

 <p>ISSN NO. 2320-5407</p>	<p>Journal Homepage: -<a href="http://www.journalijar.com">www.journalijar.com</a></p> <h2>INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)</h2> <p>Article DOI:10.21474/IJAR01/7643 DOI URL: <a href="http://dx.doi.org/10.21474/IJAR01/7643">http://dx.doi.org/10.21474/IJAR01/7643</a></p>	 <p>INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) ISSN 2320-5407 Journal Homepage: <a href="http://www.journalijar.com">http://www.journalijar.com</a> Journal DOI:10.21474/IJAR01</p>
-------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### RESEARCH ARTICLE

## DRRM CAPACITY AND DISASTER VULNERABILITY OF A CAMPUS OF A STATE UNIVERSITY IN THE PHILIPPINES: AN ASSESSMENT.

Archieval M. Jain and Elena M. Manaig.

Laguna State Polytechnic University (Siniloan Campus) Siniloan, Laguna, Philippines.

#### Manuscript Info

##### Manuscript History

Received: 02 July 2018  
Final Accepted: 04 August 2018  
Published: September 2018

##### Keywords:-

DRRM capacity, disaster risk reduction, vulnerability, campus safety

#### Abstract

This study assessed disaster risk reduction and management (DRRM) capacity and the vulnerability of Siniloan Campus of Laguna State Polytechnic University (LSPU-Siniloan) as these are factors of safety and security. A checklist of policies, procedures and practices that must be observed, and equipment and devices that must be present in the campus was prepared. The heads of offices or units and some student leaders as respondents were requested to accomplish the checklist. Results showed that there are items such as written plans, labels, that were assessed as existing while actually not; there are also items that were assessed as not existing while they are actually present in the campus. Wearing of ID and uniform among students is observed but not always among personnel. Other items that are observed as assessed by most of the respondents are the proper construction and location of roads, implementation of one-point entry and exit, conduct of hazard drills and education campaign, installation of CCTV cameras, and provision of first aid kits. Results imply that the information about the existence, adequacy and effectiveness of the campus safety and security provisions are not fully known to those in supervisory positions. The results will be a good reference in making a Campus Safety and Security Manual or a Campus DRRM Plan.

Copy Right, IJAR, 2018,. All rights reserved.

#### Introduction:-

Education is a human right and it shall not be hampered by disasters. It should be a policy of all educational institutions to provide a secure and safe environment for students, faculty and other personnel. Hazards, such as typhoon, flood, landslide, earthquake, water shortage or fire, should be part of the management plan of a school or university.

Laguna State Polytechnic University (LSPU) is one of the higher education institutions in the Philippines. It has four large campuses (Sta. Cruz, Los Baños, San Pablo City and Siniloan) and two satellite campuses (Nagcarlan and Magdalena), all in the province of Laguna. Siniloan Campus is located in a flat land at sea level elevation in the municipality of Siniloan. (The Map of Laguna indicating the locations of campuses is shown in Figure 1). It is facing Sierra Madre Mountain in the East and is near Laguna Lake at the backside (West). The campus is most vulnerable to typhoon and flood; it had been submerged in about 1.5-m deep water that lasted for about 3 months, for several times, the most recent were in 2009 due to Typhoon Ondoy (Ketsana) and in 2012 due to Southwest monsoon rains locally known as "Habagat". The floods caused considerable damage to research and production

**Corresponding Author:- Archieval M. Jain.**

Address:- Laguna State Polytechnic University (Siniloan Campus) Siniloan, Laguna, Philippines.

projects, equipment, supplies, buildings and other structures. The submergence of the campus also caused disruption of classes and other school activities. The campus is also vulnerable to looting and theft as it is fenced only in the front and right sides.



**Figure 1:-** Map of Laguna Province Showing the Locations of the Four Campuses.

The campus community has strengths, capacities and resources that need to be identified. It has some physical protection measures, as well as response and recovery capacity and resources that can be activated to reduce risks and to speed up recovery. However, there are other factors that make the campus vulnerable to natural and man-made hazards. Hence a survey was conducted to assess its disaster risk reduction and management capacity as well as its vulnerability.

The study was conducted for the following objectives:-

1. To identify the strengths of the campus in terms of campus security and DRRM.
2. To identify the weaknesses of the campus in terms of campus security and DRRM.
3. To identify the resources which that can be mobilized in times of emergency

### **Methodology:-**

A checklist of policies, procedures and practices that must be observed, and equipment and devices that must be present in the campus was prepared. The checklist contained items answerable by “Yes” or “No” which refers to whether the items listed are seen by or known to the respondents or that the stated rules/policies are being implemented. The items were on campus security and disaster risk reduction and management. The heads of offices or units such as vice presidents, deans, directors and chairpersons as well as student leaders were chosen as respondents because they have offices and have custody of all the equipment, devices, appliances and supplies issued for the use of their offices. The deans, for example, as heads of colleges are responsible for keeping safe the building that houses the students and everything contained in the college buildings. Some student leaders as respondents were requested to accomplish the checklist. The Yes and No responses were tallied for each item in the checklist. Remarks were also solicited and included in the tabulation.

## Results and Discussion:-

Most (91%) of the respondents reported that elements of structural safety are observed in the campus. The elements include that roads are concrete, well maintained, strategically located, accessible, clear of blockage, and aligned properly. The remarks were that not all roads are properly maintained and labeled for directions and for locating buildings. For buildings, majority (65%) of the respondents reported that the building labels and posting of building plan are followed. As labeling and posting of building plans for the existing buildings are important, Anthony et. al., (2016) suggest that it is more effective to integrate safety and security concerns into the design of new and newly remodelled school buildings from the start or during renovation process. For existing buildings and facilities, a map that marks the vulnerable portions will help in the campus disaster management (International Finance Corporation World Bank Group, 2010).

For the implementation of Visitor's Pass and Vehicle Gate Pass, majority (68% and 61%) answered that these are being done but only few agreed that bags and boxes being brought inside the campus are being inspected. Some (19%) commented that this is done only occasionally.

There are different types of people that enter the campus based on purpose of entering and/or staying for some time in the campus. These are students, personnel, visitors, farmers that need to pass through university premises in going to their ricefields, and those involved in construction and other projects inside the campus. Almost all (97%) the respondents observe that students are checked for wearing of prescribed ID and uniforms and earrings for boys but less than majority (39%) reported that students are being checked for carrying of deadly weapons and for smoking and intoxication with alcohol and/or drugs. For personnel (faculty, staff and those in the administration), it is only on wearing of prescribed uniform for which majority (52%) reported that rules are being observed. Less than majority reported that personnel are being checked for ID (29%), carrying their vehicle ID and gate pass (32%), smoking not in designated smoking areas (38%) and for alcohol intoxication (16%).

For visitors, implementation of visitors' log book, presentation of valid ID for identification and coordinating visit of VIP(s) are reported by majority (58%) of respondents. For farmers that need to pass through university premises, less than majority (36%) of the respondents reported that rules governing them (except on bringing harvested products) are being followed. The respondents are divided on whether the rules governing the personnel involved in construction and other projects inside the campus are being observed or not. Majority also responded positively that rules are observed in not allowing anyone, except military men bearing arrest or search warrant, in carrying any deadly weapons. Related to this is that International Finance Corporation World Bank (IFCWB) Group (2010) lists visitor registration as part of hazard specific response procedure. This is to protect visitors from all hazards, and to protect students and staff from intruders. The IFC-WB further suggested that schools must maintain a single entrance and registration system with nametags for visitors, so that staff and students will know that unfamiliar people have identified themselves before moving around on campus. It is important that these rules are communicated widely, that visitors are in the registration process and that a daily visitors' log is kept by the administration office.

Concerning the movement of vehicles to, inside and from the campus, including traffic routes, gate pass and bay areas, majority (76%) said that policies are existing. However, there are comments that such policies are not fully and consistently implemented. Less than majority (41%) of the respondents observed that policies regarding clearance for entry, parking and imposition of penalty are followed.

About requiring students to secure Permit to Work Overtime and Authority to Work Overtime for personnel when working or conducting activities in the university premises beyond 5:00 pm, majority (68% and 74%) of the respondents reported that these are done. Requiring clearance and accounting by the guard on duty before any university property can be brought outside the campus are also noted by the majority (65%) of the respondents. Majority (72%) also reported that appropriate keeping of classroom and laboratory keys by guards on duty, and duplicates by heads of offices is observed in the campus.

Other rules for which majority of the respondents agree as being done in the campus are regular inspection of electrical wiring (52%), implementation of schedule of turning on/off of lights and aircons (65%), installation of CCTVs in strategic locations (97%) and having written policies in cases of crimes, violation of rules on illegal activities, and environmental accidents (71%). International Finance Corporation World Bank Group (2010) suggests that fire prevention and fire safety measures are part of the initial school design, and also require regular

maintenance and testing, thus it should be made sure that flammable and hazardous materials sources (which includes electrical lines and appliances, heaters and stoves, natural gas pipes and LPG canisters, flammable or combustible liquids) are limited, isolated, eliminated, or secured.

Policies/Rules/Practices on disaster risk reduction and management are divided into five categories, namely, for organizing task force and planning, for pre-emergency, for preparedness, for mitigation (minimizing source or causes), and for adaptation (minimizing/coping with effects). All items, except having formulated and approved Evacuation and Relocation Plan, under the category organizing task force and planning were reported by the majority of the respondents as observed. FEMA (2003) indicated that the active commitment and involvement of the institution's chancellor or president and chief academic and business officers and an inventory of available resources are equally crucial. A campus-wide master plan that identifies the location of potential hazards is significant in mitigation planning. Guevarra et. al., (2007) in their Assessment of Disaster Preparedness in Selected Public Schools in Luzon, Philippines found out that the majority (95%) of the public school key personnel were aware of the national and local disaster management programs and that all (100%) of them were aware of disaster-related Department of Education policies on DRRM.

For pre-emergency, almost all the respondents reported that hazard drills (94%) had been conducted. Other items with high frequencies of "yes" answers are conduct of employee orientation, demonstrations of warning system, having adequate and functioning communication systems and having evacuation routes, alarm and fire extinguisher locations, and emergency contact numbers clearly printed in durable material and posted/displayed in conspicuous places.

For preparedness, there are many items with high frequencies of "no" responses which means the respondents did not see them as having been done, provided or followed. For mitigation, majority of the respondents reported as having observed all of the items except, having water system well-maintained and having all buildings well-maintained with all worn-out/destroyed/broken parts repaired. For adaptation measures, having disaster task forces organized, disaster education and conduct of drills and trainings for different types of disasters (capability building) got high frequencies of affirmative answers.

In the National Campus Safety and Security Project Survey among colleges and universities in US conducted by National Association of College and University Business Officers (n.d.), it was reported that conducting active exercises (e.g., drills and practices that mimic real hazards) was not widespread on campuses. However, in those campuses where drills were conducted, the most common groups that participated were campus public safety officers and staff, public safety officers and staff, campus executive leadership and local public safety and emergency response personnel. Slightly more than half of respondents (54%) said that students and faculty participated in drills, and 58% reported that campus IT professionals participated. This result underscores the importance of the participation of administration officials in the drills and hazard response simulation activities. As each stakeholder has his/her own responsibility in different phases of disasters, it is important that in each university, there be one person appointed by the university president to be responsible for the assessment effort. This person should be a high-level administrator who commands respect, particularly among faculty, and can inspire the cooperation of others with experience or data relevant to the issue. In addition to faculty, this may include graduate and upper division students under the guidance of faculty. In addition, campus administrative staff responsible for planning, facilities management, risk management or emergency response will have much to contribute to the initial work (Jaradat et al., 2015).

Based on the assessment, the strengths of the campus are:-

1. Having formulated policies/rules on different areas of campus security
2. Disaster education and response skills acquisition which included conduct of hazard drills, faculty staff and student orientation to different hazards and their management
3. Provision of emergency supplies such as medicine, first aid kits and sanitation items
4. Installation of CCTVs

The weaknesses identified were:-

1. As policies/rules are existing, the weakness lies on failure in communicating to and having them understood by stakeholders. Ahmad (2007) suggests that universities play a role in disaster reduction and an important source of information not only for the institution but also for the community but this can be accomplished if

physical characteristics and likelihood of disaster are assessed, and then formulate plans for preparedness and response.

2. As indicated by the respondents' remarks, many of the policies are not strictly and consistently implemented and applied to all. There are policies that are intended for example to all persons entering the campus but sometimes applied only to students but not to faculty, staff and administrators or even to outsiders. The Emergency Action Plan is known only to less than majority of the respondents.
3. There are equipment, vehicles and even parts of buildings that are not well-maintained.
4. The campus is not totally enclosed; the fence is only on the eastern (front) and northern (left) side. The backside and (right) southern side are open such that the campus is prone to thieves and intruders. Adjacent to these latter sides of the campus are ricefields owned/operated by different farmers. Many of these farmers are even passing through the campus gate and premises in going to their rice fields.
5. The campus is located in a low lying area and near Laguna Lake. It gets flooded easily during heavy rains

The resources that offer advantages to the campus are:-

1. There are faculty members that have undergone trainings on emergency and disaster management. They serve as resource persons during disaster education activities.
2. There are two-storey buildings which second floors can be used for evacuation of people and storage of properties as well as for the holding classes when the campus gets under flood for prolonged period.
3. Fire extinguishers are provided in all rooms and offices.
4. The campus has communication means such as cellphones, internet connections and warning devices.

Emergency management at the campus level refers to a comprehensive process, which should be put in place with consideration to its specific characteristics including capacity and vulnerability. It should ensure the safety of staff and students prior to, during and following emergencies. The emergency management process then should include four key elements- preparedness, prevention, response and recovery (Roberts and Stephens, 2002).

### **Conclusion:-**

Results of the survey suggest that although there are rules/policies on campus security and DRRM that are existing, it is doubtful if these are written and appropriately communicated to all concerned with the use of proper media such as manuals, posters, billboard or prints on walls, and procedures. The inadequate communication of the campus security and DRRM practices and plans with to those concerned is also shown by some or majority "yes" answers despite the fact that these items are not yet existing or not yet accomplished.

The results from this survey provide an important baseline assessment of DRRM capacity and disaster vulnerability of LSPU Siniloan Campus. The strengths in this area of management function can be identified and enhanced. Likewise, weaknesses can be recognized and consequently strengthened.

### **Recommendations:-**

Results of this survey can be used in formulating a Campus Safety and Security and DRRM Plan for LSPU Siniloan Campus. The same as other emergency management plans, this Campus Safety and Security and DRRM Plan should follow the principles of being comprehensive (covering all potential hazards), futuristic (anticipating future disasters and building a disaster-resistant and disaster-resilient campus community), risk-driven (based on sound risk management principles), integrated (ensuring unity among campus, community, LGU and even national officials and NGOs), coordinated (aligning resources and efforts of stakeholders), collaborative (providing for the participation/involvement of stakeholders), empowering (building skills and capacity), flexible (using creative and innovative approaches) and professional (science and knowledge-based approach).

In addition to all of the provisions for hazard and resource assessment, physical protection, and response capacity development, it is also necessary to include contingency plans for how to continue providing education to students as quickly as possible following hazard impact. This is especially true for campuses or schools that face recurring hazards such as floods. Means of water transport, rotational use of upper floor classrooms, homework modules, internet delivery of lessons are just some of the creative alternatives for making sure that education continues. In the post-disaster period, students can be encouraged to participate in recovery efforts, and have time set aside different psychosocial support activities, and opportunities.

**Acknowledgement:-**

The authors acknowledge the United Nations World Food Programme Disaster Preparedness and Response/Climate Change Adaptation (DPR/CCA) Program for the fund granted to Laguna State Polytechnic University, Siniloan Campus. This paper is part of the output of the project.

**References:-**

1. Ahmad R. (2007): Roles of the University in Disaster Management. Malaysian Journal of Medical Sciences, Vol. 14, No. 2, July 2007 (1-3)
2. Anthony, K. H., Johnson, S., and Nelson, J. (2016): *Maximizing School Safety in Troubled Times* in Principal Leadership March 2016. National Association of Secondary School Principals. USA.
3. Federal Emergency Management Agency (FEMA). (2003): *Building a Disaster-Resistant University*. USA.
4. Guevarra J. P., Ancheta, C. A., De La Pena, J. O., Ortega, A. R., and Lariosa, T. R. (2007): Assessment of Disaster Preparedness in Selected Public Schools in Luzon, Philippines. *Acta Medica* Vol. 41 No. 2 July-December 2007, pp 78-84
5. International Finance Corporation World Bank Group. (2010): *Disaster and Emergency Preparedness: Guidance for Schools*. Health and Education Department. Washington DC, USA.
6. Jaradat, A., Mziu, H. and Ibrahim, J.(2015): Disaster Preparedness in Universities. *International Journal of Computer Trends and Technology (IJCTT)* Vol. 19 No. 1 – Jan 2015
7. National Association of College and University Business Officers, et al. (n.d.): *Results of the National Campus Safety and Security Project Survey*
8. Roberts, M. and Stephens, M. (2002): *Emergency Management In Schools*, Paper presented at the Role of Schools in Crime Prevention Conference convened by the Australian Institute of Criminology in conjunction with the Department of Education, Employment and Training, Victoria, and Crime Prevention Victoria and held in Melbourne, 30 September – 1 October 2002