



APRU-IRIDeS Multi-Hazards Program

Campus Safety Report 2015



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Campus Safety Report 2015**

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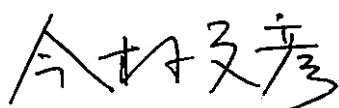
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The Pacific Ring of Fire is the most active seismic region in the world. The 45 member universities of the Association of Pacific Rim Universities (APRU) are constituted around the Ring of Fire. Our campuses are under a constant threat of various natural disasters such as earthquakes, floods, tsunamis and cyclones. To reduce disaster vulnerability and risks by enhancing collaboration among disaster science researchers within the Asia-Pacific, APRU and Tohoku University established the Multi-Hazards Program Hub at the renowned International Research Institute for Disaster Science (IRIDeS) in Sendai in 2013. The Program is headed by a core group of disaster scientists from nine APRU member universities in Chile, China, Chinese Taipei, Japan, Thailand and the United States.

One of the first projects of the Multi-Hazards Program Hub was to self-analyze disaster preparedness capacity and compile guidelines and standards at APRU campuses. The results of the 22 universities who have responded to the Campus Safety Survey were analyzed in this report. Ultimately it aims to promote the need for disaster preparedness on campus, to discuss how APRU can support the initiatives, and to identify the next step to enhance the capacity. Latest research results should be reflected in disaster preparedness of universities. The safety of students and university employees is of utmost importance to our member universities.

We hope that the report assists member and non-member universities in the improvement of disaster preparedness on campuses. It should increase the sharing of good practices and might also provide information for university-like companies or organizations. We are delighted that the report will be launched at the UN World Conference on Disaster Risk Reduction in Sendai, 14-18 March 2015 and we hope that it will contribute to the disaster safety debates.



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First, the Association of Pacific Rim Universities (APRU) and the International Research Institute of Disaster Science (IRIDeS) express their sincere gratitude to the 22 Universities that responded to the questionnaire for their support and contribution to this survey. The 22 universities are: Chulalongkorn University, Far Eastern Federal University, Fudan University, Keio University, National Taiwan University, National University of Singapore, Osaka University, Peking University, The Australian National University, Tohoku University, University of Auckland, University of California, Irvine, University of California, Los Angeles, University of California, Santa Barbara, University of Hawaii at Manoa, University of Oregon, University of Tokyo, University of Washington, the University of New South Wales Australia, Waseda University, Yonsei University and Zhejiang University. .

In addition, special appreciations go to Prof. John Rundle, University of California, Davis who provided insightful comments and feedback when the form was developed. The MH program also received continuous support from the APRU secretariat, based in Singapore. Specifically, the APRU secretariat forwarded and collected the questionnaires from the Universities. The members of the MH program also acknowledge the tremendous support provided by Ms. Yuko Sato, from the IRIDeS International Cooperation Office, for the data aggregation.

1 Introduction

In 2006–07, the United Nations Office of Disaster Risk Reduction (UNISDR) implemented a campaign entitled, “Disaster Risk Reduction Begins at School.” Through the campaign, the importance of Disaster Risk Reduction (DRR) efforts, countermeasures, and education was strongly highlighted at schools; however, the need for disaster preparedness on university campuses was not included. In Universities, the number of students, faculty members, and staff is much larger than lower schools. If Universities are struck by a disaster, especially a large disaster, without adequate risk reduction measures, the damage and impacts including assets, buildings, and human lives, can be enormous. Universities must prepare for these emergencies and implement an appropriate response action at the initial stage. A “safe campus” has been defined as follows:

“A safe campus is one that provides students the opportunity to pursue their academic potential in an environment free of discrimination, intimidation, or threat to physical or emotional well-being. The safe campus is one that responds to such threats and takes decisive, corrective action to eliminate them. A safe campus is one that is monitored for safety, one where the various dimensions of the environment are routinely evaluated and adjustments are made as appropriate. Creating such an environment is an institutional responsibility and one that requires participation and commitment from multiple parties within the institution.” (Rund, J. A., The Changing Context of Campus, New Directions for Student Services, Volume 2002, Issue 99, (2002)).

To implement “safe campus,” Universities are required to maintain an environment where students can continue their studies and research activities. The Universities must also promptly respond to disasters, make regular risk assessments on campus, and try to eliminate and/or reduce risks, if identified. “Campus safety,” in this context, focuses only on “safety” against natural disasters, excluding manmade disasters, crime, and health issues such as pandemics.

In addition, universities are recognized as a part of the community. Therefore, the preparedness-capacity of universities has a huge impact on the safety and security of human lives and property, even on communities and universities. Also, Universities will be able to provide assistance to communities by sharing information and providing spaces as evacuation centers in the response stage.

The Association of Pacific Rim Universities (APRU) and the International Research Institute of Disaster Science (IRIDeS) launched the APRU-IRIDeS Multi-Hazards (MH) Program in April 2013. The Program aims to harness the collective capabilities of APRU Universities for cutting-edge research on DRR as well as contribute to the policy-making processes on DRR. The key activities of the MH Program include the following:

- Organizing the annual summer school
- Organizing the annual APRU MH Symposium
- Fostering the collaboration of disaster research and information/data sharing among APRU members
- Contributing to DRR discussions at international and regional levels and the policy-making process

Furthermore, the core group of the MH program agreed on the need for enhancing the preparedness capacity on campus and that the MH program actively promotes the concept among the APRU Universities at the beginning. The core group considers that as a network of universities, APRU has a responsibility to develop, internationally promote, and help implement disaster preparedness on university campuses.

A survey form was distributed to the Universities to collect current information on the status of the preparedness capacity to natural disasters on campus, including their activities and initiatives. Furthermore, the survey requested the Universities to identify the challenges and recommendations for the future preparedness plan. On the basis of the survey results and the issues identified, the intent of the MH program is as follows: to promote the need for disaster preparedness on campus; to discuss how the APRU can support the initiatives; and to identify the next step to enhance the capacity. Moreover, the MH Program also aims to target universities all over the world, eventually beyond the APRU Universities, to share the experience and lessons learned, and strengthen the capacity of campus safety globally. However, this program does not intend to advocate the same level of campus disaster preparedness to all the universities, as each country and region has a different level of disaster frequency and degree. On a case-by-case basis, Universities can decide the kind and level of disaster preparedness that is necessary on the basis of the type of natural disaster and experience. It also hopes to foster a discussion of the need for campus preparedness capacity, create awareness for campus safety, and review existing capacity and baseline data.

The questionnaire was developed in collaboration with IRIDeS (Tohoku University) and University of California, Davis. The survey was distributed to 45 universities in 16 economies. 22 universities (49%) from 9 economies (Australia, China, Chinese Taipei, Japan, New Zealand, Russia, Singapore, Thailand, and USA) submitted responses. The survey comprised six topics that include governance actions, risk assessment, disaster preparedness mechanism and capacity, response capacity, support system for students, faculty members and staff, and data preservation. The last section, entitled “Others,” asked for qualitative information and details regarding the current status of campus disaster preparedness.

The questions asked were rather simple and tried to understand very basic needs, not very technical and specific capacities; therefore, this report does not evaluate their depth preparedness capacities. Also, the survey was designed to be answered by the staff or faculty who are not natural disaster and safety experts or engineers. The findings in this report are preliminary, and they discuss and develop further strategies for each university. Further detailed surveys and in-depth analysis need to be conducted.

3 Survey Results

3.1 Governance Actions

Question 1: Has a Disaster Countermeasure Office, which is a temporary structure in case of emergencies, been established? Does it involve university staff in senior positions (President, Vice President, etc)? Do the members of the office coordinate the response efforts?

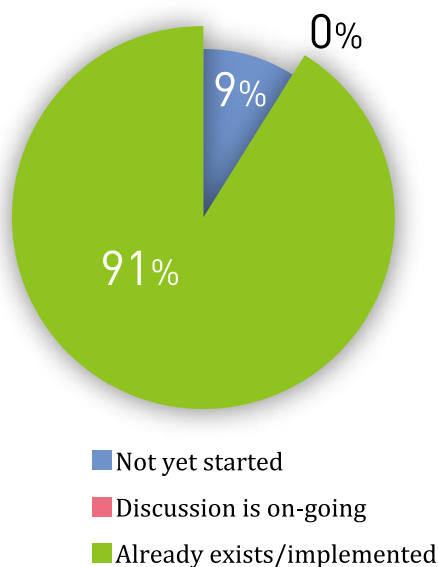


Figure 1: Disaster countermeasure office (DCO)

Question 2: Is a simulation exercise regularly conducted by the disaster countermeasure office to check the functioning of the office?

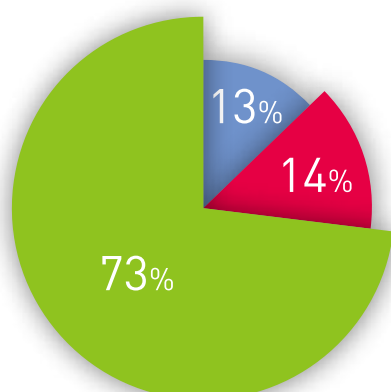
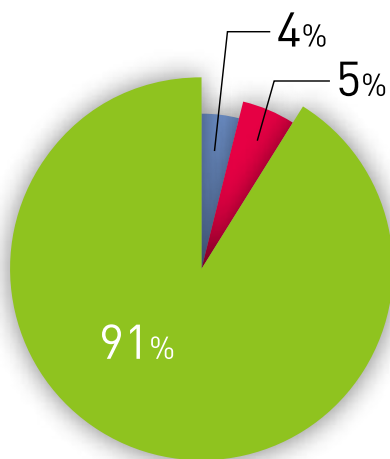


Figure 2: Simulation exercise for DCO

Figure 1 shows that the importance of establishing a disaster counter-measure office and its role during the emergency stage is well-understood by the Universities. The office plays a critical role in case of emergencies to coordinate and oversee the response activities. All the Universities are encouraged to prepare for setting up such a response mechanism to provide effective and efficient responses to natural disasters.

Twenty-eight percent of the Universities that already have a countermeasure office do not conduct the simulation exercise to evaluate its functioning in case of disasters (Figure 2). The office set-up and simulation exercise should be conducted to ensure its functioning flow and the role and responsibility of each member.

Question 3: *Is a disaster response manual, which includes a contingency plan in case of natural disasters, ready?*



Ninety-six percent of the Universities have already developed or are currently developing a disaster response plan (Figure 3). Such guidelines are already prepared by most of the Universities.

Figure 3: Response manual

Question 4: *In the event of a disaster, is information on the disaster or an early warning signal sent through the campus communication system to students, faculty members, and staff to alert them about the emergency situation?*

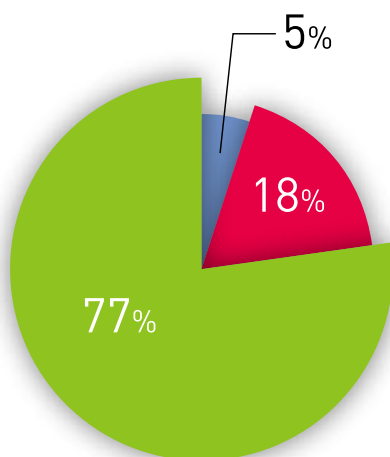
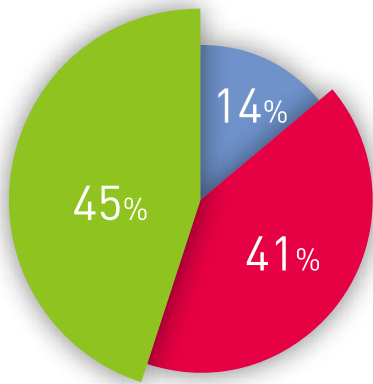


Figure 4 indicates that information on the emergencies and early warning signals are not yet sufficiently shared on campus (only 77% of the Universities have signals in place). For effective evacuation, receipt of an early warning is extremely important. In particular, universities located in typhoon and tsunami risk areas must equip such a system and facilities.

Figure 4: Early warning signal

3.2 Risk Assessment

Question 1: Has a risk assessment on campus been conducted to assess the likelihood and the impact of disasters? Does it identify the issues to be improved when preparing for future disasters?



More than half of the Universities have not yet conducted the risk assessment on campus and its disaster risks may not be fully understood (Figure 5). Although 41% of the Universities are currently discussing this topic, conducting a risk assessment is crucial to develop a thorough disaster preparedness plan.

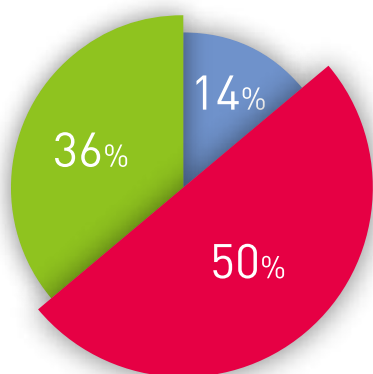
Figure 5: Risk assessment

What types and kinds of methodologies are used for the risk assessment? How often is it conducted and who conducts it? How does the university utilize the assessment result?

- It is completed through the campus natural hazard mitigation plan, which follows the Federal Emergency Management Agency's (FEMA's) guidance on risk assessments. It is conducted on a five-year review cycle. The results of the assessment were used to identify and prioritize potential risk-reduction measures. In addition, the university began a comprehensive risk assessment modeled after the enterprise risk management model and included a much broader scope than natural disasters (University of Oregon).
- Investigation and rating of hazards on campus toward chemicals, high-pressure gases, radioactive compounds, germs, and of dangerous configurations on campus, such as a collapse, a fall, a cave-in, are conducted. At least once in a year these are conducted by Department of Administration for Safety and Hygiene (DASH). DASH utilizes this data to develop a fire-evacuation drill in each department, by giving information and ideas, and a large-scale disaster-evacuation drill is conducted by DASH (Osaka University)
- Safe areas on campus are based on the information regarding where chemicals are routinely stored. (University of Tokyo)
- Assessments are conducted using industry best practices and established Federal standards. Risks are regularly reviewed and as warranted, corrective actions are implemented. The results support implementation of emergency management initiatives and practices under development or already established. (University of Hawaii at Manoa)
- A Hazard Vulnerability Assessment (HVA) is conducted every five years unless events which could change the ranking occur. We also worked with the Santa Barbara County on the Hazard Mitigation plan. (University of California, Santa Barbara)
- A comprehensive hazard vulnerability analysis was performed in 2005 and is reviewed annually. Possible hazards are evaluated with regard to their potential effects on persons, property, and mission/reputation. This results in a numerical ranking for each hazard. On the basis of this ranking, plans are made to prevent the occurrence (if possible), react to, and mitigate the effects of and recover from each hazard. (University of California, Los Angeles)

- Waseda University conducts a campus facilities inspection biennially. It includes evaluations of seismic performance and fall-prevention measures. (Waseda University)
- A complete HVA was achieved for the University of California (UC), Irvine in 2008. Since that time, the top ten hazards were identified for the campus and corresponding plans and mitigation measures have been implemented. The university periodically reviews this list and updates it as needed. (University of California, Irvine)
- The methodologies of the assessment are based on long-term observations and data in the region and the Asia Pacific Rim area, related to earthquakes (measured 7.0 on the Richter scale once in 50 years), tsunamis (waves 15 meters max in the Bay of Ajax) provided by the Primorsky Territory Office of the Russian Ministry for Emergency Situations (PT EMERCOM). The Far Eastern Federal University (FEFU), Civil Defense, and Emergency Headquarters, conducts assessments on a regular basis. On the basis of the statistics and guidelines by PT EMERCOM, the university utilizes the results of the assessment to develop work and action plans, including strategies for preparation/mitigation against natural and technogenic disasters. (Far Eastern Federal University)
- A risk assessment has not been developed for the prevention of natural disasters. Aiming at the possibility of disasters and accidents in large-scale activities, the Security Department will urge the host of the activity to assess the possibility of risk. Then, the Security Department will examine the assessment result and complement with supplementary opinions. (Peking University)

Question 2: On the basis of the result, does the university discuss strategies for preparation/mitigation, and has it developed a work and action plan?



Making the best use of the assessment results and developing a preparedness plan is one of the most challenging, yet critical issues in disaster risk reduction on campus. It requires time, expertise, and human and financial resources to develop a strategy and plan. Thus, 50% of the Universities are still discussing this matter and 14% have not yet initiated its development (Figure 6).

Figure 6: Preparedness plan based on assessment

Question 3: Are the results of the assessments publically shared to inform students, faculty members, and staff of the risks?

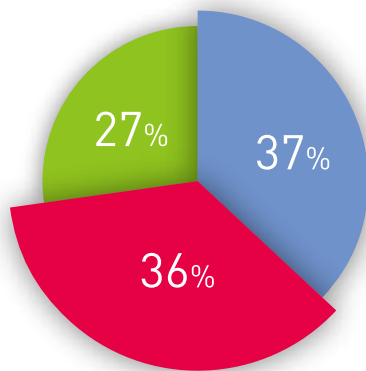


Figure 7: Assessment result shared

Figure 7 shows that only 27% of the Universities that have conducted the assessment have shared the assessment results. The information was mostly shared on-line through their website, as well as at various training sessions and exercises. However, some Universities consider that providing the complete details of the risk assessment is sensitive and should be restricted for safety and security issues. Therefore, 37% of the Universities may not be that active and positive to opening such information and results.

3.3 Disaster Preparedness Mechanism and Capacity

Question 1: Has a system been set up to confirm the safety of students, faculty members, and staff after a disaster? Should the students, faculty members, and staff that have received the message be required to report on their safety through the system?

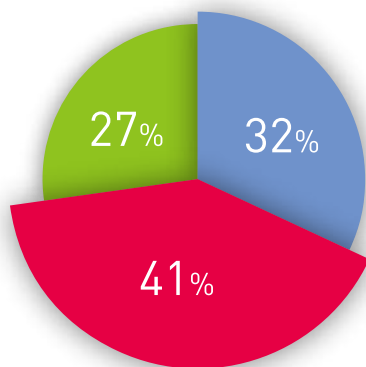
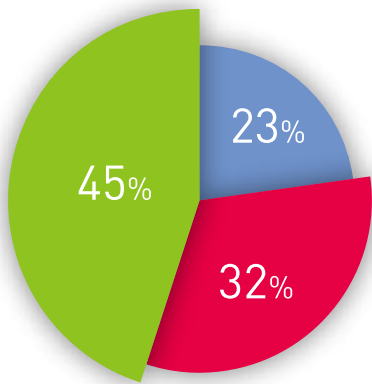


Figure 8: Safety confirmation

Figure 8 implies that the need and necessity of such safety confirmation system may not be completely understood and the priority for such a system may be lower than the other issues. Alternatively, setting up such system may require additional technology and funding. The Universities that already have a system in place can share the mechanism with others. Completing the system is time consuming; however, confirming the safety of the students, faculty, and staff would be crucial for the Universities.

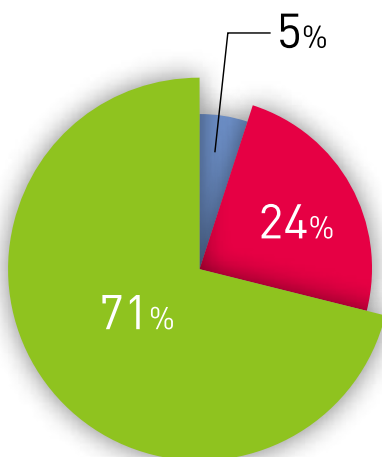
Question 2: Has a disaster response handbook been developed and distributed to students, faculty members, and staff? Should the handbook include information, such as “how to respond and react in case of natural disasters?” and “how to confirm their safety through the system?”



The handbook can be very useful for the students, faculty members, and staff to develop and increase knowledge of disasters and disaster preparedness. Less than half of the Universities have developed and distributed such a handbook; however, the other half have not (Figure 9). Also, such a tool can be shared among the Universities. Moreover, they can develop one on the basis of the existing material. APRU may be able to help with the process of sharing such materials.

Figure 9: Disaster response handbook for students/staff

Question 3: Does the infrastructure on campus have structural characteristics that are resistant to natural disasters, such as earthquakes and cyclones?



Special attention is paid toward disaster-resistant. Nearly all the Universities have arranged for special infrastructure (Figure 10).

Figure 10: Disaster resistant structure

Question 4: Are awareness-raising activities for disasters conducted regularly, including drills and guidance?

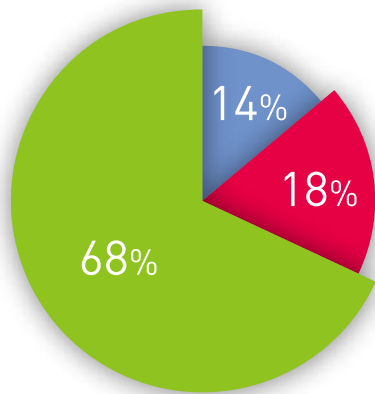


Figure 11: Awareness raising

Question 5: In the event of a disaster and as preparation for such, is special guidance provided for foreign students?

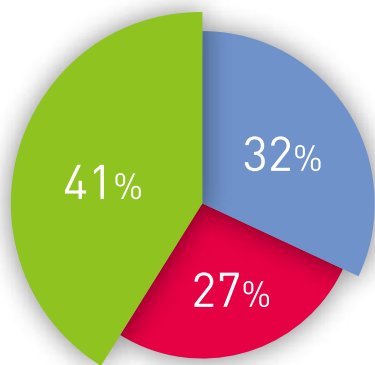


Figure 12: Guidance for foreign students

Question 6: Has an emergency communication system, such as an independent, hardened computer server that enables the university to maintain communications capabilities and systems operations, even under emergencies, been established within the campus?

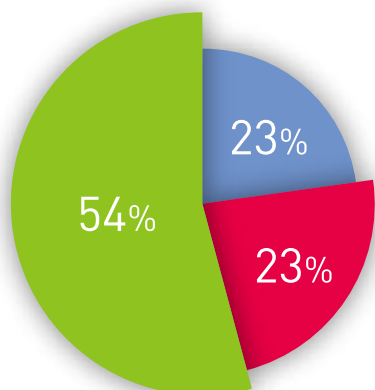


Figure 13: Emergency communication system

Figure 11 indicates that nearly 70% of the Universities have been conducting the awareness-raising activities and 20% are now discussing how to initiate them. The activities include tabletop exercises, drills, and workshops. In some Universities, a disaster response manual is provided online through an e-learning system.

Foreign students should have such information and guidance as they likely do not have knowledge of local hazards and the systems in place. Thus, Universities need to pay extra attention to them. Less than half of the Universities have been ready to share the information and guidance with foreign students (Figure 12). Twenty-seven percent are now discussing this issue; however, the Universities should consider providing their foreign students with the information immediately.

After a great disaster, the communication system is often damaged. Such damage impacts how alerts are sent. Such alerts include sharing the scale and level of damage and how they need to respond (e.g., evacuate or stay). To protect the lives of students, faculty, and staff, this system is extremely important for Universities. Nearly half of the Universities are equipped and 23% of the Universities are discussing this issue (Figure 13). Most of the Universities understand the importance.

3.4 Response Capacity

Question 1: Does the campus have a stockpile of food, water, blankets, etc. that can be used in emergencies?

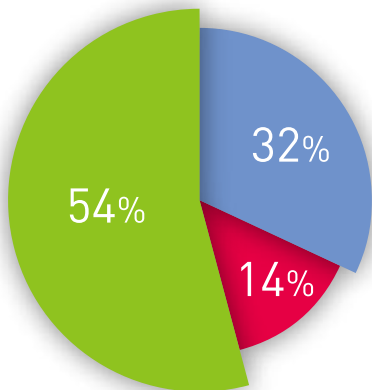


Figure 14: Stockpile of emergency items

Figure 14 shows that more than half of the Universities have a stockpile of emergency response items. It is important for the Universities to respond to emergencies with minimum emergency items until sufficient relief items are delivered by third parties. The frequency and level of recent disasters are increasing and strengthening the response capacity is highly important for the Universities.

Question 2: In the event the university experiences a disaster and needs emergency assistance, is there an agreement with neighboring universities or other groups/organizations regarding possible mutual assistance?

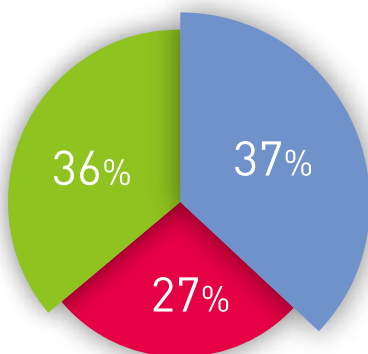


Figure 15: Agreement with other universities for mutual support

Having an agreement regarding mutual assistance with neighboring universities may be a new idea and an initiative for the Universities. Therefore, only 36% of the Universities have such arrangement and 27% of the Universities have this issue under discussion (Figure 15). Providing effective assistance in a timely manner is very important, as was learned after the Great East Japan Earthquake and Tsunami in 2011. The Universities are highly recommended to include this arrangement in their preparedness plan.

Question 3: Does the university have building inspection capability and a team in place to conduct an assessment of buildings immediately after a disaster?

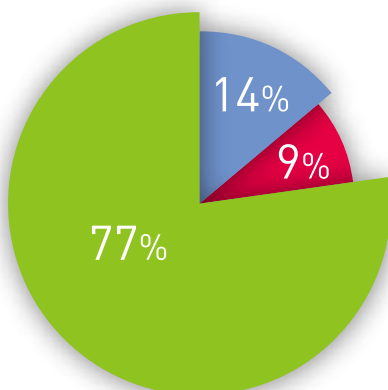


Figure 16: Building inspection capacity

As Universities have such expertise when conducting inspections, most Universities are effectively utilizing the capacity for an assessment after a disaster (Figure 16).

Question 4: Does the university have a list of registered student volunteers who are willing to participate in response activities after a disaster? Do these volunteers know that they may be dispatched to communities, evacuation centers, and local governments that require assistance?

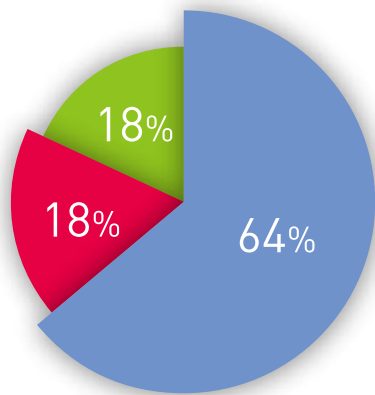


Figure 17: List of volunteers

This is also a new idea of response preparedness that maximizes the capacity of students as volunteers and provides assistance to communities and local governments. This is one of the methods through which Universities can contribute to communities. Eighteen percent of the members have already had this system, which is considered advanced (Figure 17). UC, Santa Barbara, Far Eastern Federal University, Peking University, and Zhejiang University have already established such a list.

3.5 Support System for Students, Faculty Members, and Staff

Question 1: Have policies for a support system for students, such as exemption from tuition fees or a special grant, been developed in case the students are affected and have difficulties studying at the University?

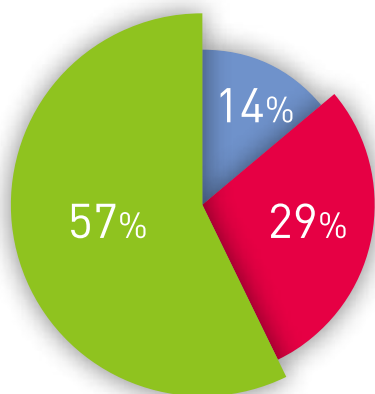
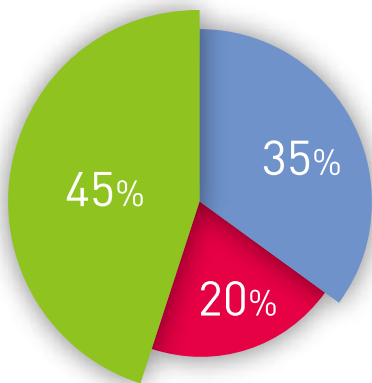


Figure 18: Support policy for students

Figure 18 indicates that more than half of the Universities already have policies regarding a support system for affected students. Twenty-nine percent of the Universities are currently discussing this issue. This will be a critical issue for students and it is extremely important for universities to have a clear policy on what type of administrative assistance is provided to students in the event of emergencies. Otherwise, after a disaster, tremendous confusion may be experienced among students, faculty, and staff.

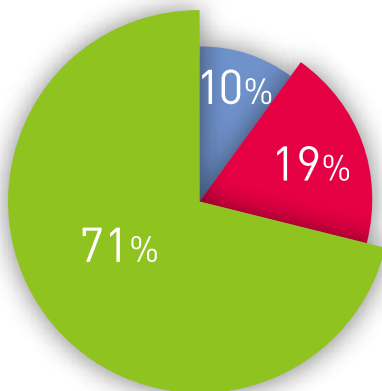
Question 2: Have policies regarding a support system for faculty members, staff, and their families, who have been affected by a disaster, been developed?



The percentage of Universities that have a support system in place for faculty members, staff, and their families is slightly lower than those who have support policies in place for students (Figure 19). Undoubtedly, universities have a high priority for its students; however, support for the faculty and staff is also important. This support system has to be considered and the policy for faculty and staff should be developed.

Figure 19: Support policy for staff/faculty

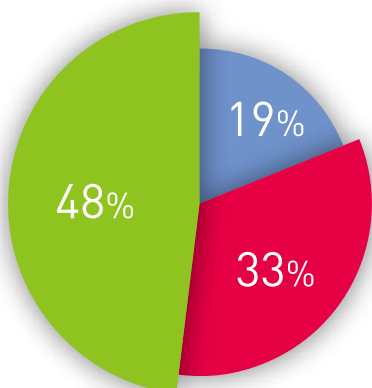
Question 3: Has a support system been developed for students, faculty members, and staff who need psychosocial care after a disaster on campus?



More than 70% of the Universities have a support system for psychosocial care and nearly 20% have this issue under discussion (Figure 20). The need for psychosocial support is well acknowledged.

Figure 20: Psychosocial support

Question 4: In the event of a disaster, has a support system been developed for foreign students, including administrative and legal procedures, such as extension of period of stay or reentrance procedures?



Although nearly half of the Universities have a system to provide administrative support to foreign students, the other half do not (Figure 21). Universities should consider that the number of foreign students is increasing, and those students likely have less knowledge of the country's disaster situation. Returning to the country/university smoothly is also important for them. Such support is critical and all the Universities need to prepare for it.

Figure 21: Support policy to foreign students

3.6 Data Preservation

Question 1: Are interviews and data collection conducted by students/faculty members immediately after a disaster to preserve the records of response and recovery activities? (This can be valuable data to study, assess, and evaluate for future disasters and responses. The methods in which these interviews and data are collected should be identified and determined. Specifically, Universities should identify who is responsible and list the methodologies to be used, including, but not limited to, interviews, questionnaires, and other types of information gathering.)

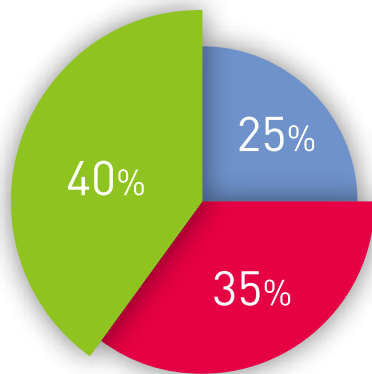


Figure 22: Record preservation

is a good percentage at this moment, and an additional 35% of the Universities are working towards that goal in the event of a disaster (Figure 22). It can be also a new role for universities after a disaster and will contribute to future researchers.

There is an expectation for universities to play a role in collecting data and conducting interviews to record the experiences of disasters. Some opine that local governments should undertake responsibility for such activities; however, the local governments from the affected areas often do not have sufficient human resources and capacity in an emergency stage. Therefore, universities should provide support and undertake the responsibility of recording the situation. This accumulated data will assist with future research and study at a later stage. Forty percent of participation

Question 2: Is there an archival system that can preserve the collected data and information? Does the University share this with those outside the University?

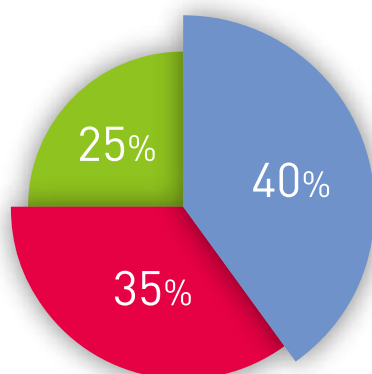


Figure 23: Archiving system

After the abundant data is collected, preservation of this data is a critical issue. At the moment, only 20% of the Universities have set up a system (Figure 23). This will be a future task of Universities. Forty-five percent of the Universities have not yet initiated the discussion. Notably, only 20% of the Universities have installed the system. Specifically, the Australian National University, the University of Oregon, the National University of Singapore, the Peking University, and the Tohoku University have set up such an archiving system.

3.7 Others

3.7.1 What are the Major Challenges to Develop the Mechanisms, Systems, and Activities of Disaster Preparedness on Campus?

- Multi-hazards and complexity of disasters
- Collaboration between different departments
- Lack of safety awareness
- Joint disaster drills distributed over multiple campuses
- Securing the budget for DRR measures, including infrastructure
- Stable funding for the program, executive support, and lack of interest by the general campus population for preparing for infrequent catastrophic events
- Buy-in: Getting departments and individuals to invest time to evaluate emergency preparedness
- Awareness raising and active participation among all participants
- Engagement of faculty and student bodies. Embedding consistent knowledge across the entire university community
- Prioritization of what are considered critical activities from an institutional perspective and allocation of appropriate resources towards disaster preparedness
- Time available for emergency preparedness, training, and systems because of heavy workloads and schedules
- Resources, funding, and staffing.

3.7.2 What are the Activities that Your University Has Prioritized; however, They Have Not Yet been Materialized, in Terms of Disaster Preparedness on Campus?

- Emergency alert system
- Establishing a cooperative network among staff in a safety office and professors who are experts in DRR
- Campus-wide simultaneous evacuation drills
- Developing a recovery plan
- Systems to confirm safety of students and staff
- Improvement of strategic plan, current system, and emergency plan
- Crisis management team training, understanding of university resilience management framework, enhanced emergency communications
- Preparedness and management of thick haze
- Development and implementation of campus medical and mental health response teams, development and implementation of a recovery plan, creating additional disaster supply stockpiles
- Use the expertise and capacity of each department—geophysics, engineering, and psychology—in disaster forecasting, response, and mitigation

3.7.3 What Type of Assistance Would Your University Like to Have From Other APRU Institutions in Terms of Disaster Preparedness or Response on Campus?

- Sharing tools for assessment, manuals of different disasters, training materials, and good practices of DRR
- Sharing good practices, cases, and lessons learned regarding disaster preparedness and response
- Information sharing on DRR measures by Universities
- Sharing the earthquake recovery plan
- Coordination and facilitation of sharing, exchanging experiences, and knowledge. Organizing trainings

and workshops on campus safety for capacity development

- Listing of prioritized critical activities for which emergency response and recovery have to be developed for the purpose of disaster preparedness
- How to respond to local residents' evacuation

3.7.4 Any New Ideas for Disaster Preparedness Activities That You Think Universities Should Have and Need to Adopt (That Have Not Been Included in This Form).

- Developing risk assessment reports for different disasters on the basis of the prepared manual and countermeasures
- Developing a business continuity plan and natural disaster management plan
- Instituting decision-making drills, in addition to regular evacuation and simulation exercises
- Developing internal self-support and self-rescue systems, while seeking the most effective assistance from governments, institutions, and groups
- Developing a whole community approach, where all university community members actively participate in safeguarding themselves, their departments, and their campus, similar to the concept of "it takes a village to raise a child," all stakeholders must actively participate to benefit
- Participating in Community Emergency Response Team programs for their campus

4 Summary and Implications

4.1 Key Findings

Governance Action: As shown in Figure 24, many Universities have good capacity in the areas of Governance Actions. A countermeasure office (response coordination office) and a response plan have been well developed among the Universities. However, further efforts are required in regularizing simulation exercises and setting up information sharing and early warning systems.

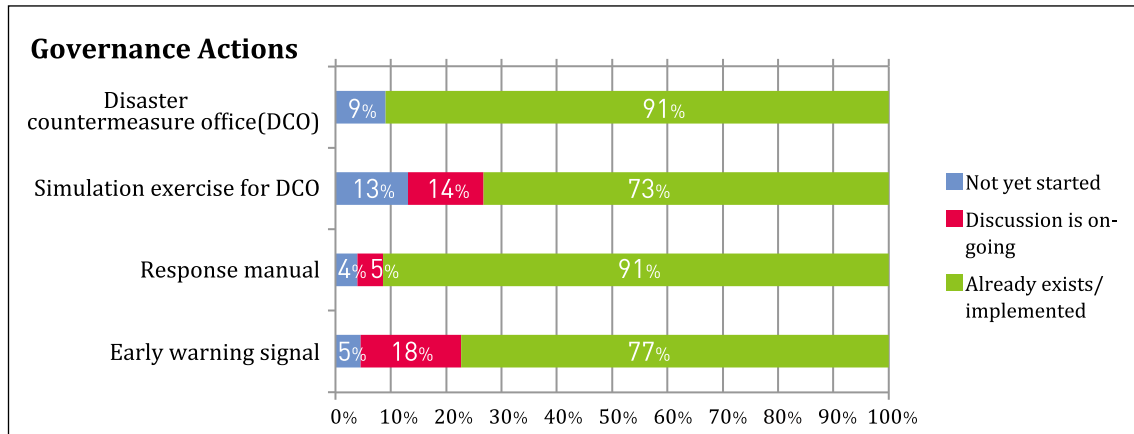


Figure 24: Summary of responses for Governance Actions

Risk Assessment: Figure 25 implies that risk assessment will be the area that the Universities need to carefully consider and many Universities need further development in this area. Even if initiated, the results have not been fully utilized for developing a natural disaster preparedness strategy or plan. Perhaps it is targeting other disasters, chemical hazards, etc. Universities in the U.S., such as the University of Oregon, the University of Hawaii, the University of California, Santa Barbara, the University of California, Los Angeles, as well as the University of California, Irvine, seem to have strong experience in risk assessment. They have plans in place to prevent the occurrence, react to it, and mitigate the effects, and recover from each hazard.

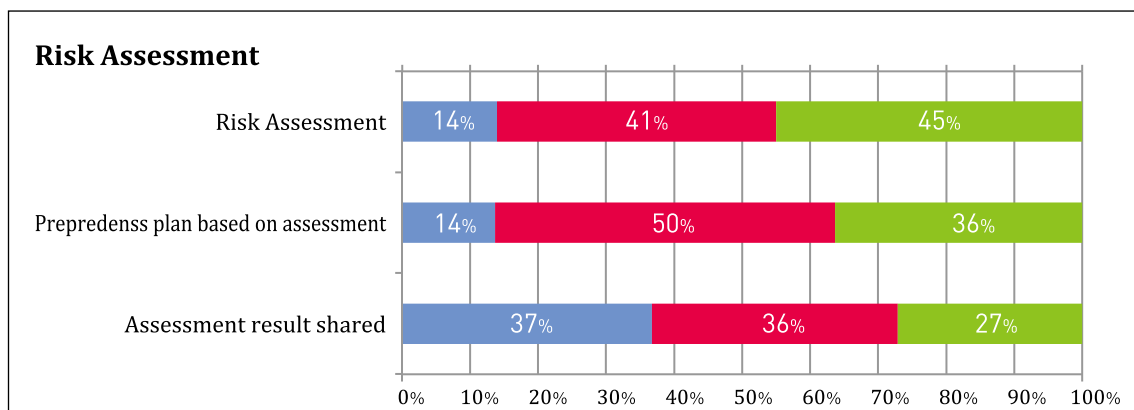


Figure 25: Summary of responses for Risk Assessment

Disaster Preparedness: Mechanism and capacity in terms of disaster preparedness, the areas of natural disaster resistant structures, emergency communication systems, and awareness raising activities were further developed as shown in Figure 26. Especially, the attention given to the disaster-resistant structures

and awareness-raising activities were very strong. The following awareness activities have been initiated:

- Disaster response exercises for incident command staff
- Workshops on lab-safety
- Evacuation drills
- Annual preparedness fairs, quarterly tests of the emergency notification systems
- Public outreach—community preparedness workshops on campus
- Online fire-safety awareness programs
- Disaster response manuals

However, Universities need to perform further tasks on safety confirmation, developing preparedness handbooks and their distribution, and special guidance for foreign students.

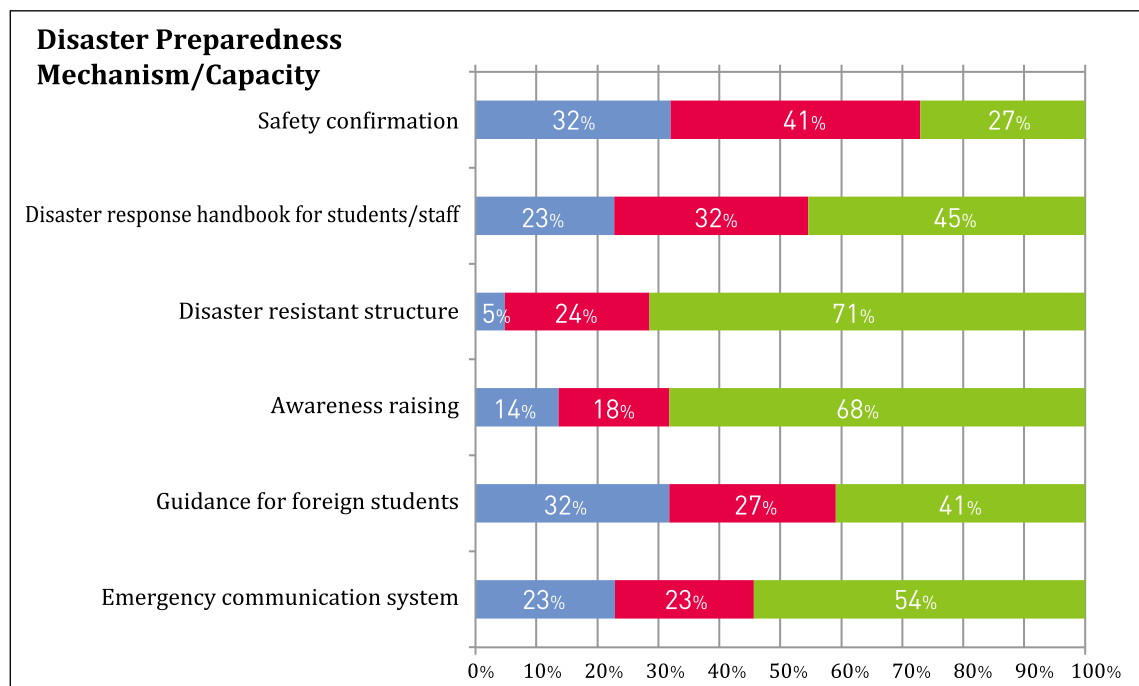


Figure 26: Summary of responses for Disaster Preparedness Mechanism/Capacity

Response Capacity: The basic response preparedness immediately after a disaster has been already put in place, including a stockpile of emergency items and the capacity and implementation of building inspections (Figure 27). Expanding the provision of their support and reaching out to communities is a new area and it is possible by developing a mutual agreement with neighboring universities and dispatch volunteers to local governments and communities.

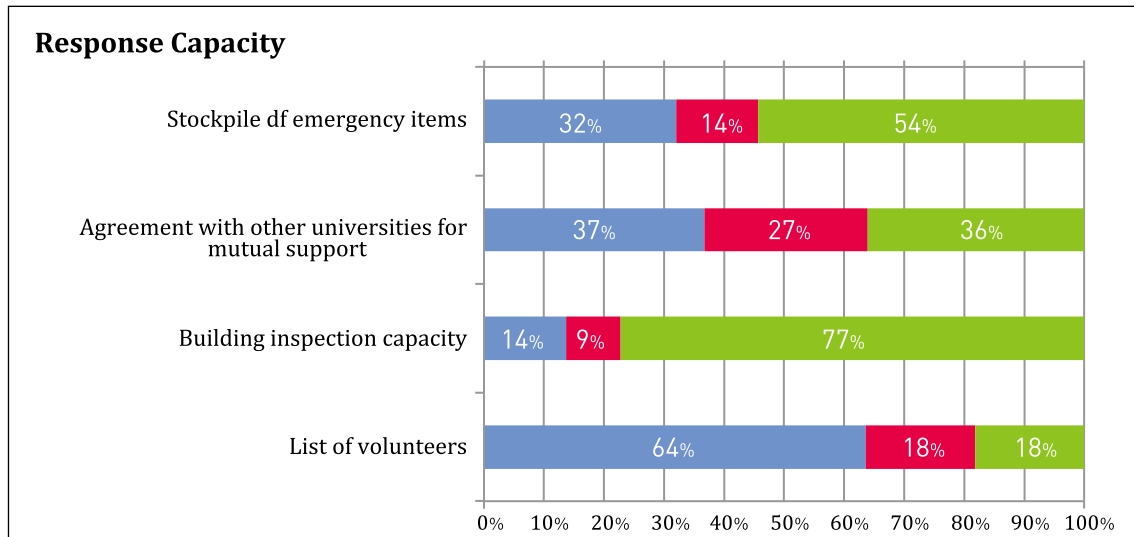


Figure 27: Summary of responses for Response Capacity

Support System for Students, Faculty Members, and Staff: Nearly half of the Universities have a policy in place to support foreign students in emergencies (Figure 28); however, the Universities need to further emphasize this topic. The Universities must prepare, from an administrative perspective, to assist students, specifically from overseas so that they can smoothly resume their studies. Without such a policy, the situation will be confused and it will take time for students to return to the Universities. The importance of providing psychosocial support to students, faculty members, and staff is well managed and more than 70% of the Universities have already had a support system for this purpose.

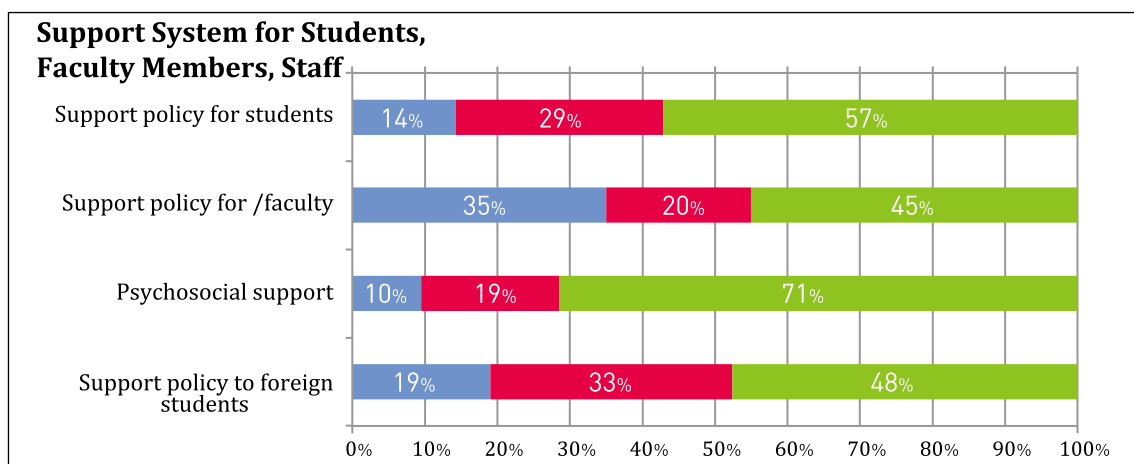


Figure 28: Summary of responses for Support System for Students, Faculty Members, Staff

Data Preservation: At least, in case a large scale disaster occurs, Universities should look into the need for collecting information and record the response activities and the damage situation which will provide a research resource. Figure 29 shows that half the Universities have such initiatives in place; however, systematic preservation so that the data can be utilized by third parties is a challenge. Some of the Universities have already installed the system and could be shared among the Universities that are interested in developing the system.

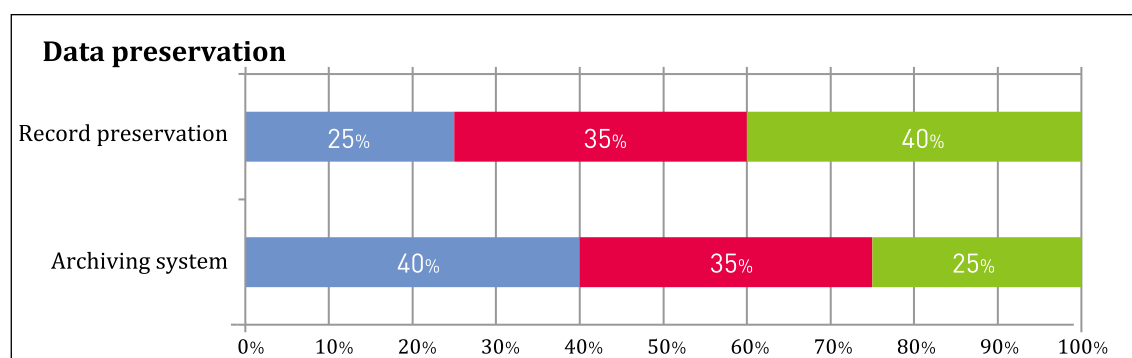


Figure 29: Summary of responses for Data preservation

Table 1: Strengths and potential in six areas of disaster management

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

Strength:* More than 50% of the Universities answered, "already existed"

*Potential**:* Less than 50% answered, "discussion is on-going" or "not yet started"

As shown in Table 1, out of the six areas, the area of **risk assessment** requires more attention and effort. On the basis of the risk assessment, knowing and learning the risks and developing counter-measures to mitigate

these risks is possible. If Universities have already conducted risk assessment and had experience, especially the Universities located in disaster prone areas, the results are maximized to develop its preparedness capacity. Most importantly, it is not sufficient in that it does not include the aspects of risk management and preparedness based on risk assessment. Attention should be given to the pre-disaster phase and mitigation of the risks, as well as the effective response.

In addition, **early warning and alert systems** have not been installed widely. An early warning system is extremely crucial to implement an instant response action, such as evacuation. Moreover, the further **support and consideration for foreign students** is required. Universities have important responsibilities to provide sufficient knowledge and support before and after disasters for foreign students who have language barriers and less knowledge of local hazards.

However, many Universities already have a mechanism in place to establish a counter-measure office and have developed a response manual and plan. In addition, physical structure areas, such as disaster-resistant structures, emergency communication, and emergency stockpiles, have been progressed compared to other areas. Furthermore, the support toward psychosocial aspects has been provided after disasters, and many Universities have policies to provide such support.

4.2 Challenges

Many Universities have encountered financial constraints when developing preparedness capacity on campus, human resources challenges, difficulties understanding risks and safety issues, and encountering a lack of participation by faculty and staff. These are common challenges to many Universities. To improve the situation and current capacity, it is important to raise awareness among the faculty and staff for the need for capacity development and for financial and human resources support.

4.3 Potential

Many Universities requested the support from other Universities by sharing tools and good practices. The MH program will research how the Program can provide support to the Universities to strengthen the preparedness capacity on campus (e.g., sharing the materials or planning a workshop on campus safety).

On the basis of this report, there was a suggestion and request from some Universities to promote this concept to the senior management at their Universities to convince them to develop and/or enhance the campus safety concept. Consideration should be given to forming a working group on campus safety and discussing the next step of this project.

Although this survey pertained to natural disasters, other areas and factors, such as a pandemic, were taken into consideration in some responses to the questionnaires. The term “disaster” was understood not only to natural disasters but also man-made disasters. Therefore, it cannot be concluded that this survey was entirely focused on natural hazards. Some questions were answered on the basis of their capacity for different types of disasters. Even if a disaster includes various disaster types, the most important thing is for the Universities to pay attention to crisis/disaster management and understand the need for the preparation of these disasters. In this sense, either natural or man-made, the Universities ready for disaster preparedness can easily expand the coverage for natural disasters if necessary.

In addition, the departments and offices that answered the questionnaires were selected by each University. Some Universities have a safety management office that is specified for managing safety issues on campus and have strong knowledge on disaster preparedness. However, some questionnaires were answered by general affairs offices representing the University. In this case, their disaster-related knowledge and their countermeasures may be limited. It is possible that their disaster preparedness capacity was not properly observed and therefore inaccurately reflected in this report. In the interests of accuracy and detailed understanding of the progress of preparedness level, future surveys should be answered by disaster experts or faculty members.

Appendix I: Activities that has ever been taken for disaster preparedness, response and recovery by the APRU member universities

- The earthquake drill has been performed in any buildings in the campus. The AED are installed in many places in the campus and the training of using AED is ongoing. A center is in charge of preparing the manual of disaster prevention and a committee is established for the disaster but the assessment is not yet performed. **(National Taiwan University)**
- Disaster preparedness: distribute brochures; organize compulsory classes
Response: launch the alarm system; extensively disseminate information on counter-measures of disasters; set up steering committee and working teams
Recovery: collect data on disaster loss and provide relief supplies **(Zhejiang University)**
- Introduction of Early Earthquake Warning System, Disaster Drills, and Compilation of records/data from the Great East Japan Earthquake and Tsunami (<http://www.tohoku.ac.jp/japanese/disaster/earthquake/01/earthquake0101/>)
(Japanese only) **(Tohoku University)**
- Following any type of incident, we conduct an after action report to identify what went well and what could be improved upon. The areas for improvement are identified as action items to work on before the next incident. In addition, from an earthquake risk standpoint, the university is using its capital construction program and funding to work on retrofitting the older buildings on campus that have higher earthquake risks. **(University of Oregon)**
- Installation of emergency equipment in selected rooms and buildings such as emergency telephone lines, LAN, TV, emergency power supply, generators, and preparation of a two-ton crane truck to bring emergency generators to headquarter and to carry a one-ton water tank from water service point conducted by city office, preparation of foods and cooking gears for evacuees (8000) in campus. Simulation exercise of large scale evacuation using virtual reality software (on-going) **(Osaka University)**
- The departments of the university have the personnel on duty to report an incident to Office of the President or to the police. After reception, Office of the President will launch the emergency response plan as appropriate, and each department will response according to the plan. **(Peking University)**
- Secured means of maintaining communication within the university. Each department assigned a second evacuation site to which they relocate to once everyone has assembled at the first assembly area.
Guidelines for initial action following a large earthquake. An Earthquake Early Warning System for within the University has been set up. Have begun to establish a group for provisional quick inspections of damaged buildings after an earthquake.
Set up assembly procedures for faculty and staff of the central administration office.
Guidelines made for stocking emergency provisions for each department. **(University of Tokyo)**
- The University of Hawai'i at Mānoa, is a key and active partner and contributor with the development of the State of Hawai'i Hazard Mitigation Plan, as well as with our 4 counties.
The University has many key staff and departments actively involved in the development of training, education, and research in the fields of Disaster Resilience, Emergency Management, and Business Continuity. While there are many examples and activities which we've participated in, a few of the most

notable initiatives include:

- ✓ Establishment of the University of Hawai'i at Mānoa Office of Emergency Management and the reorganization into the Campus Security and Emergency Management Department.
 - ✓ Development of System and Campus Emergency Management and Response Plans.
 - ✓ Establishment of a liaison representative from the University with Federal, State, County, and NGO Emergency management and recovery agencies.
 - ✓ Partnerships and funding with the US Geological Service for monitoring of stream water conditions and levels.
 - ✓ Active participation with Federal, State, and County agencies notably the US Army Corps of Engineers, and the State Department of Land and Natural Resources addressing the Mānoa Watershed Mitigation Plan.
 - ✓ Corrective actions post incident from the 2004 flash flood, with flood mitigation measures implemented, such as: Structural corrections and enhancements to various campus buildings affected, notably the Hamilton Library, and Strategic Planning with development and construction of the UH Information Technology Center.
 - ✓ Establishment of the: National Disaster Preparedness Training Center (www.ndptc.hawaii.edu), Pacific EMPRINTS (<http://www.emprints.hawaii.edu/>), Greater collaboration with various departments on emergency preparedness, including the School of Nursing and Dental Hygiene and their disaster response mass casualty training and simulation drills. **(University of Hawai'i at Mānoa)**
- The Office of Typhoon & Floods Control was established in Fudan University to react to the related disaster. **(Fudan University)**
 - Incidents that require activation of the emergency crisis team have recorded notes of actions and recovery activities. External training providers assist with activity plans and skill development across a wide range of Faculty and Service Divisions. **(University of Auckland)**
 - The UCSB Emergency and Continuity Planning Program enjoys strong campus leadership support. UCSB works with emergency managers and first responder agencies in the Santa Barbara County Operational Area on activities including a county-wide multi-agency functional earthquake exercise, public education, CERT, implementing WebEOC for all County agencies, and developing a Public Information Officer network. UCSB is also partnering with the Isla Vista community to provide members of the UCSB and Isla Vista communities with disaster awareness and emergency preparedness training and response resources.
- On campus partnerships are being strengthened through earthquake workshops with Facilities Management and Student Affairs. Campus evacuation planning brought UCPD, Parking & Transportation Services, EH&S, Housing, as well as outside partners to formalize the campus evacuation plan. Campus Design & Construction recertified staff through CAL OES in the Safety Assessment Program, and UCSB updated its earthquake damage assessment plan. Exercises were conducted with the EOC team for scenarios dealing with an active shooter and campus protests. Campus exercises with community partners included a Medical Shelter exercise with Santa Barbara County Public Health and a Santa Barbara Airport Family Assistance Center exercise. UCSB completed the installation of outdoor warning speakers across campus as part of its mass notification system. With a matching 'Aware & Prepare Initiative' grant, UCSB purchased a 500-gallon fuel trailer to support the campus emergency generator program. **(University of California, Santa Barbara)**

- At UNSW, we have developed strategies to manage emergencies and these have been subject to simulation exercises in collaboration with government emergency response agencies such as Fire Brigade, Police and Ambulance Services. **(University of New South Wales)**
- After a major fire incident, the university has a team to conduct the post-incident investigation. This team will collect data and information through the electronic access control system, CCTV, report and activation log, interviews of various personnel involved, and others. The results, findings and recommendations are recorded in the investigation report. **(National University of Singapore)**
- Periodical revision of a disaster response manual, Continuous review of the list of stockpiles for disaster prevention, biennial evaluation of a seismic performance, and so on. **(Waseda University)**
- In addition to our campus Emergency Operations Plan (EOP), conducting training and exercises with our Emergency Operations Center (EOC) and Department Operations Centers (DOCs), UC Irvine has also implemented a building evacuation program (Zone Crew) as well as a campus CERT program (Campus Search and Rescue - CSAR) to train various staff and faculty across the campus on emergency preparedness and response measures. Additionally, a number of other training programs are offered throughout the year to provide students, staff, and faculty with campus emergency management information as well as personal preparedness information. **(University of California Irvine)**

Appendix II: The existing disaster preparedness related documents/materials such as a disaster response/preparedness plan, the result of risk assessment on campus, a disaster response/preparedness handbook/macula for staff, students and faculty members or any kind of disaster response/preparedness guideline.

- A disaster response/preparedness plan; and disaster response/preparedness handbooks/manuals for staff, students and faculty members against floods, tsunamis, earthquakes and fire. **(Far Eastern Federal University)**
- Manual of Campus Safety. (In Chinese) **(National Taiwan University)**
- Zhejiang University Contingency Plan of Preparedness and Response to Meteorological Disasters; Preparedness Plan on Public Emergencies **(Zhejiang University)**
- Earthquake Response Manual” (For students and faculty/staff members. Available in English and Japanese), Fire safety plans created by each of Keio’s campuses. **(Keio University)**
- Great East Japan Earthquake Record Compilation, Disaster Management Manual, Pocket Manual **(Tohoku University)**
- Emergency Procedures Flipchart - <http://emc.uoregon.edu/node/50>
Emergency Kit Calendar - <http://emc.uoregon.edu/sites/emc.uoregon.edu/files/uploads/Supply%20Calendar%20Brochure.pdf> **(University of Oregon)**
- General guideline for natural disasters, "Preparing for disasters" (in English/Japanese), Manual for emergency state (in Japanese), Manual of immediate response in case of earthquake (in English/Japanese), Reporting form for any kinds of accidents (in Japanese), Template of fire and disaster prevention guideline for departments (in Japanese) **(Osaka University)**
- The University of Tokyo Disaster Prevention Measures (temporary name), 2013 Manual for Disaster Prevention (temporary name), Guidelines for initial action following an earthquake measuring greater than ""5-lower"" on the Japanese seismic scale, Guideline for stocking emergency provisions. **(University of Tokyo)**
- University of Hawai'i National Disaster Preparedness Training Center (NDPTC)

FEMA recognized training manuals (<https://ndptc.hawaii.edu/training/documents>)

University of Hawai'i System Hazard Mitigation Plan (http://www.hawaii.edu/emergency/mitigationplan/docs/UH_Multi-Hazard_Mitigation_Plan.pdf)

University of Hawai'i at Mānoa Pandemic Preparedness Response Plan (<http://www.uhm.hawaii.edu/emergency/management/UHMPRPAppendixA1A3.doc>)

SEA GRANT - Homeowners Handbook to Prepare for Natural Hazards (http://seagrant.soest.hawaii.edu/sites/seagrant.soest.hawaii.edu/files/publications/homeowners_handbook_to_prepare_for_natural_hazards.pdf) **(University of Hawai'i at Mānoa)**

- Resilience Management Plan, Crisis Management Plan, Business Continuity Plan in progress **(University of Auckland)**
- Comprehensive emergency operations plan (EOP) which includes hazard specific annexes for the 10 most likely hazards to be encountered at UCLA. Emergency Action Plan and Departmental Emergency Response Plan templates for use by subordinate organizations. Disaster Initial Response Team plan and exercises for those personnel needed to immediately assess damage and respond after a disaster. Detailed checklists for the Emergency Management Policy Group (senior management) and Campus Emergency Operations Group. **(University of California, Los Angeles)**
- Emergency Response Plan, Critical Incident Response Strategic Framework, Business Impact Analyses and Business Recovery Plans. **(University of New South Wales)**
- Pandemic preparedness and management plan, Fire safety preparedness system and programmes, fire evacuation plans, Management of staff and student with mental health illness, threat of violence, harm to self and others, suicide threat, Management of serious injury and death, Guidelines and training for student leaders in organizing high risk activities and overseas events, Guidelines on factors of safety considerations on organizing activities and events, and Guidelines and advice on overseas trip. **(National University of Singapore)**
- Emergency Operations Plan, Emergency Operations Center Standard Operating Procedure
UCI Emergency Procedures Flip Chart, Guide to Emergency Communications Across Campus
Crisis Management Guide for the Chancellor's Executive Policy Group, Department Operations Center (DOC) Plans, Pandemic Influenza Annex, Damage Assessment Annex, Care and Shelter Annex **(University of California Irvine)**
- The Emergency Contingency Plans of Peking University; Safety Knowledge for College Students (which introduces the fire safety, traffic safety, personal security, financial security, network security, natural disasters and disaster reduction, social practice and travel safety, etc. and it is pressed by China Machine Press), College Students' Safety Knowledge Manual (issued by the Education Working Committee of Beijing Municipality and revised by the Security Department of Peking University), Security Service Guide (which includes the personal and property safety, fire and natural disasters protection, suitable for first-year students to understand the basic safety common sense), Students' Safety Knowledge Handbook On Fire control and *ABC Traffic Safety and Untie the Regiment Hemp* (the form of a comic on traffic safety knowledge)
(Peking University)

Appendix III: Higher-ranking Universities (10) in disaster preparedness capacity

The points were calculated on the basis of their answers – “Already exists/implemented” (3 points), “Discussion is on-going” (2 points), and “Not yet started” (1 point).

Figure 30: Disaster preparedness capacity by the University

