many have not held a simulation exercise to assess the adequacy of the existing plan. Also, not all universities have carried out a thorough risk assessment, even though this is a crucial baseline step to gather data for a disaster management plan. Respondents also noted that it can be difficult to gain the necessary support and understanding, including human resources and sufficient budgets, from senior managers in order to implement campus safety measures.

The APRU and the APRU MH Program acknowledge the importance of disaster preparedness measures on campuses and the responsibility of universities to protect the lives of students, staff, and faculty as well as various institutional assets. The APRU and the MH Program intend to play a key role in promoting and advocating for necessary initiatives at the university level, and they will provide the needed support to universities for the process of developing campus safety measures.

## ACKNOWLEDGEMENT

The IRIDeS and the APRU would like to extend their sincere appreciation to the participants from the APRU member universities and the three speakers from Tohoku University in Japan, the National University of Singapore, and the University of the Philippines Diliman who shared their experience and knowledge regarding disaster management on campus. Their case studies and lectures provided us with ideas and lessons learned that will be very helpful in developing disaster management plans.

Special thanks are due to Amy Aiken for serving as trainer and facilitator at the workshop. Her commitment and support contributed greatly to the workshop's organization, and her expertise and strong background in disaster management were highly appreciated by the participants.

The IRIDeS and the MH Program also received tremendous support from the former APRU secretariat in Singapore and the new secretariat in Hong Kong, which initiated operations in January 2016, as well as from the MH Program's international core group members.

Last but not least, this workshop could not have been implemented successfully without the hard work and considerable support provided by the International Exchange Division of Tohoku University and the staff of the International Regional Cooperation Office of the IRIDeS.

## OPENING REMARKS





## **Prof. Masahiro Yamaguchi**

### **Associate Vice President for International Affairs, Tohoku University**

Good morning, everyone. It is a great pleasure for me to welcome you to Tohoku University for this workshop, “Building Disaster-Resistant Universities.” Thank you very much for traveling from all over the world to participate in this workshop and discuss disaster preparedness on campus. I also would like to extend our sincere appreciation to Ms. Amy Aiken of Florida International University, who will serve as facilitator and trainer during this workshop, for the invaluable support that she has provided for this event.

Five years have passed since the Great East Japan Earthquake and Tsunami of 2011, which caused tremendous damage to this campus’s facilities and other assets. This disaster reminded us that having a comprehensive preparedness capacity and plan is a university responsibility and that we must make efforts to ensure safety and security during emergencies. Preparedness is a key to minimizing disaster risks and undertaking prompt response and recovery. After five years, the recovery efforts from the earthquake and tsunami are still continuing. Tohoku University has made various contributions to recovery efforts by providing technical advice, collaborating with local governments, and assisting in the development of disaster education materials. We will continue working with the affected communities and governments to build disaster-resilient communities and universities.

Tohoku University has been hosting the Multi-Hazards Program as a regional hub and has provided coordination and secretariat services to the Program since April 2013. Through this Program, along with the work of the Multi-Hazard Program International Core Group members, the need for disaster preparedness on campus has been emphasized, and promoting its importance to the APRU members has become one of the Program’s main activities. The Program conducted a survey of the APRU universities to understand their ongoing initiatives, current level of disaster preparedness, and primary challenges. Among the survey responses, the desire to learn from other universities was extremely strong, and that is a main reason why we have organized this workshop.

I hope that this workshop will provide you with an opportunity to learn from other universities’ experiences in campus safety and that it will strengthen your ability to develop and enhance the disaster preparedness capacity.

I wish you every success in this workshop. Thank you.

## **Prof. Fumihiko Imamura**

### **Director of IRIDeS, Tohoku University**

Good morning to all of you. Thank you very much for participating in this workshop on “Building Disaster-Resistant Universities,” which is a very important and new topic even for us in Japan. I am Fumihiko Imamura, Director of IRIDeS, Tohoku University. This institute was established in 2012, one year after the Great East Japan Earthquake and Tsunami. Even though IRIDeS is only four-years old, it has grown to include more than 100 faculty, researchers, and staff, specializing in natural, human, and social sciences. Our aim is to conduct practical research that contributes to strengthening community resilience.

I am a professor of tsunami engineering, specializing in computer simulation for predictive purposes, and have been discussing comprehensive countermeasures to mitigate tsunami disasters for more than 30 years. I conducted comprehensive research on the Indian Ocean Tsunami in 2004, visiting the affected areas many times. Five years ago, the Tohoku region suffered tremendous damage from the Tsunami. This experience has caused us to expand our commitment to research, particularly in the important area of the large scale of disasters with low frequencies.

In March 2015, the UN World Conference on Disaster Risk Reduction (UNWCDRR) was held in Sendai with 150,000 participants, including the UN Secretary-General. It provided various opportunities for discussion with people from different sectors. At the end of the Conference, a new international strategy and framework for disaster risk reduction (DRR), known as the Sendai Framework, was adopted as a blueprint for DRR efforts over the next 15 years. To implement the strategy, collaboration with many groups of stakeholders is necessary. Among the many topics and themes that we need to tackle as part of DRR, this workshop focuses on one of them: safety issues on campuses. Disaster preparedness on campuses is essential for universities as we are responsible for protecting the lives of students, staff and faculty, as well as university assets from natural disasters. This workshop includes presentations, discussions, group activities, and a field trip to areas affected by the Great East Japan Earthquake and Tsunami. I hope that you will learn from the recovery and reconstruction processes and efforts, particularly those carried out by local governments. Again, thank you very much for attending this workshop, and I hope that you will have fruitful discussions over the next three days.



# PRESENTATIONS



# APRU Multi-Hazards Program and Results of APRU Campus Safety Survey

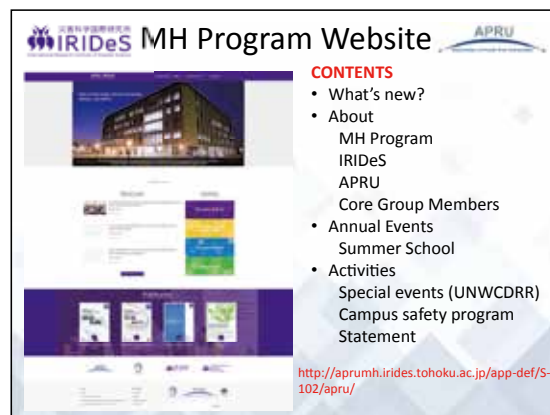
Takako Izumi

Associate Professor, IRIDeS, Tohoku University



The Association of Pacific Rim Universities (APRU) was established in 1997 to form a premier alliance of research universities as an advisory body to international organizations, governments, and business on the development of science and innovation as well as on the broader development of higher education. Currently, the APRU network consists of 45 leading universities from 16 APEC economies.

The APRU Multi-Hazards (MH) Program was launched in April 2013 by the APRU and Tohoku University in Japan. The International Research Institute of Disaster Science (IRIDeS) at Tohoku University has provided secretariat services and has been in charge of program coordination. The main objectives of the MH Program are to harness the collective capabilities of the APRU universities for cutting-edge research on disaster risk reduction (DRR) and to contribute to international policymaking processes to steadily improve DRR. Its major activities include a campus safety program, summer school, annual symposium, collaborative survey research, data sharing, and contributions to discussions at regional and international levels.




The MH Program's campus safety initiative aims to promote a culture of campus safety, provide related learning opportunities among the APRU member universities, support efforts to strengthen disaster preparedness capacity on campuses, share experiences with non-APRU member universities, and contribute to overall improvement of disaster preparedness capacity in the region. As a source of baseline data, the campus safety survey was conducted to understand the current disaster preparedness capacity of the APRU member universities and to identify challenges and recommendations for the development of a disaster/emergency preparedness and management plan.


The results showed that the area of risk assessment requires greater attention and effort. In addition, early warning and alert systems have not been installed widely. An early warning system is extremely crucial to implement instant response actions such as evacuation. Moreover, further support and consideration of foreign students is required. Universities have an important responsibility to provide sufficient knowledge and support before and after disasters for foreign students who have language barriers and less knowledge of local hazards.

Area	Strength	Potential
<b>Governance Action</b>	<ul style="list-style-type: none"> <li>Countermeasure office</li> <li>Response plan</li> </ul>	<ul style="list-style-type: none"> <li>Simulation exercise of countermeasure office</li> <li>Information sharing and early warning</li> </ul>
<b>Risk Assessment</b>	None	<ul style="list-style-type: none"> <li>Risk assessment</li> <li>Strategies and action based on risk assessment</li> <li>Assessment result to be shared</li> </ul>
<b>Disaster Preparedness Mechanism and Capacity</b>	<ul style="list-style-type: none"> <li>Emergency communication system</li> <li>Disaster-resistant structure</li> <li>Awareness-raising activities</li> </ul>	<ul style="list-style-type: none"> <li>Guidance for foreign students</li> <li>Safety confirmation</li> <li>Response handbook and its distribution</li> </ul>
<b>Response Capacity</b>	<ul style="list-style-type: none"> <li>Emergency stockpile</li> <li>Building inspection implementation and capacity</li> </ul>	<ul style="list-style-type: none"> <li>Mutual agreement with neighboring universities</li> <li>Volunteers list</li> </ul>
<b>Support System</b>	<ul style="list-style-type: none"> <li>Policies for support to students</li> <li>Support for psychosocial assistance needs</li> </ul>	<ul style="list-style-type: none"> <li>Support system for foreign students</li> <li>Support system for faculty members, and staff, as well as their families</li> </ul>
<b>Data Preservation</b>	<ul style="list-style-type: none"> <li>Data and information gathering after disasters</li> </ul>	<ul style="list-style-type: none"> <li>Archival system for preservation of records and information</li> </ul>

In addition, many universities seeking to develop preparedness capacity have encountered financial constraints, human resource challenges, difficulties in understanding risks and safety issues, and a lack of participation by faculty and staff. To improve the situation and expand their current capacity, many universities have requested assistance from peer institutions, in the form of sharing tools and best practices, and have asked the APRU to provide a learning opportunity such as a workshop on campus safety. This workshop has been organized in response to that latter request and to enable sharing of experiences and knowledge about campus safety among the APRU universities. Based on the outcomes of this workshop, the MH Program will develop a work and activity plan for campus safety to strengthen disaster preparedness capacity on campus.



## Survey Outline




**Objectives of Campus Safety Program**

- Promote the need for campus safety and provide learning opportunities on campus safety among the APRU member universities
- Support strengthening disaster preparedness capacity on campus
- Share the experience with non-APRU member universities and contribute to overall improvement of disaster preparedness capacity in the region.

- Governance on action
- Risk assessment
- Disaster preparedness mechanism
- Response capacity
- Support system for students, faculty members and staff
- Rehabilitation and recovery

1



## Campus Safety Survey – The Good, The Bad, The Ugly

- + Mechanism in place to establish a **counter-measure office** and have developed a **response manual and plan**.
- + **Physical structure areas**, such as disaster-resistant structures, emergency communication, and emergency stockpiles, have been progressed.
- + Support toward **psychosocial aspects** has been provided after disasters.
- The area of **risk assessment** requires more attention and effort.
- Conducting **simulation exercise** of preparedness/response plan is required.
- **Early warning and alert systems** have not been installed widely.
- Further **support and consideration for foreign students** is required.

Web site: Website at apru.org

# What Is Campus Safety?

**Amy B. Aiken**

*Director, Department of Emergency Management, Florida International University*



The concept of campus safety can carry various meanings. In the United States, it normally goes beyond natural disasters and includes criminal acts and other events that require major involvement of the police and or local fire department. . Even with regard to natural disasters specifically, different terms are used, such as emergency management, crisis management, disaster management, and disaster risk reduction. Even if a university has developed only a natural disaster management plan, many aspects of that plan can also be applicable to other types of incidents, such as those involving man-made and chemical hazards. It is most crucial for each university to clearly understand the overall concepts of preparedness and emergency management.



### Emergency Management

- Strategic, not tactical
- Ideally resides in executive level of organization
- No direct power
- Often comes “after the fact”

Emergency management includes different stages: preparedness, mitigation, response, and recovery. Each of these stages involves different actions: emergency response plans, training, and exercises for preparedness; structural improvements and hazard and vulnerability assessment for mitigation; lifesaving efforts and incident stabilization in the response stage; and debris management and economic renewal in the recovery stage. Emergency management must be strategic, not tactical, and it ideally resides at the executive level of an organization. In addition, an effective disaster management program must include:

- commitment from university leadership,
- inclusion of any legal authorities governing emergency management,
- adequate funding,
- a dedicated emergency operations center,
- appropriate staffing with trained staff,
- training exercises, and
- mutual aid partnerships with local entities outside of the university.

The role of an emergency operations center in an unfolding disaster is crucial. Such a center must be staffed with personnel who are trained and authorized to represent their agency or discipline. It must be equipped with technology for transmitting and receiving information and managed through protocols. An incident command system for emergencies should be standardized. This is a management tool that relies on a tight chain of command and promotes effective decisions and incident response. In the system, a leader with expertise in emergency management is appointed to take charge of overall management, making decisions and ensuring that staff identify what needs to be done for immediate response and recovery.

### What is an EOC?

- A physical location
- Staffed with personnel trained and authorized to represent their agency/discipline
- Equipped with technology for transmitting and receiving information
- Managed through protocols

### Incident Command System

- Standardized management tool
- Relies on a tight chain of command
- Flexible – expand or contract
- Promotes effective, team-based decisions and incident response

Considering the high probability of disaster occurrences in this region—tornados, pandemics, hurricanes, active shooters, cyber-attacks, bomb threats, chemical spills, food-borne illnesses, infectious diseases, etc.—universities are required to build a culture of preparedness through **planning, training, and exercise**. In addition, involving a policy team in the process of developing a plan is indispensable. After a practice exercise is completed, the existing plan must be reviewed to determine whether it can cope with emergencies and suits the current university structure.



# Developing and Evaluating Disaster Plans

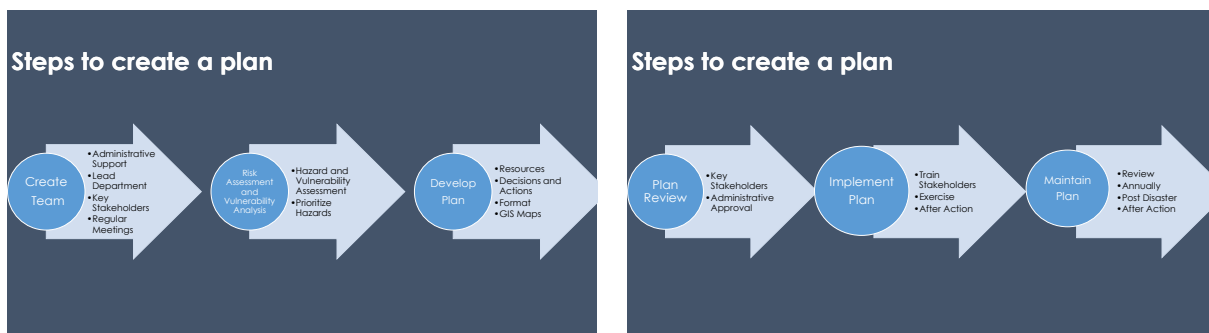
**Amy B. Aiken**

Director, Department of Emergency Management, Florida International University (FIU)



An emergency management plan is intended to mitigate the risk of potential events that could endanger your university's ability to function. Such a plan should include measures that provide for the safety of personnel, property, and facilities. It also covers continuity and recovery planning to help your university prepare for and survive any emergency situation. It should include provisions for implementing steps to eliminate problems that may arise.

Developing a plan is a critical part of disaster management. There are five crucial steps in creating a plan.



1. **Create the team:** The team should include administrative support, lead department to oversee plan development, and key university stakeholders who would be needed before, during or after an emergency, and it should convene regular meetings.
2. **Risk assessment and vulnerability analysis:** Substantial research is required to determine all the potential hazards that could affect your university. This is an extremely crucial step in the development of an emergency management plan. Various types of templates and formats for assessment can be obtained from the Internet and relevant publications
3. **Develop the plan:** Human resources with different skills and knowledge as well as budgetary resources are required to develop a plan. The basic plan provides a concept of operations. It must outline the immediate actions required of and the responsibilities assigned to various departments and offices; it must also list available personnel and other resources and how they would be activated during an emergency situation. It includes a list of guidelines for implementation, direction, and control.
4. **Plan review:** The plan should be reviewed by a group of key stakeholders. If any revisions are suggested, the team should make the appropriate changes. After that, the plan should be submitted to a policy group for approval.
5. **Implement the plan (education, training, and exercises):** Further education and training are beneficial for all people concerned, especially for the team that would operate and staff the Emergency

Operations Center, so that they can feel competent and comfortable with their roles in the plan. Tabletop exercises that simulate emergency situations are integral to the development of an effective emergency management plan. The exercises provide opportunities not only to practice the emergency management plan, but also to identify and eliminate weaknesses in it. Types of exercises to test the plan include drills (single function), tabletop exercises (key personnel discussing simulated scenarios in an informal setting), and full-scale exercises (large, lengthy events at a particular location with equipment and personnel actually deployed).

**Communications**  
Before, During, After

- National Meteorological Services
- Local Government
- Local Responders
- Internal Department
- Media
- Social Media
- No notice event vs. event with warning (Earthquake vs. Typhoon)
- University wide email
- Public address systems
- Policy; training to send message; testing

**Communications**  
Before, During, After

- National Meteorological Services
- Local Government
- Local Responders
- Early warning systems (sirens)
- Verifying and disseminating information
- Foreign students and faculty
- Exchange or study abroad students
- Concerned parents
- Back up communications

**Communications**  
Before, During, After

- Student and faculty support
- Will I get paid?
- Tuition payment
- Grant reporting deadlines
- Media
- Satellite locations
- Foreign students and faculty
- Exchange or study abroad students
- Accountability of students and faculty

**Types of Exercises to Test Plan**

- **Drill** – single function
- **Tabletop** – Key personnel discussing simulated scenarios in an informal setting
- **Functional** – Testing specific functions of plan in most realistic manner possible
  - Examples: Communication between sites, emergency notification systems
- **Full Scale Exercise** – Large, lengthy event at a location with equipment and personnel
  - Takes a year to plan



## CASE STUDIES



# 1. Tohoku University, Japan

## Hiroaki Maruya

*Professor, IRIDeS, Tohoku University*



The Tohoku region of Japan was severely affected by the 2011 Great East Japan Earthquake and Tsunami (GEJET). Tohoku University was also impacted, with the earthquake causing severe damage to buildings at multiple locations such as the Aobayama and Kawauchi campuses. Three students lost their lives, although these fatalities occurred at the students' homes and not on campus. In addition, the disaster had a tremendous impact on academic events at Tohoku University: the 2011 degree conferral ceremony and the late-stage entrance examinations were canceled, and the undergraduate and graduate entrance ceremonies and orientation had to be rescheduled.

Based on its experience of the 2011 GEJET, Tohoku University initiated disaster management activities. One key step was to develop a disaster response and business continuity plan for the Administration Bureau, which will be complete in the near future. Prior to that, a disaster management action plan project team was formed, and the disaster management promotion headquarters is presently active.

Even during and immediately after a disaster, universities need to continue regular business operations and functions while also responding to the disaster and taking prompt recovery actions. Universities are expected to maximize effective use of limited resources such as communication tools, electricity, manpower, space for operations, etc. to manage disaster response and recovery activities as well as regular business operations. In order to manage these critical tasks simultaneously, Tohoku University has developed a "critical operations list" for emergency situations. The critical operations vary depending on the season; for example, they include the exit examinations for undergraduate and graduate students in January and February, as well as the entrance examinations for undergraduate students in February and March and for graduate students in September through November. Postponement or cancellation of these important events would have serious impact on students' ability to pursue overseas study or employment or on the university's ability to enroll excellent freshman students. Should Tohoku University be so severely affected that it cannot conduct important events and classes, it will be able to reach agreements with other Japanese universities to use their spaces temporarily.

### 3.4 Disaster Response and Business Continuity Plan (BCP) of Tohoku Univ.

**Disaster response operations**  
~ Present DM manual partly covers

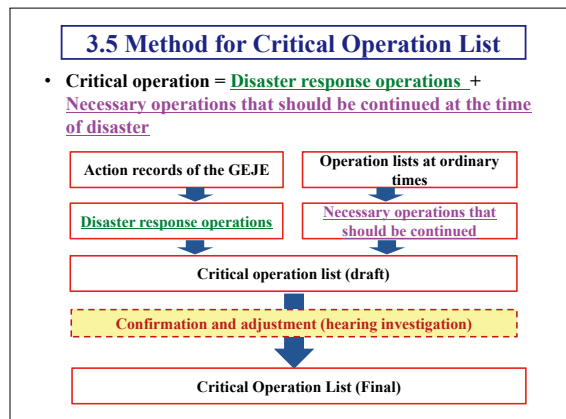
**Necessary only in the time of disaster**  
→ Chosen from the character and the experience of the GEJE of Tohoku Univ.

**Ordinary time operations that should be continue**  
~ Additional items by BCP

**That should be continue even in the time of disasters**  
→ To consider the effect of stoppage of each operation and to prioritization

**To confirm whether the indispensable resources for each critical operation are secured at each timing**

- To secure the indispensable resources by countermeasures in presence
- To educate and train the professors and staff to be able to act in the time of disasters
- Periodically check and improve when any changes occur including personnel change

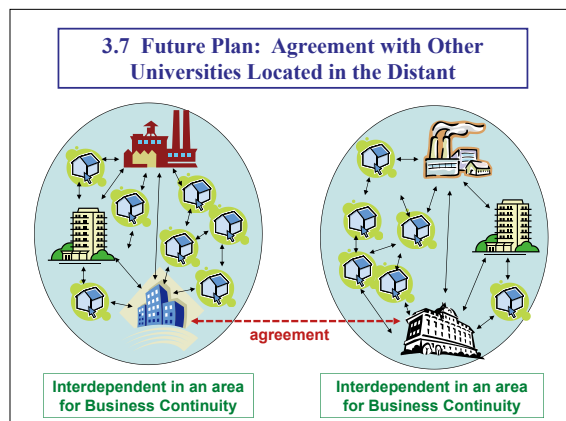


### 3.6 Tohoku University's Critical Operations with Seasonality

It is the characteristic of the university that the critical operations has seasonality.

Apr	Ma	Jun	Sep	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
First Term of Class					Second Term of Class							

- Exit Examination**
  - For undergraduate and graduate (January, February)
  - IF postponed, serious effect on students and organizations to accept them**
- Entrance Examination**
  - For undergraduates (February, March)
  - For graduate students (September – November)
  - IF postponed, lose good quality students and university fees (income)**



Periodic drills and exercises are also crucial so that universities can check the effectiveness of their plans, tools, and facilities. For instance, fire drills involving Tohoku University’s students, staff, and faculty are held regularly. These drills include safety checks, response training, and practice in first-aid and cardiac resuscitation skills. Disaster response and business continuity exercises for the Administrative Bureau were held, with the university’s administrative staff and senior managers (including the president and vice presidents) participating. During these exercises, a Disaster Management Headquarters (DMH) was established as if a severe disaster had occurred in the region. Several challenges and issues were identified through these exercises:

- The room and space allocated for the DMH were too small.
- The number of telephone lines at the DMH was not sufficient.
- An extension line to communicate with different campuses was always busy. It is also necessary to establish a fax line in addition.
- Several vice presidents have multiple duties and responsibilities and need to cover different units during the response stage; these complex responsibilities constrain smooth operations and communication.
- It is necessary to review response actions in case the emergency electric power does not work in key rooms such as the General Administration Division.

- Drills and exercises on the setup of DMH facilities are needed.



**4.3 Problems that was discovered in the exercise**

- The room of the Disaster Management Headquarter (DMH) was too small. Persons faced hard to move in the room during the exercise.
- The extension (telephone) was usable at first several hours. However, there was too little number of the lines which were usable in the DMH.
- We prepared a extension line to communicate with the different campus where there were many students. The line was always busy. We should prepare a fax line additionally.
- There were several important response units which a vice president was in charge of, and duties centered on this vice president and sometimes disturbed smooth correspondence.
- It is necessary to review the situation that an emergency electric power is not usable in work room such as the General Administration Division.
- Drill to set up facilities of the DMH was seemed to be necessary.

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Based on its experience of these exercises, Tohoku University is now reviewing its existing plan and improving the content of its exercises so as to better prepare for the next disaster and reduce the risks and possible damage of such an event.

## 2. National University of Singapore: Crisis Emergency Management Framework in NUS and Experience Sharing in the Management of H1N1 Pandemic

### Peck Thian Guan

Director, Office of Safety Health & Environment, National University of Singapore

### Mohammad Fazulee

Senior Manager, Office of Safety Health & Environment, National University of Singapore



The National University of Singapore has adopted the “FISH” Crisis Management System Model. It is a modification of the Plan-Do-Check-Act (PDCA) model made popular by Dr W. Edwards Deming. The PDCA model which involves a four-step management method is widely used in businesses today for the control and continual improvement of processes and products. The “FISH” model has the following components: “Plan” phase (5 elements) as the dorsal fin, the “Do” phase with ‘Crisis’ (4 elements) and ‘Peacetime’ (8 elements) as the tail fin and “Check” phase (2 elements) as its lower fins, “Act” phase that involves management review thus completing the anatomy of a fish (See Annex 1).

For universities that are just starting on their CEM framework, in the “Plan” phase, the organization should begin with environmental scan to determine both the internal and external threats. In assessing the internal threats, the organization should consider the entire supply chain, from its suppliers (S) of external products and services, the “inbound” (I) process and process (P) itself, the outbound (O) process and finally the customers (C) or SIPOC. The concept of SIPOC is used today in Six Sigma, Lean manufacturing, and business process management. For external threats, natural disasters (e.g. flooding, typhoons, earthquake or pandemic) should be considered.

The conduct of risk assessment will help the university prioritize key areas that it would need to address. Business Impact Assessment (BIA) will help the university understand the impact of such interruptions on its mission critical business functions. The next step in planning phase is to lay the ground work to deal with crisis situation. Here, a crisis policy would provide the university with the “rules of engagement” during a crisis. When formulating the policy, do remember that event classification within organization should mimic closely to federal or state’s classification to prevent confusion. Identification of emergency roles and responsibilities within organization should be done and documented with adequate training and exercises given in preparation of assuming those roles. Official emergency communication procedure for any internal or external releases during emergencies should also be clearly disseminated to all levels of the organization to prevent possible complication or confusion during real emergencies.

During normal (non-crisis) conditions, the organization should focus its attention on crisis prevention and emergency preparedness. Here, prevention programmes (or crisis mitigation measures) should be implemented. This could include training, awareness building and carrying out drills and exercises.

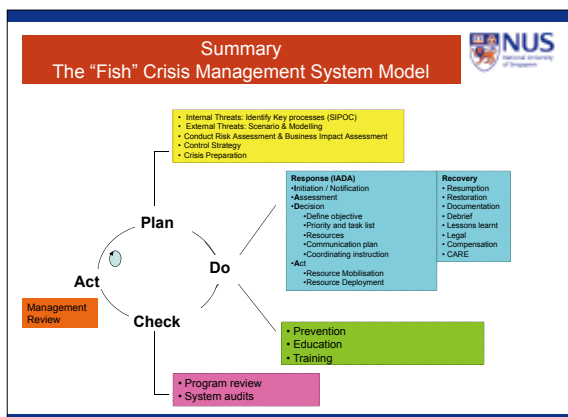
In the event of a crisis, there should be procedures for initiation and assessment of the situation. The incident should then be escalated up the chain of command so that relevant senior people can be informed of the incident and the correct level of authority be mobilized to deal with the situation. Stabilizing a critical incident involves an iterative process of deciding the actions needed and mobilizing the resources to deal with it. Here, the university is guided by the following in order of decreasing priority – saving of lives, minimizing damage to property, ensuring business continuity and finally taking appropriate actions to protect the reputation of the organization. After the initiation series of intervention measures to stabilize the situation, the organization then goes into the recovery phase. It would resume its business



and then take appropriate measures to restore its operations to the pre-crisis stage. The team should keep proper document, carry out debrief to identify lessons learnt. A crisis may have legal implications for the organization and compensation and insurance claims need to be address. Care for the victims will have to be looked into as well.

For universities that have an established CEM program, possible shortfalls could be addressed in the “Check” and “Act” phases. Support and resources would be needed to ensure both phases are carried out to close findings and actionable improvements found from previous incidents or to review and address possible new threats. Review of the universities’ response may identify gaps as circumstances do change from incident to incident. It is also a time for the university to ask if we should continue responding how we always did or “Are we doing things right?” The other question for universities to ask in the “Act” phase or during management review is “Are we doing the right things?” Due to changes in the environment and the introduction of new threats, the university management may be required to recommend new strategic direction to mitigate possible risks.

A case study on how the FISH model was applied to the management of the H1N1 outbreak in 2009 was presented. We shared the strategies that the National University of Singapore had adopted in dealing with the various stage of the pandemic (See Annex 2). We hope the detailed sequence of events shared with participants can be used by the participants to plan for their own internal table top exercise for pandemic flu preparation. It is important to note how situations can escalate quickly and control measures reinstated if a confirmed case appears even after a general stand down alert was given. Due to the support from the university management, we were able to move swiftly into mobilizing the resources needed to overcome such unexpected events. Arising from the incidents, faculties and schools in our universities have also been asked to plan at individual levels to get ready for possible flu pandemics so as not to disrupt their daily operations. This includes stockpiles and emergency suppliers for personal protection equipment, trained manpower to activate local plans such as temperature screening and isolation procedures for potential infected personnel. We also continue to diligently check the preparedness level for pandemic flu through table top exercises with our faculties and schools.



- 
- H1N1 Pandemic - Strategies & Plans**
1. Education, awareness & communication
  2. Monitoring & surveillance
  3. Temperature screening at workplaces
  4. Temperature screening for visitors
  5. Contact tracing & isolation
  6. Case management
  7. Containment
  8. Ambulance Service
  9. Travel Advisory
  10. Travellers from affected countries
  11. Decanting operations & alternative housing
  12. Cleaning & disinfection
  13. Business Continuity

### 3. University of the Philippines Diliman: The New Initiatives of the University of the Philippines Diliman for Disaster Risk Management in Campus

**Benito M. Pacheco**

*Professor, Vice-Chancellor for Academic Affairs, University of the Philippines Diliman*



The University of the Philippines Diliman, while long engaged in numerous researches and courses related to disaster risk reduction and management, has only recently started to formally and comprehensively adopt DRRM or DRM for its own campus. “The challenge is to practice what we preach (research and teach).”

One of the steps is to have a commonly shared distinction among the evolved concepts of Disaster Management, Disaster Risk Reduction, Disaster Risk Reduction and Management, and Disaster Risk Management. While DRRM and DRM have virtually the same definition by UNISDR Terminology, the Philippine law uses DRRM.

Another step is to adopt the four priority areas of action by the Sendai Framework for DRR in 2015-2030, and the role of academia, namely, to focus on the disaster risk factor.

#### DRR Priority Areas for Action \*

- Understanding disaster risk;
- Strengthening governance to manage disaster risk;
- Investing in disaster risk reduction and management for resilience; and
- Enhancing disaster preparedness for effective response, and to “build back better” in recovery, rehabilitation and reconstruction.

\* After the “Sendai Framework for Disaster Risk Reduction 2015-2030” (2015 March 18)

#### Role of Academia \*

“Academia, scientific and research entities and networks [are to be encouraged by the States] to: focus on the disaster risk factors and scenarios, including emerging disaster risks, in the medium and long term; increase research for regional, national and local application; support action by local communities and authorities; and support the interface between policy and science for decision-making...”

\* After the “Sendai Framework for Disaster Risk Reduction 2015-2030” (2015 March 18)

The physical setting of UP Diliman is such that storms and/or nearby floods, earthquakes, fires, and an assortment of local human induced hazards, are among the immediate concerns by the six (6) sectors: students, faculty, non-teaching staff, locators, visitors, and residents (that include a significant number of informal settlers in the 493-hectare campus).

14 zones have been recently identified in the Diliman campus (while there are satellite or extension campuses or laboratories), considering political division (village or barangay as political unit), type and purpose of structures (with the type of land use), population, and existing feature as boundary.

Following and applying the Philippine law’s focus on the risk factors of hazard, exposure, vulnerability and capacity, the UP Diliman DRRM Committee has been recently restructured to have the following five (5) sub-committees: hazard management led by the Vice-Chancellor for Research and Development; exposure management led by the Vice-Chancellor for Student Affairs; vulnerability management led by the Vice-Chancellor for Administration; capacity management led by the Vice-Chancellor for Community Affairs; and institutional training led by the Vice-Chancellor for Academic Affairs.

Still in the formative stage – learning from the published plans of more than 48 universities and colleges abroad, and also from a 2015 campus safety report by the APRU-IRIDeS – some 17 elements are expected to be addressed in the following five (5) major sub-plans for DRRM: Hazard Management Plan; Student Preparedness Plan; Business Continuity Plan; Emergency Management Plan; and Training Plan. These basically correspond to the five sub-committees listed above.

### UPD Hazard Management SC

- Headed by Vice-Chancellor for R&D
  1. Develop, promote and implement a **Hazard Management Plan** particularly the mapping and monitoring of hazards in relation to various exposures and vulnerabilities in the vicinity of the University.
  2. Coordinate with other organizations inside and outside the University with similar functions.
  3. Propose and request appropriate resources.

### UPD Exposure Management SC

- Headed by VC for Student Affairs
  1. Develop, promote and implement a **Student Preparedness Plan** to reduce their exposure such as, but not limited to, organizing, training, planning, and equipping.
  2. Facilitate the accreditation of National Service Reserve Corps reservists and their organization into a school-based NSRC unit, preferably any existing student organization with recognized DRRM program.
  3. Propose and request appropriate resources.

### UPD Vulnerability Management SC

- Headed by VC for Administration
  1. Develop, promote and implement a **Business Continuity Plan** particularly provision of emergency resources.
  2. Coordinate with other organizations especially those essential to the sustenance of critical functions for the University.
  3. Plan and recommend prioritization of resources to reduce vulnerability prior to any disaster event, and aid early recovery and medium-term rehabilitation after any disaster event.

### UPD Capacity Management SC

- Headed by VC for Community Affairs
  1. Develop, promote and implement an **Emergency Management Plan** particularly among University personnel, including preparedness of personnel in terms of capacity or capability building.
  2. Coordinate with **Barangays** within the University and vicinity.
  3. Propose and request appropriate resources.

### UPD Institutional Training SC

- Headed by VC for Academic Affairs
  1. Develop, promote and implement an alternative learning environment for use in emergency.
  2. Develop, promote and implement, in coordination with the other Sub-Committees, a DRRM **Training Plan** for various University sectors.
  3. Coordinate with other training organizations inside and outside the University with similar functions.
  4. Propose and request appropriate resources.

### Planning the Plan

- UPD DRRM Template (2015 November 13)



The organization and the plan are expected to be mirrored and adapted to the size of each zone and to each building or facility within a zone. It is to be emphasized that while the DRRM framework has been rearticulated in a comprehensive manner for the whole university, the implementation needs to be scalable to the size or level that is appropriate to the actual risk or disaster.

## GROUP ACTIVITIES



## **Group activity 1:** The four phases of disaster management: steps that should be taken in each phase.

The participants discussed what steps and activities are needed to deal with various types of disasters (chemical release, tsunami, typhoon, and flood) in relation to the four stages of disaster management. The activities considered crucial by all groups at each stage are listed below.

### *RESPONSE*

- Evacuation
- Damage assessment
- Information dissemination and exchange with local emergency services
- Restoration of utilities, communication, etc.

### *RECOVERY*

- Continuation and extension of response activities
- Support (including psychosocial support) to students, staff, and faculty
- Returning to regular, normal operations
- Plans if the university cannot recover in a timely manner
- Debris removal
- Developing a recovery plan

### *MITIGATION*

- Review of infrastructure, existing plans and risk assessment processes, and policies
- Identification of areas to be strengthened on the basis of review and revision of policies and other necessary areas
- Awareness-raising activities
- Provision of appropriate and properly trained staff and budget allocation

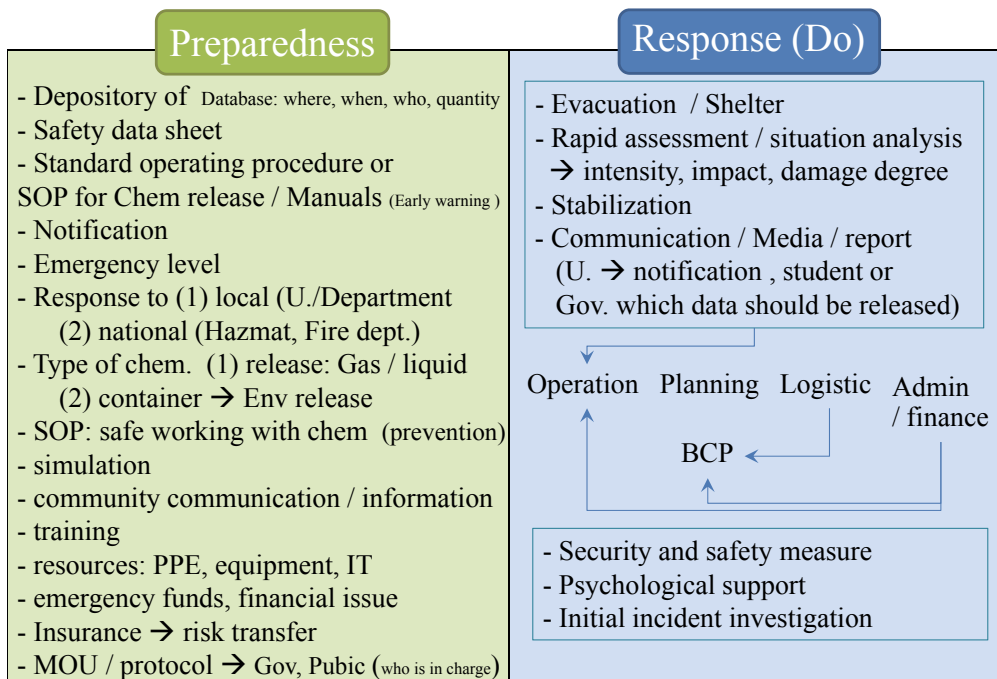
### *PREPAREDNESS*

- Hazard and risk assessment
- Simulation
- Training
- Communication/alert system
- Stockpile
- Human resource management (identification of tasks for managers)

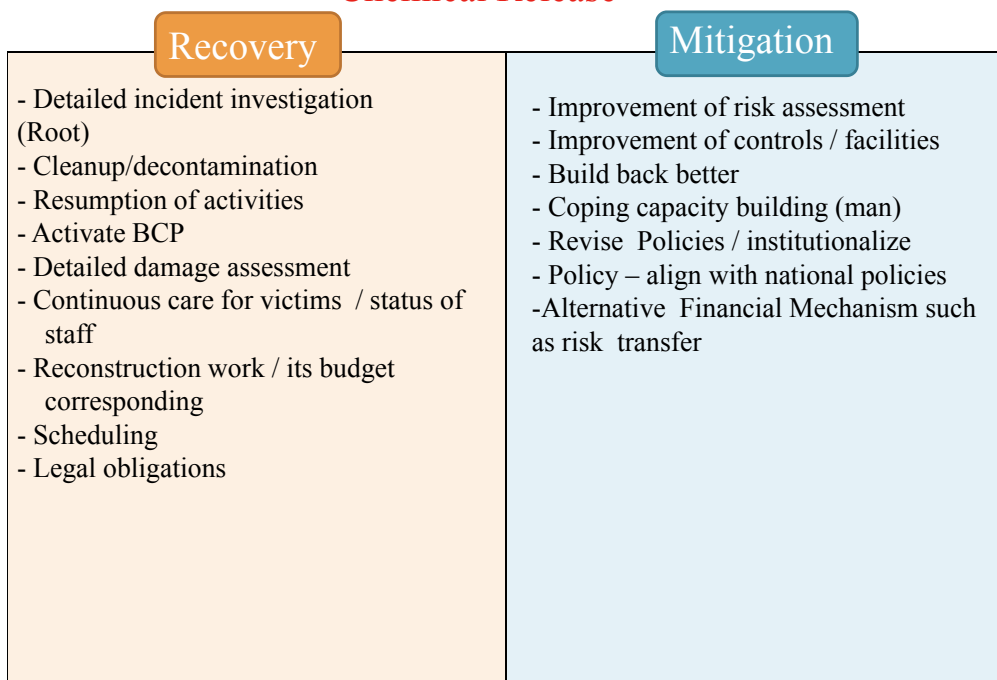
The above activities are considered the minimum actions that must be taken in all emergencies, regardless of type. Universities must develop a detailed plan and structure for each action and then practice using simulation exercises and drills to determine whether the plan is suitable and sufficient.

## GROUP 1

### Chemical Release



### Chemical Release



## GROUP 2

TSUNAMI	Action	Staff	Resource
Preparedness	Hazard assessment Documents/Manual prep Infrastructures - alert system - communication system - EOC Man power - Trainings - Drills	Office of Safety (Not all have this)	Hazard Map Local Policies Liaison Officers Support from Senior Management
Response	Evacuation - Authorization - E-com System - Radio System - Hand-held radio / Megaphone - Door to door Go back Search and Rescue Building and Facility preservation	Office of Safety  ERT (Not all have this) Security Guards	Tsunami Assembly Area All equipment needed  PPT Government
Recovery	Building & Recovery - Communication - Water Supply - Power Supply - IT - Disposal debris - Financial & Psychological aid	Recovery contractors Other Recovery Agencies  Financial affairs Student affairs Campus hospital Other hospital	Funds
Mitigation <small>go back to the business</small>	After action Review Review-structure design -manual -money -resources	Top Management Office Safety	Funds Report from each individual Unit in Campus

## GROUP 3

<b>TYPHOON</b>	Preparedness	Response	Recovery	Mitigation
<b>Action</b>	- Weak spots - Tracking - Critical activities - Evacuation logistics - Reception of outsiders - Insurance	- Real-time tracking - E.O.C. working activated - Medical aid - Clear obstacles to eva. - Restore services ASAP - Damage assessment - Info & communication	- Repair - Debris removal/cleaning - Psycho-social support - Rehabilitation - Insurance claim - Resume normal operation	- Strengthen weak spots - Better tracking - Retrofitting bldg. - Bigger insurance - Capability building for community - Better eva. logistic
<b>Resource</b>	- Risk hazard map - Early warning system - Emergency power & com. - Emergency shelters - Food, water, medicine, etc.	- E.O.C. space/back-up facilities - Rescue equipment of facilities - Food, water, medicine, etc. - Hospitals - Transport - Debris removal	- Debris removal equipment - Construction material - Money - Time	- More money - More time - Better tracking tech. - More better shelter - Enhanced E.W.S. - Better everything
<b>Staff</b>	- Dedicated team for tracking - First-aid, medical team - IT people - Government depts. - Contractors	- Rescue team - Medical team - External help: fire brigade - Security - Information expert	- Guidance counsellor - Campus maintenance team - Building contractors - Lawyers - Faculty staff	- More & better trained staff - Institutionalized - Recruit director & full-time team

## GROUP 4

FLOOD		FLOOD AROUND CAMPUS	
LOCAL FLOOD (Inside the building)			
<b>PLAN/PREPAREDNESS</b> <ul style="list-style-type: none"> <li>- Communication hotlines</li> <li>- Water resistant</li> <li>- Elevated important documents/equipment</li> <li>- Training</li> </ul>	<b>RESPONSE</b> <ul style="list-style-type: none"> <li>- Shut down utility lines</li> <li>- Warning signs</li> <li>- Proper transfer of important documents/equipment</li> </ul>	<b>PLAN/PREPAREDNESS</b> <ul style="list-style-type: none"> <li>- Alternative routes</li> <li>- Security</li> <li>- Communication hot lines</li> <li>- Orientation for new students/visitors</li> <li>- Multi media announcements</li> </ul>	<b>RESPONSE</b> <ul style="list-style-type: none"> <li>- Data on affected students/faculty/staff</li> <li>- Temporary shelter</li> <li>- Logistic supplies</li> </ul>
<b>RECOVERY</b> <ul style="list-style-type: none"> <li>- Quick repair</li> <li>- Cleaning &amp; decontamination</li> </ul>	<b>MITIGATION</b> <ul style="list-style-type: none"> <li>- Regular maintenance of utilities</li> </ul>	<b>RECOVERY</b> <ul style="list-style-type: none"> <li>- Adjust academic calendar</li> <li>- Make up classes</li> <li>- Support to affected staff/faculty/students</li> <li>- Clearing of debris</li> </ul>	<b>MITIGATION</b> <ul style="list-style-type: none"> <li>- Support flood control projects</li> <li>- Solid waste management</li> </ul>

## GROUP 5

TYPHOON	
<b>PREPAREDNESS</b> <ul style="list-style-type: none"> <li>• Risk assessment – Write plan</li> <li>• Warnings -Communicate to staff/students               <ul style="list-style-type: none"> <li>-SMS warning systems</li> </ul> </li> <li>• Reaction plan for individuals (Paper)               <ul style="list-style-type: none"> <li>Social media channels</li> </ul> </li> <li>• Establish communication protocols with local EM serv.</li> <li>• Clear Drains –Box gutters to avoid flooding</li> <li>• Move loose materials and furniture</li> <li>• Store PPE/Medical kits –First aid/Response training</li> <li>• Tree pruning risk management</li> <li>• Power failure –Possible wires down               <ul style="list-style-type: none"> <li>-Back up generators-Fuel supply</li> </ul> </li> <li>• Flooding risks-What is in low lying areas</li> <li>• Develop flood map -Use to inform development program               <ul style="list-style-type: none"> <li>-Inform evacuation plans</li> </ul> </li> </ul>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <ul style="list-style-type: none"> <li>✓ Strong winds</li> <li>✓ Strong rain</li> <li>✓ Trees falling</li> <li>✓ Window breaking</li> <li>✓ Seasonal planning (summer)</li> </ul> </div> <b>RESPONSE</b> <ul style="list-style-type: none"> <li>• Suspend classes→SMS students and staff</li> <li>• Activate EOC</li> <li>• Issue comms on actions for individuals</li> <li>• Building managers/wardens –Action local typhoon plan (eg. Lock windows, Check gutters, Remove hazards –loose material)</li> <li>• Early evacuation of campus as required</li> <li>• Establish communication with local emergency services</li> <li>• Start a log of the event</li> <li>• University as a shelter?</li> <li>• Check on staff/students affected by the Typhoon and their families</li> <li>• Establish counselling hot line/service</li> <li>• Provide first to scene response including first aid</li> <li>• Have electricians/plumbers etc. on site available hot line open for reporting / responding</li> <li>• Use preparation time wisely</li> </ul>



# TYPHOON

- ✓ Strong winds
- ✓ Strong rain
- ✓ Trees falling
- ✓ Window breaking
- ✓ Seasonal planning (summer)

## RECOVERY

- Stiff scotch !
- Contact staff/students to establish welfare
- Inspect campus for damage –Make safe, Remove hazards (eg. Fallen trees, Powerlines down)
- Prepare a plan for recovery
  - Stages to re-open building, Implement BCP's, Establish allowable outage time
- Re-assess weather risk –Short/med/long term outlook
- Release emergency recovery funds
- Ramp up counselling services
- Post emergency debrief
  - improve preparation plans while fresh
- If shelter –Logistics plan
  - Local charity organization activation
  - Soliciting volunteer support
- Communication plan in status when BAU

## MITIGATION

- Move campus to Sydney
- Infrastructure –Typhoon resistant, flood resistant, Typhoon resistant trees
- Lessons learnt –Revise plans/actions
- Awareness raising –Individuals to be accountable in emergency
- Investment program as necessary such as generators
- Update campus maps –Flooding etc. as a result of new information
- Debrief with local emergency services and agree on changes as required
- Look at impact mitigation on research data/experiments/equipment and update BCP's

## PREVENTION

- Disease
- Water purification



## Group activity 2: Developing and evaluating a plan

Each group was requested to prepare a disaster emergency plan for a university with 32,000 students, 9,000 of them living on campus, and 6,000 faculty and staff. The major steps of developing a disaster emergency plan were presented as follows:

1. Elucidate regarding your university based on a risk assessment. Provide basic information about special considerations such as location, demographics, and special vulnerabilities.
2. Describe the command system that your university would employ during response and recovery. Who is in charge? Where would the staff report? Which staff would be responsible for managing the incident?
3. Identify hazards affecting your university.
4. How vulnerable is your university to these identified hazards?
5. Describe how your university manages the risks that these hazards create. Are mitigation strategies in place?
6. Assess the capabilities of your university. Provide a basic inventory of resources that would be used for all phases of emergency management. List resources that outside entities may provide if an emergency exceeds the capabilities of your university.
7. Describe the protective actions that would be required for various hazards. List the resources required to accomplish these protective actions.
8. Describe how you would evaluate the effectiveness of your plan. Who would conduct the evaluation?

Conducting an assessment and discussing it with a policy group and senior managers are crucial steps in the process of developing such an emergency plan, as is practicing implementation of the plan through a simulation exercise. When the groups discussed mitigation strategies to manage risks, most of them identified both hard and soft (i.e., infrastructure and non-infrastructure) measures. Universities need to prepare a plan for response and recovery after an event, as well as to minimize the risks in advance through education, early warning system development, and drills. The level and scale of the plan will vary depending on each university's geographic location and past experience of disasters. However, the most important actions are to understand the risks, prepare for an event, and respond in an effective and efficient manner. To make these actions possible, an emergency management plan is indispensable.

## GROUP 1

<b>Charlie Brown University</b> 32,000 students / 9,000 live on campus / 6,000 faculty and staff			
<u>Risk Assessment</u>	<u>Hazard</u>	<u>Identification</u>	<u>Assumptions</u>
A. Man Made	Shooter on Campus Bomb Threat Cyber Threat Pandemic	L L M L	Command Control Centre Priority ; Life Safety Hazard Maps Available Evacuation Center/Route Established Shelter area designated
Natural	Typhoon/Cyclone Earthquake Fire-Bush Fire/Man Made Volcano eruption/Lahar Storm Surge Land Slide Hail Storm Haze/Pollution Cloud	HH H L/L M H/H L M L	
B. Element at Risk (Hurricane)	Exposure - Annual Event Risk - In Semester (32,000) - Examination Period (32,000) - Night Time (9,000) High Exposure need to lower by increasing capacity - Need a good plan to deal with 32,000		<u>EOC Team</u> FM Manager WHS Manager Communication Manager Head of Security CFO – Finance Representative Legal – Gen Counsel Reps. Secretary for Team Student Services Manager Local Emergency Services Medical Officer Disaster MGR (Team Leader) HR Manager Student Housing Manager
<u>Key Points for Plan/ Strategy</u>			
1. Lower number of people on campus *List not priority 2. Early warning/Reaction crucial 3. Force evaluation 4. Preparedness - Transport - Logistics : Water/Power/Food - Supply chain 5. Communication Plan/Readiness - Early warning system - Advocacy Campaign : Be prepared. Messaging 6. Sign up to UNISDR - and enter safe school advocacy - Reciprocity University Agreement 7. Risk Transfer/Avoidance -Soft/Hard Mitigation Mangroves/Buttress/Levy Banks/Wave Breakers 8. Structural Measures			

Objectives		PPAs	Budget	Time Frame
<b>Safe Lives</b>  Index — \$ 1,000's \$\$ 100,000's \$\$\$ 1,000,000's	1	A - State of the Art EOC	\$	I
	2	A - Awareness Campaign	\$	I
	3	B - Call to Action Plan	—	I
	4	C - Storm Markers	\$	L
	5	D - Build a Seal Wall	\$\$\$	L
	6	E - Develop EWS with Local Emergency Service	\$	M
	7	F - Sign MOU with line agencies and LGUs	—	I
	8	G - Protocol Portal for comm H - Ce Escape Route Map	—	I
<b>Safe Property</b>	6	I - Sign up with Safe School	—	I
	2	J - BCP's for all assets	\$	I
	4	D - Prepare Seawalls	\$\$\$	L
	5	K - Asset Readiness Plans L - Rapid Assessment of Asset Ability/ Resistance	\$	M I
<b>Safe Environment</b> + Economic Livelihood	2,4	M - Mangrove Project Not Mango's	\$\$	L
	5,6	D - Seawalls	\$\$\$	L
	7,8	N - Breakers	\$\$\$	L

INDICATIVE AS AT TIME OF EMERGENCY

# M & E

EVALUATION TO BE PERIODICALLY 6MTHS

INDICATOR	TIME FRAME	% DONE	REMARKS
A	I	100%	Well done
B	I	100%	Excellent
C	L	80%	Good as Gold
D	L	20%	Design complete Construction commenced
E	M	100%	Tested + working
F	I	100%	Complete with Protocol's
G	I	100%	Tested + working
H	I	100%	Route marked
I	I	100%	Complete
J	I	50%	In progress
K	M	40%	Being written
L	I	50%	In Progress
M	L	10%	Seedlings sourced
N	L	5%	Design commenced

## GROUP 2

### CBU DRRMO

#### The Team

```

graph TD
    EOC[EOC Chair] --- MGT[MGT Team]
    EOC --- LO[L.O.]
    EOC --- PIO[P.I.O.]
    LO --- Housing[Housing/Evac]
    LO --- Logistic[Logistic]
    LO --- SRS[S & R]
    LO --- WASH[WASH]
    LO --- Comm[Comm.]
    Housing --- UHO[-UHO]
    Housing --- OSA[-OSA]
    Logistic --- Proc[-Procurement of r]
    Logistic --- Maint[-Maintenance]
    Logistic --- Transp[-Transport]
    SRS --- Search[-Search]
    SRS --- Rescue[-Rescue]
    SRS --- Fire[-Fire]
    SRS --- First[-First Aid]
    SRS --- Security[-Security]
    SRS --- Volunteers[-Volunteers]
    WASH --- UHS[-UHS]
    WASH --- Nutrition[-Nutrition]
    WASH --- Sanitation[-Sanitation]
    WASH --- Mortuary[-Mortuary]
    Comm --- Radio[-Radio Ops]
    Comm --- IT[-IT people]
    Comm --- Signal[-Signal corps]
        
```

#### Hazards/Risk Assessment

- Natural
  - Meteorological HP / HI
    - Typhoons
    - Landslides
    - Storm surges
  - Seismic HP / HI
    - Earthquakes
    - Tsunamis
    - Landslides
  - Pandemics HP / HI
- Man-made
  - Chemical & Haz. Mats L/M P / LI
  - Violence/ Gang wars
  - Fire/ Sabotage
  - Cyber Attacks HI
  - Community Risks
  - Haze/ Fire for com. LP P HI
  - Criminal Elements LP HI

#### Resources

- On-Hand:
  - Manpower: (Basic) Trained Personnel
  - Equipment: Available but Insufficient (30%)
  - Transport: Insufficient (Tech) but timely & pool →Suff.
  - Supplies: Sufficient for 72hrs
  - Comm.: SMS, EB, Radio, Signal
- Needs:
  - Manpower: Adv./ Ref. training + Capability Building
  - Equipment: Add'l Debris cleaning equipment, Transport, Comm. facilities

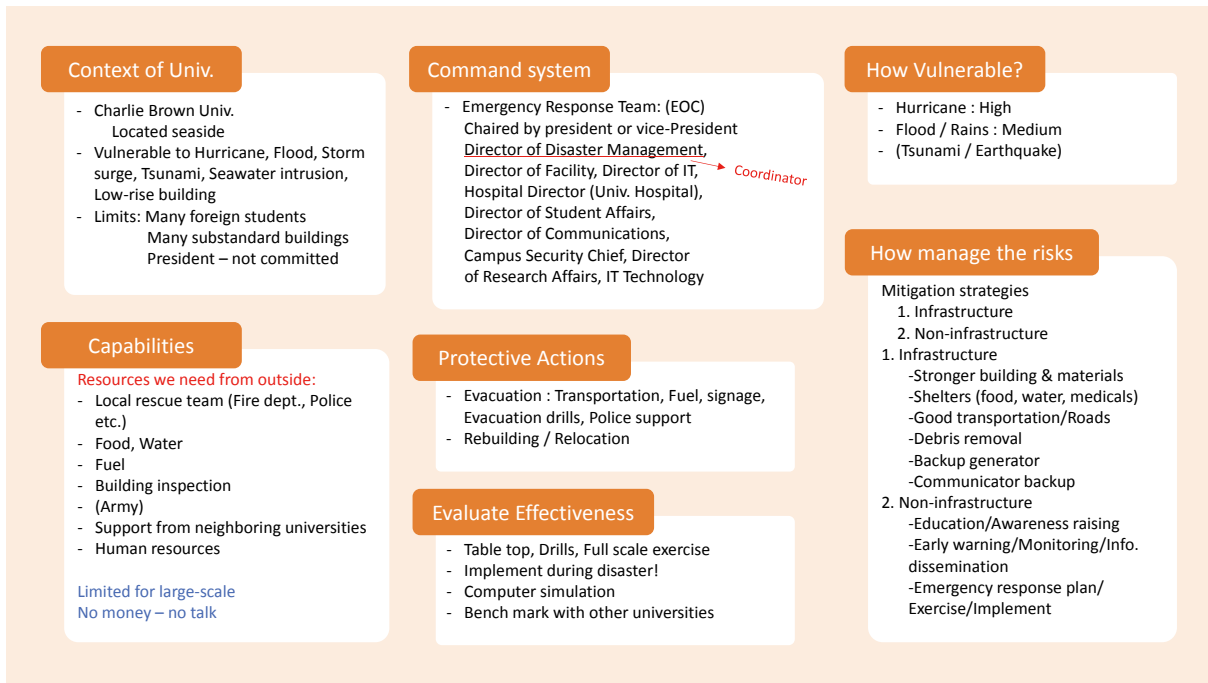
#### Exercises (w/ Observers)

- Semi-Annual Fire & Earthquake drills per bldg./facility
- Regular drill for S&R teams
- Table top exercises for management team & Team leaders
- Functional exercises for all operating teams
- Full-scale seismic hazard every 2yrs

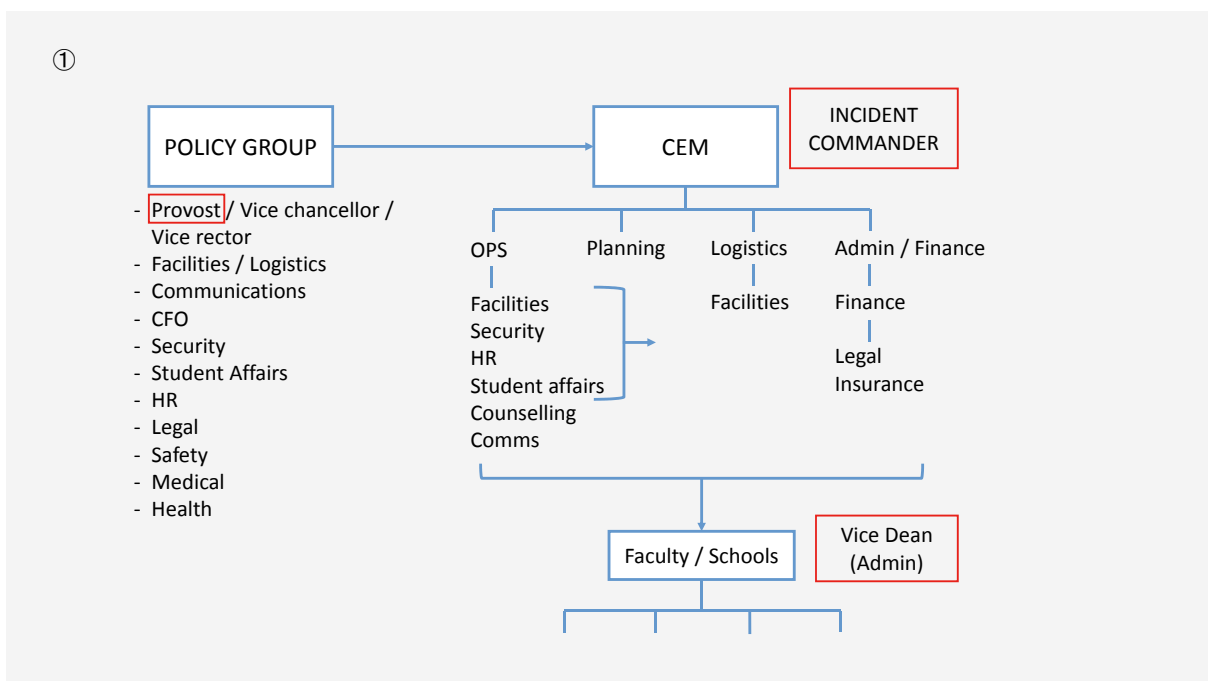
#### Review Process

- Annual review & updates based on results of drills/exercises

## GROUP 3



## GROUP 4





## GROUP 5

Context	Command system	Hazards	Vulnerabilities
<ul style="list-style-type: none"> <li>• 32000 students</li> <li>• 9000 live on campus</li> <li>• 6000 staff</li> <li>• Research</li> <li>• Located on coastline in remote area</li> <li>• A hospital, PD, FD are nearby outside campus</li> </ul>	<ul style="list-style-type: none"> <li>• Vice chancellor is in charge</li> <li>• Safety director is manager</li> <li>• Staff report to safety office/director</li> </ul>	<ul style="list-style-type: none"> <li>• Hurricane storm</li> <li>• Fire</li> </ul>	<ul style="list-style-type: none"> <li>• Limited supplies due to remote location</li> <li>• Blocked access</li> <li>• Only one access route for fire fighter and help</li> </ul>
Mitigation strategies	Resources	Actions	
<ul style="list-style-type: none"> <li>• Build strong buildings with fire protection systems</li> <li>• Capacity building/training and education of safety officers and emergency response team(ERT)</li> <li>• Stockpile of emergency supply</li> <li>• Own debris clearing equipments</li> <li>• Multiple modes of communication systems</li> <li>• Assign a safe room in each building for hurricane shelter with clear marker</li> <li>• Assign an assembly place outside building in case of fire with evacuation route signage</li> <li>• Install warning system, e.g., sirens</li> <li>• Provide at least two access routes</li> </ul>	<ul style="list-style-type: none"> <li>• Allocate contingency fund/ EOC</li> <li>• ERT and backup ERT (trained faculty &amp; staff)</li> <li>• Information from meteorological dept.</li> <li>• Supply for 7days for 10,000 people</li> <li>• Debris removal equipment/ transportation within campus</li> <li>• Helicopter platform</li> <li>• Use undamaged buildings for activities</li> </ul>	<ul style="list-style-type: none"> <li>• Activate EOC</li> <li>• Alarm and alert people</li> <li>• Evacuate</li> <li>• Secure vital sites, data, personnel</li> <li>• Monitor situation</li> </ul>	



## **RECOMMENDATIONS AND KEY MESSAGES**





## RECOMMENDATIONS AND KEY MESSAGES

The discussions in this workshop suggested that leadership is indispensable during emergencies in terms of making critical and prompt policy decisions and ensuring that staff identify what needs to be done for immediate response and recovery. It is crucial to implement the incident command system in an emergency situation, and this system must be widely understood. Some universities do not have such a specific system; rather, the regular organizational structure is adopted as the incident command system. Each university must identify the structure that best suits its context and make it work as a key to effective emergency management.

Also during the preparedness stage, universities need to develop an adequate **emergency (disaster) management plan** for responding to and recovering from any damage. This process requires gaining understanding and support from the university leadership (policy group) as well as obtaining adequate funding and human resources. To identify any current oversights or weaknesses, universities should also conduct simulation exercises using existing plans.

**The keys to campus safety are as follows:**

- 1) **Involving a policy group consisting of the executive leadership of the university to make crucial policy decisions (closing the university, etc.) (decision-making body)**
- 2) **Developing an emergency management plan (preparedness and response plan, etc.)**
- 3) **Conducting exercises, drills, or simulations using the existing plan to assess its efficacy**
- 4) **Reviewing the plan every year or following any emergency event to determine whether it can cope with emergencies and whether it suits the current university structure**

The discussion highlighted various strengths:

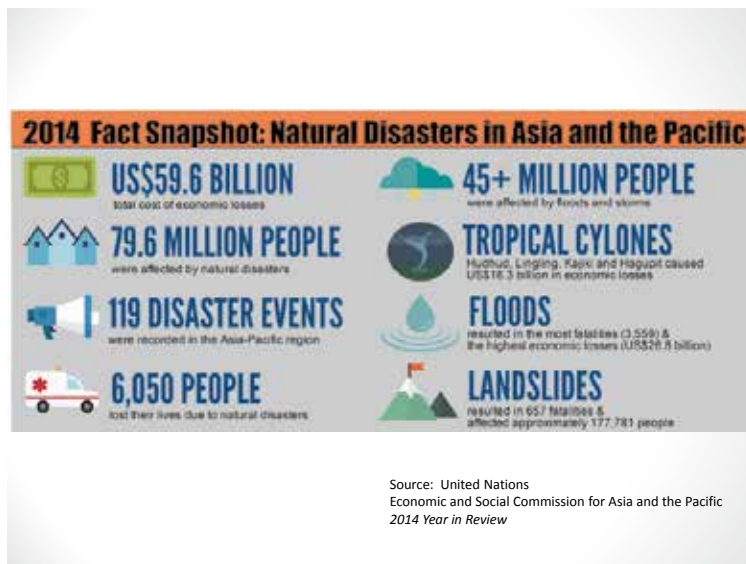
- 1) Universities in this region have similar management structures and therefore share common issues and concerns. Accordingly, they can learn from one another and adopt similar efforts.
- 2) They also share access to strong networks, such as the APRU, to exchange views and concerns and obtain feedback and suggestions. In this case, practical experience of what has worked well or did not work are especially valuable. Such networking also ensures a strong possibility of continuing this dialogue and initiative with additional workshops and training.
- 3) Likewise, universities in this region have experienced various disasters, making them experts on several types of disasters.

At the same time, several weaknesses were also identified:

- 1) A lack of permanent staff and managers in the safety and security office. Also, once senior managers of the university such as the safety director and president are replaced, interest and understanding on campus safety issues can become hard to sustain. Changes in staff leadership can often make it difficult to conduct regular drills and exercises.

2) University resources needed for emergency planning and preparedness must be shared with other objectives such as research, innovation, and experimentation, and the battle for resources can be very competitive. Consequently, campus safety projects tend to suffer from inadequate resources.

The participants requested the APRU to continue providing opportunities for discussion and learning on campus safety issues and to address the importance of involvement by senior managers and leaders in a university policy group on this topic. This message will be conveyed to senior managers of the APRU member universities as well as other universities and research institutes in the APRU geographic area through regional and international conferences and discussions.





## FIELD TRIP



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After two days of sessions, the workshop participants visited Natori and Sendai on February 4 to observe the recovery efforts since the 2011 Great East Japan Earthquake and Tsunami.

In Natori City, more than 900 people were killed by the Disaster and nearly 14,000 houses and buildings were affected. Natori adopted a multiple-defense approach in its recovery plan. In this case, the primary defense (mainly by sea walls) is for tsunamis that occur once every 10 to 100 years, and the secondary defense (collective relocation, elevating lands, etc.) is for severe tsunamis that occur once every 1,000 years. The industrial area has been built closer to the coast, and the housing area is farther inland. This arrangement gives residents more time to evacuate in a tsunami.



For its reconstruction plan, Sendai opted to develop tsunami evacuation facilities. The participants visited one of the following facilities: a tsunami evacuation tower that can accommodate nearly 300 people and houses various features such as solar power, emergency wireless service, and stockpiled supplies. The local governments also introduced various disaster risk reduction and mitigation measures to avoid experiencing the same damage during future severe disasters as in 2011 and to build resilient communities equipped to protect local lives and assets.



# **ANNEX I : Workshop on Building Disaster Resistant Universities**

~Is Your University Ready for the next Natural Disaster?~

2-4 February 2016 at Tohoku University in Japan

## **2 February 2016**

9:00-9:30 Registration

9:30-10:00 Opening and Group photo

Prof. Masahiro Yamaguchi (Associate Executive Vice President  
for International Affairs, Tohoku University)

Prof. Fumihiko Imamura (Director, IRIDeS, Tohoku University)

10:00-10:10 Self-introduction

10:10-10:30 Results of Campus safety survey (Dr. Takako Izumi, IRIDeS)

10:30-11:15 What is campus safety? (Ms Amy Aiken, Florida International University)

11:15-11:30 Coffee

11:30-12:15 Case study 1: Tohoku University (Prof. Hiroaki Maruya, IRIDeS)

12:15-13:15 Lunch

13:15-14:00 Case study 2: National University of Singapore (Dr. Peck Tian Guan, NUS)

14:00-14:45 Case study 3: University of Philippines (Prof. Benito M. Pacheco, UP Diliman)

14:45-15:00 Coffee

15:00-16:00 Group work: the 4 phases of disaster management: what steps would be taken for each  
phase

16:00-17:30 Group presentation and discussion

18:00- Gathering

## **3 February 2016**

9:30-10:30 Developing and Evaluating an effective Emergency Plan (Ms Amy Aiken, FIU)

10:30-11:30 Group work: Developing and Evaluating a plan

11:30-11:45 Coffee

11:45-12:30 Group work continue

12:30-13:30 Lunch

13:30-14:45 Group presentation and discussion

14:45-16:00 Table top exercise to test your emergency plan

16:00-16:15 Coffee

16:15-17:00 Debriefing

17:00-17:30 Wrap up

## **4 February 2016**

9:00-13:30 Field trip to the affected sites (Yuriage, Kitakama, and Tsunami evacuation tower

## ANNEX II : List of Participants

	Name	University	Location	Position
1	Greg Robinson	the University of Sydney	Australia	Director, Campus Infrastructure & Services
2	Yangyong Zhang	Fudan University	China	Deputy Director, Campus Safety Office
3	Edmund Hau	University of Hong Kong	Hong Kong	Director of Safety
4	Fatma Lestari	University of Indonesia	Indonesia	Director of Disaster Research & Response Centre
5	Riyadh Firdaus	University of Indonesia	Indonesia	Doctor
6	Yuni Kusminanti	Universitas Indonesia	Indonesia	Researcher Staff in Disaster Research & Response Centre
7	Dadan Erwandi	Universitas Indonesia	Indonesia	Lecturer staff in Occupational Safety and Health Department, School of Public Health
8	Hitoshi Yamamoto	Osaka University	Japan	Professor, Vice Director, Dept. of Safety and Hygiene
9	Michihiro Kita	Osaka University	Japan	Professor, Division of Global Architecture, School/Graduate School of Engineering
10	Jooyong Park	Seoul National University	Korea	Professor
11	Mark Paz De Guzman	St. Louis University	Philippines	Graduate Program Coordinator
12	Tabassam Raza	Philippine School of Business Administration	Philippines	Associate Dean and DRM Adviser
13	Marish Sabiniano Madlangbayan	University of the Philippines Los Banos	Philippines	Vice Chancellor for Planning and Development
14	Genaro Andres Cuaresma	University of the Philippines Los Banos	Philippines	Assistant to the Vice Chancellor for Community Affairs and Chair
15	Fernando C. Sanchez	University of the Philippines Los Banos	Philippines	Chancellor/Professor
16	Nestor T. Castro	University of the Philippines Diliman	Philippines	Vice Chancellor for Community Affairs



	Name	University	Location	Position
17	Benito M. Pacheco	University of the Philippines Diliman	Philippines	Vice-Chancellor for Academic Affairs; Professor of Civil Engineering
18	Jessica K. Carino	University of the Philippines Baguio	Philippines	Professor, Vice Chancellor for Administration
19	Oscar Victor M. Antonio	University of the Philippines	Philippines	COE Associate Dean for Administration
20	Peck Thian Guan	National University of Singapore	Singapore	Director, Office of Safety Health & Environment
21	Mohammad Fazulee Abdul Rahman	National University of Singapore	Singapore	Senior Manager (Fire & Life Safety)
22	Fongzuo Lee	National Taiwan University	Taiwan	Postdoctoral Research Fellow
23	Pochia Chen	National Taiwan University	Taiwan	PhD Candidate
24	Pongsak Suttinon	Chulalongkorn University	Thailand	Lecturer, Department of Water Resources Engineering, Faculty of Engineering
25	Chatpan Chintanapakdee	Chulalongkorn University	Thailand	Assistant Professor, Assistant to the Dean
26	Amy Aiken	Florida International University	USA	Director, Department of Emergency Management
27	Hiroaki Maruya	IRIDeS, Tohoku University	Japan	Professor
28	Yuichi Ono	IRIDeS, Tohoku University	Japan	Professor
29	Takako Izumi	IRIDeS, Tohoku University	Japan	Associate Professor
30	Takuya Ito	IRIDeS, Tohoku University	Japan	Researcher

