

THE IMPLEMENTATION LEVEL OF DISASTER RISK REDUCTION MANAGEMENT AT A LOCAL CITY COLLEGE

DOI: 10.5281/zenodo.18708689

Iah Marie Garcera

Student, Mandaue City College, Mandaue City, Cebu, Philippines
<https://orcid.org/0009-0001-7825-9683> | garceraiahmarie62@gmail.com

Rogieline Gabisay

Student, Mandaue City College, Mandaue City, Cebu, Philippines
<https://orcid.org/0009-0001-8154-9673> | gabisay.rogieline.mcc@gmail.com

Lia Marie Makiling

Student, Mandaue City College, Mandaue City, Cebu, Philippines
<https://orcid.org/0009-0008-9402-5941> | liamariemakiling@gmail.com

Merika Anne Cuizon

Student, Mandaue City College, Mandaue City, Cebu, Philippines
<https://orcid.org/0009-0002-8877-6892> | Merikacuizon@gmail.com

Jenny Maloloy-on

Student, Mandaue City College, Mandaue City, Cebu, Philippines
<https://orcid.org/0009-0002-3443-7473> | maloloyonjenny40@gmail.com

Mary Rose Ramirez

Student, Mandaue City College, Mandaue City, Cebu, Philippines
<https://orcid.org/0009-0005-1538-5278> | maryroseramirez00@gmail.com

Abstract:

The Philippines is in the Pacific Ring of Fire, where natural disasters occur frequently. Mandaue is not an exception to these natural calamities where the local college is. This study aimed to determine the implementation level of Disaster Risk Reduction and Management (DRRM) at the Local City College. This research employed a quantitative methodology, utilizing a descriptive statistic to analyze data gathered through a survey. Convenience sampling was utilized across three departments (Education, Business, and Technology), encompassing students, staff, and faculty members of Local City College. The survey questionnaire, adopted from Corpuz's 2019 study, was employed as a part of a descriptive quantitative approach. The survey was distributed via paper and pencil, and the collected data were then consolidated and analyzed to compute the weighted mean, representing the data's average value. The findings revealed the implementation level of DRRM measures in the institution is only partially implemented, particularly in earthquake, fire, flood, and readiness, which are all partially implemented. Consequently, this does not align with the mandates outlined in Republic Act No. 10121, specifically in section 14, which highlights the necessity for comprehensive disaster preparedness. This study identified areas for improvement and provided recommendations to enhance disaster preparedness measures. It encompassed various aspects such as undertaking regular safety drills and simulations quarterly, enhancing the emergency response protocols, allocating the budget for the repair and installation of safety alarms, and other equipment and many more. By implementing these recommended measures, the institution could enhance its resilience against disasters and ensure the safety of everyone.

Keywords: Implementation Level, Disaster, Flood, Fire, Disaster Risk Reduction Management

Introduction:

The Philippines is an archipelago that is in the Pacific Ring of Fire, which makes it highly vulnerable to natural disasters such as typhoons, earthquakes, volcanic eruptions, and more, as indicated by the Asian Disaster Reduction Center (2013). Statistically, the Philippines had the highest natural disaster risk in the world, with a disaster risk index (WRI) of 46.86, followed by Indonesia, with a disaster risk index of 43.5, and India (WRI 41.52) (Global disaster risk index, 2023). Thus, the government, International Non-Government Organizations (INGOs), and local NGOs (nongovernment organizations) are making efforts to mitigate the effects of disasters because by implementing essential emergency measures and actions, they can significantly reduce the potential damage caused by such events. That leads the way of the Republic Act No. 10121, the Philippine Disaster Risk Reduction and Management (PDRDM) Act of 2010, requiring all national government agencies to implement and facilitate DRRM for both national and local levels continuously.

Locally, Mandaue City, Cebu, was placed under a state of calamity in September 2022 due to flooding, which affected multiple barangays (Sunstar Philippines, 2022). Flooding has been a major problem in Mandaue, caused by improper disposal of garbage. Additionally, the number of fire incidents recorded in Mandaue City just in March 2023 is higher than in 2022. This highlights the significance of integrating DRRM strategies across all sectors of Mandaue City, including schools and workplaces. Section 14 of Republic Act No. 10121, requires the educational sector such as the Department of Education (DepEd), the Commission on Higher Education (CHED), and the Technical Education and Skills Development Authority (TESDA) to incorporate disaster risk education into the school curricula. This is to implement the DRRM program and recommend policy actions for a safe conducive learning environment. Unfortunately, for some schools like the Local City College, the implementation of DRRM is difficult because it shares its building with the Sports Complex, resulting in limited space and resources.

The researchers are driven to conduct this study by the challenges that students face during disasters such as floods during rainfalls and the presence of challenging routes for both students and staff. The researchers observed that between 2021 to 2023, safety drills including earthquake and fire drills, were conducted only once or twice, and no previous studies related to DRRM had been carried out at the institution. This led to the need to assess the implementation level of DRRM within the school. The school's safety procedures and practices determine the potential number of consequences or casualties when a disaster occurs. This study sought to determine the level of implementation of Disaster Risk Reduction Management (DRRM) at the Local College for the Academic Year 2023-2024. Moreover, the study results can be used to create an appropriate action plan at the institution.

Conceptual Background

This study was anchored in Section 14 of the Philippine Disaster Risk Reduction and Management Act of 2010, also known as Republic Act No. 10121, which promotes the enhancement of the country's disaster risk reduction and management system:

“Section 14. Integration of Disaster Risk Reduction Education into the School Curricula and Sangguniang Kabataan (SK) Program and Mandatory Training for the Public Sector Employees. – The DepED (Department of Education), the CHED, the Technical Education and Skills Development Authority (TESDA), in coordination with the OCD, the National Youth Commission (NYC), the DOST, the DENR, the DILG-BFP, the DOH, the DSWD and other relevant agencies, shall integrate disaster risk reduction and management education in the school curricula of secondary and tertiary level of education, including the National Service Training Program (NSTP), whether private or public, including formal and nonformal, technical-vocational, indigenous learning, and out-of-school youth courses and programs.

The NDRRMC, the RDRRMCs, the LDRRMCs, the LDRRMOs, the BDRRMCs and the SK councils shall encourage community, specifically the youth, participation in disaster risk reduction and management activities, such as organizing quick response groups, particularly in identified disaster-prone areas, as well as the inclusion of disaster risk reduction and management programs as part of the SK programs and projects.

The public sector employees shall be trained in emergency response and preparedness. The training is mandatory for such employees to comply with the provisions of this Act No. 10121.’

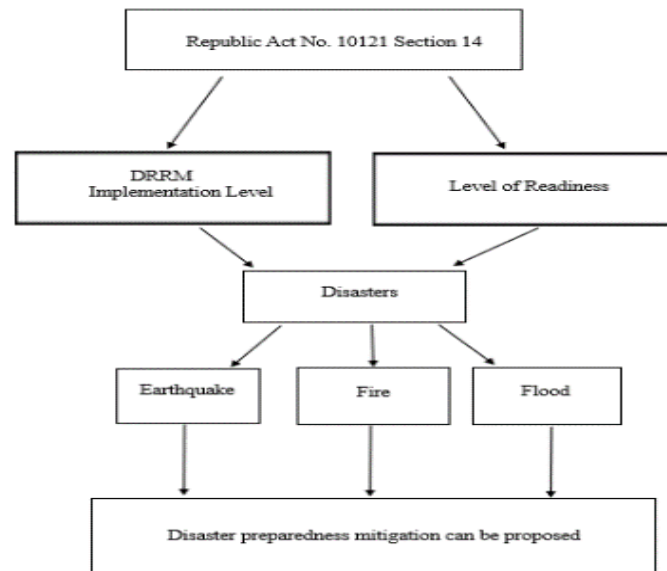


Figure 1. The Conceptual Framework of the Study

The Commission on Higher Education (CHED) is a council member of the National Disaster Risk Reduction and Management Council (NDRRMC). This affiliation highlights the involvement of CHED in imparting knowledge, skills, and values to students and the community by emphasizing the integration of DRRM education into school curricula (Miasco, 2017). Higher Education institutions are encouraged to improve their disaster risk reduction and readiness management (DRRRM) to ensure that everyone is safe inside the school. This could be accomplished in various means, such as conducting DRR activities and incorporating DRR education into subjects and programs like National Service Training Program (NSTP) (Tabangcura et. al, 2023).

One of the most common disasters that occur in schools are fires, floods, and earthquakes. To which, students are among the most affected individuals when these events happen. These disasters can disrupt their learning and pose significant hazards to their safety and health. Therefore, the level of readiness of the school to withstand such disasters is crucial for ensuring the safety of everyone and thus determines the number of casualties that may result from the event. According to CHED, addressing concerns such as the structural integrity of school buildings, safety equipment, evacuation areas, preparedness, and training is crucial for disaster readiness.

In this study, Republic Act No. 10121 section 14, serves as the legal foundation upon which the researchers based their work. This provides a framework for evaluating the school's level of disaster preparedness, specifically for common disasters like floods, fires, and earthquakes that occur within the city where the institution is situated. Based on the study's findings, recommendations were made to the School Administrators. With the collaborative support of all stakeholders, a holistic and proactive approach can be promoted, fostering a more resilient community, and improving the overall well-being of disaster-affected populations.

Literature Review:

Disaster is an event that disrupts the functions of various aspects of community, causing damage to buildings and infrastructure, loss of life, impact on the economy, and more. Recent statistics indicate that an average of 232 million people were affected by disasters yearly (International Federation of Red Cross and Crescent Societies, 2013). In response to this, the Philippine Disaster Risk Reduction and Management (PDRDM) Act was enacted in 2010, also known as RA 10121, aimed at mitigating the impacts of disasters and enhancing the country's resilience and preparedness. As stated in

Republic Act 10121, Section 14, 'Integration of Disaster Risk Reduction Education into the School Curricula and Sangguniang Kabataan (SK) Program and Mandatory Training for the Public Sector Employees', the educational sector must incorporate disaster risk reduction education into the curricula.

Some countries gradually integrate DRR as an independent subject, or the concept of DRR is taught as a portion or chapter across various subjects like environmental studies, science, etc., allowing students to grasp the relevance of DRR in different contexts (Integrating Disaster Risk Reduction into the School Curriculum, 2007). A study by Sagun-Ongtangco (2016) supported the importance of incorporating disaster risk reduction into educational programs to equip students with knowledge and skills that contribute to disaster preparedness and response efforts. Furthermore, a study by Quimada et. al (2024), recommends innovative pedagogical approaches and prioritizing scientific literacy skills in integrating DRR to enhance the student's understanding of natural disasters.

The Philippines is situated on the Pacific Ring of Fire, which makes the country highly vulnerable to natural disasters. The geographical location is known for volcanic activity and earthquakes, as stated by the World Bank (2017). To ensure the safety of the citizens, the Philippine Government has taken measures to monitor and study the seismic activities of volcanoes, like having the Philippine Institute of Volcanology and Seismology (PHIVOLCS) monitor volcanic activities and any tectonic movement in the country. In response to the threat of these disasters, the Philippine government wants to strengthen the country's resilience by enacting RA 10121, which provides guidelines and strategies for effective implementation of disaster risk reduction and management.

According to the Bureau of Fire Protection (BFP), the number of fire incidents recorded from January 1 to April 17, 2023, was 3,991. Every year in March, Fire Prevention Month is observed because it is considered the warmest month in the Philippines. According to statistics, there were 15,662 school fire incidents recorded in over a decade, and in just the school year 2017–2018, there were 1,869 schools that experienced fire incidents (Malipot, 2019). The frequency of school fire incidents emphasizes the importance of conducting regular fire drills in schools to enhance preparedness (Halder, 2023). According to the book Structural Design for Fire Safety, facilities must have fire extinguishing equipment, an evacuation plan, or a safe path for everyone to escape during a fire, safe and proper electrical wiring, and other safety measures to ensure preparedness, response, and mitigation (Buchanan et al., 2017).

Flooding is one of the problems in schools in the Philippines, often caused by improper disposal of garbage and bad drainage systems. However, these disasters can be avoided with preparedness and proper mitigation (Wankmüller, 2020; Ong, 2023). As highlighted by the study of Ardales (2016) and Cadag (2017), floods can cause cancellation and disruption of regular classes, damage to school infrastructure, exposure to diseases, and adverse effects on students' and teachers' health. Additionally, attendance and learning performance among students were also affected. These findings emphasized the need for active, proactive measures to mitigate the impact of floods in schools and ensure the safety of everyone. As supported by the School Disaster Risk Management Guidelines for Southeast Asia, school infrastructures should follow the mitigation measures and conduct annual school maintenance to ensure the safety of students from floods, fires, and earthquakes.

During disasters, the education sector is one of the most affected. Empirical studies were conducted in different schools in the Philippines to evaluate the implementation of DRRM. However, studies revealed that there are challenges that they encounter such as inadequate preparation of teachers in DRRM, absence of vulnerability, and risk assessments of school buildings and infrastructure, unavailability of resources and fundings for implementation, lack of students' awareness and interest, unclear school organization, and lack of parents' engagement to support DRRM (Peniciba, 2020; Escobar, 2021; Tizon & Comighud, 2020).

Integrating DRRM into the educational curriculum and extracurricular activities is essential for fostering a resilient and safe community. This involves activities such as conducting drills for earthquakes and fire. Furthermore, it includes providing teachers with DRR training on curriculum, materials, and approaches and instructing them ways to integrate these into formal, non-formal, and extracurricular education systems in collaboration with local communities. (Lim, 2019).

Research Method:

Design

This study utilized quantitative research design to objectively measure the implementation level of DRRM, as this approach allows for analyzing and gathering numerical data to describe (Creswell,2018). It employed a descriptive research design to systematically depict the readiness and implementation of DRRM.

Environment

This study was conducted at a Local City College.

Respondents

The respondents to the study included students, staff, and faculty of the Local City College. They were selected through convenience sampling.

Instrument

The instrument utilized in this study was a 4-point Likert scale survey adopted from the study of Corpuz (2019). The survey is composed of four parts: the first assesses schools' implementation level of DRRM practices for earthquakes; the second for fire; the third for flood; and the fourth is disaster.

Data Analysis

The study used descriptive statistics to analyze survey data, calculating the weighted mean to assess the implementation level of DRRM. Results were interpreted using the assigned value of the 4-point Likert scale.

Results and Discussion

Table 1
Implementation Level of Disaster Risk Reduction Management for Earthquakes

INDICATORS	Students	Staff	Total	Descriptive Equivalent
Regular earthquake evacuation drills are conducted at least 2 times a year	1.67	2.75	2.21	Partially Implemented
Orientation on disaster risk management in case of earthquake is conducted at the beginning of the school year	2.0	2.42	2.21	Partially Implemented
School buildings have been inspected to determine if they are structurally sound and strong	1.94	2.96	2.45	Partially Implemented
There is a safe evacuation site where people will be directed after they have left the building	1.96	3.28	2.62	Implemented
The students are acquainted with safety procedures like:				
The school has a search and rescue plan.	1.85	2.85	2.35	Partially Implemented
Watching out for falling objects	2.40	2.39	2.40	Partially Implemented
Occupants nearest the door should open it to facilitate prompt exit	2.19	2.60	2.40	Partially Implemented
Taking cover under a sturdy table or strongly supported doorway	2.40	2.75	2.58	Implemented
Keeping calm,	2.47	2.75	2.61	Implemented
Applying "duck, cover and hold"	2.78	2.75	2.77	Implemented
TOTAL	2.17	2.75	2.46	Partially Implemented

Legend: 1.00-1.75 (not implemented) 1.76-2.50 (Partially Implemented) 2.51-3.24 (Implemented) 3.25-4.00 (fully implemented)

The table shown that the implementation level of DRRM for earthquake of the institution is partially Implemented with the total weighted mean of 2.46 and most of the items are partially implemented. This implies that the school requires further development in DRR measures and additional resources are needed to improve. The lowest weighted mean is 2.21, pertains to the item “regular earthquake drills are conducted twice a year” and “orientation on disaster risk management is conducted at the beginning of the school year,” highlighting that there is a significant gap in frequency of drills and orientation sessions. Conversely, the highest weighted mean, at 2.62, is attributed to the item “There is a safe evacuation site where people will be directed after they have left the building.” The Institution has updated its premises, providing an accessible area that can serve as an evacuation point for everyone in case of an emergency.

On the other hand, concerning safety procedures, the lowest weighted mean is 2.35, for the item “The school has a plan in place for searches and rescues.,’ this indicates ambiguity in that aspect of DRR measures. The remaining safety procedures denoted that everyone in the institution already possesses knowledge of what to do during an earthquake. The students rated DRRM for earthquake as partially implemented while the teachers rated it as implemented. This discrepancy could be attributed to differing experiences of both respondent groups within the school. Overall, most DRRM measures for earthquakes were partially implemented. Although certain measures were implemented, it enlightens the importance of enhancing those to be fully implemented.

Overall, most DRRM measures for earthquakes were partially implemented. Although certain measures were implemented, it enlightens the importance of enhancing those to be fully implemented. In the present study's case, the institution should heighten the DRR measures in accordance with the CHED requirements. Working together, the national government, in cooperation with LGU's would aid in the education of disaster preparedness. Consequently, providing DRRM drills to educators and students, along with services and supplies, is one valuable resource the government may offer to provide to schools nationwide: disaster exercises (Villanueva & Villanueva, 2017)

Table 2.
Implementation Level of Disaster Risk Reduction Management for Fire

INDICATORS	Students	Staff	Total	Descriptive Equivalent
Building floor plan or blueprints are displayed in prominent areas to help firefighters navigate the school in case of fire.	1.47	2.35	1.91	Partially Implemented
There is a strong warning system in place for fires that will set off alarms throughout the building	1.67	2.67	2.17	Partially Implemented
Regular fire drills are conducted at least 2 times a year.	1.83	2.53	2.18	Partially Implemented
Fire exit signages and maps are prominently displayed in the buildings.	1.67	2.71	2.19	Partially Implemented
Orientation on disaster risk management in case of fire is conducted at the beginning of the school year.	1.96	2.53	2.26	Partially Implemented
The students are acquainted with safety procedures:				
Stop, drop and roll	1.82	2.57	2.20	Partially Implemented
Walk, do not run	2.06	2.50	2.28	Partially Implemented
The school has a search and rescue plan	1.92	2.85	2.39	Partially Implemented
Keep calm	2.15	2.67	2.41	Partially Implemented
Follow evacuation routes	2.06	2.75	2.41	Partially Implemented
There is a safe evacuation site where people will be directed after they have left the building	2.06	3.14	2.60	Implemented
TOTAL	1.88	2.66	2.27	Partially Implemented

Legend: 1.00-1.75 (not implemented) 1.76-2.50 (Partially Implemented) 2.51-3.24 (Implemented) 3.25-4.00 (fully implemented)

The table shows that the implementation level of DRRM for Fire within the institution is only partially Implemented, with the total weighted mean of 2.27. This suggests a need for the institution to improve the overall DRRM for Fire. The majority of DRR measures are only partially implemented, indicating a poor readiness in addressing the fire-related emergencies. The lowest weighted mean, at 1.91, pertains to the item “Building floor plan or blueprints are displayed in prominent areas to help firefighters navigate the school in case of fire.” This may be attributed to the institution sharing its facilities with the Mandaue Sports Complex. The sole implemented measure is the item, “There is a safe evacuation site where people will be directed after they have left the building,” this indicates that the school has an accessible area where students and staff could use an evacuation area. However, additional measures such as fire orientations, fire drills, regular fire inspections may be lacking, highlighting for a more comprehensive approach for fire preparedness within the institution. The students rated DRRM for earthquake as partially implemented whereas the teachers rated it as implemented. This discrepancy could be attributed to the differing experiences of both respondent groups within the institution. However, additional measures such as fire orientations, fire drills, regular fire inspections may be lacking, highlighting for a more comprehensive approach for fire preparedness within the institution. The students rated DRRM for earthquake as partially implemented whereas the teachers rated it as implemented. This discrepancy could be attributed to the differing experiences of both respondent groups within the institution.

According to Della-Giustina (2014), institutions should take actions in the three following domains. First is emergency planning, followed by fire safety education, and thirdly, ensuring that the building is maintained to be fire safe. Based on the findings of this study, the unclear regulations and DRRM plans for preventing fire- disaster and lack of support from LGU’s makes the school vulnerable to fire-disasters (Silverman,2016; Lai BS et. al (2016). Furthermore, the physical structures and installations of safety fire systems should also be addressed (Shokouhi M.,2019). Additionally, there should be exclusive education and training for both staff and students. The lack of fire safety orientation and fire safety drills is considered a risk factor (Lambie I, 2015)

Table 3.
Implementation Level of Disaster Risk Reduction Management for flood

INDICATORS	Students	Staff	Total	Descriptive Equivalent
Counter measures like modifying the floor level and placing of barriers in low lying areas in the school prone to flooding had been undertaken	1.58	2.35	1.97	Partially Implemented
Drainage systems are regularly checked	1.54	2.53	2.04	Partially Implemented
Orientation on disaster risk management in case of flood is conducted at the beginning of the school year	1.74	2.42	2.08	Partially Implemented
The school can readily facilitate the transfer of equipment and important documents to higher ground in case of severe flooding.	1.67	2.60	2.14	Partially Implemented
There is strict monitoring of the weather conditions in the locality in case of heavy rains and typhoons.	1.67	2.85	2.26	Partially Implemented
TOTAL	1.64	2.55	2.09	Partially Implemented

Legend: 1.00-1.75 (not implemented) 1.76-2.50 (Partially Implemented) 2.51-3.24 (Implemented) 3.25-4.00 (fully implemented)

The table indicated that the implementation level of DRRM for floods within the institution is only partially implemented, with a total weighted mean of 2.09. This suggests that the institution demonstrates a weak preparedness and response strategy for floods and there is a need for improvement. This result can be attributed to the institution sharing its facilities with Mandaue Sports Complex, resulting in limited space and resources for flood preparedness planning. Students rated it as not implemented (1.64), whereas teachers rated it as implemented (2.55). This implies that students experience floods worse than teachers do.

As supported by the study of Bello (2020), enhancing the institution's buildings and facilities can help improve the DRRM for flood. Furthermore, the study of Cresencio (2023), suggests the uniformity in the implementation of DRRM to ensure the application of guidelines, programs and activities should be practiced. Based on a few of the previously listed causes, it is possible to prevent and reduce the risk of flooding in the school by enlisting the local government to intervene in concert with the community. The degree of community awareness and readiness for flood catastrophes will also influence risk, (Lechowska, (2018) and local governments are key players in enhancing land use and drainage systems.

Table 4.
Implementation Level of Disaster Risk Reduction Management for Disasters

INDICATORS	Students	Staff	Total	Descriptive Equivalent
There is a disaster management plan suited for the number of people to be evacuated.	1.79	2.60	2.20	Partially Implemented
There is a safe evacuation site ready to accommodate the evacuees.	1.83	2.82	2.33	Partially Implemented
There is a school disaster management committee to oversee disaster risk reduction and preparedness	1.85	2.85	2.35	Partially Implemented
A vehicle is readily available to transport calamity victims.	2.06	2.67	2.37	Partially Implemented
Building occupants can be readily evacuated as they are knowledgeable on the standard operating procedures to be observed during emergencies.	2.06	2.75	2.41	Partially Implemented
Classroom and office doors are designed to open outwards	1.99	2.85	2.42	Partially Implemented
Communication facilities are on hand to coordinate with local government units in emergency cases like earthquake, fire and flood.	2.24	2.78	2.51	Implemented
School authorities have updated contact numbers of the parents or guardians	2.38	2.78	2.58	Implemented
Classrooms have two exits whenever possible.	2.57	3.00	2.79	Implemented
The school can provide for adequate emergency supplies / equipment such as:				
whistle	1.57	2.50	2.04	Partially Implemented
Chemical light sticks / matches	1.65	2.46	2.06	Partially Implemented
Small radio (battery-operated, portable)	1.56	2.60	2.08	Partially Implemented
Toiletries / personal hygiene items	1.58	2.57	2.08	Partially Implemented
Safe drinking water,	1.79	2.53	2.16	Partially Implemented
Emergency food	1.71	2.60	2.16	Partially Implemented
Flashlight / batteries	1.68	2.64	2.16	Partially Implemented
First aid kits with routine medications	2.04	2.92	2.48	Partially Implemented
TOTAL	1.90	2.70	2.30	Partially Implemented

Legend: 1.00-1.75 (not implemented) 1.76-2.50 (Partially Implemented) 2.51-3.24 (Implemented) 3.25-4.00 (fully implemented)

The table indicates that the implementation level of DRRM for disasters in the institution is only partially implemented (2.30). This implies that the institution is inadequately prepared for disasters and thus needs to enhance its DRRM efforts. While most indicators were rated as partially implemented, there is a significant discrepancy between the ratings given by students and staff. This implies that the two groups have different experiences and perceptions. The lowest weighted mean, at 2.20, pertains to the item “There is a disaster management plan suited for the number of people to be evacuated,” suggesting that disaster management plan lacks clarity. Regarding adequate emergency supplies/ equipment, all indicators received ratings of partially implemented, highlighting deficiency in resources and financial support within the institution to address the gaps in emergency supplies and equipment. Overall, the school demonstrates partially implemented in DRRM for disasters, and thus, require attention and improvement such as emergency supply provisions and enhancing overall preparedness for disasters.

Summary of Findings:

The study’s findings revealed that Local City College has only partially implemented Disaster Risk Reduction Management (DRRM) measures. The inadequacy is particularly evident in the areas of fire preparedness and mitigation, as well as flood, earthquake, and overall disaster preparedness, all of which are only partially implemented. This indicates an urgent need for improvement and is inconsistent with the mandates outlined in Republic Act No. 10121, specifically in section 14. The study also identified specific areas for enhancement and provided recommendations to strengthen the institution’s disaster preparedness. It encompasses various aspects like undertaking regular safety drills and simulations quarterly throughout a year, enhancing the emergency response protocols, allocating budget for repair and installation of safety alarms, and other equipment, increasing awareness and education of disaster preparedness through programs, and fostering collaboration with local community. By implementing the recommended measures, the institution can enhance its resilience against disasters and ensure the safety of everyone.

Recommendations:

The findings from the Disaster Risk Reduction Management (DRRM) evaluation for the Local City College focused on assessing the implementation level of disaster preparedness strategies specifically for earthquake, fires, floods, and overall disaster readiness. It was revealed that DRRM was only partially implemented, and thus needed improvement in many areas. Ensuring a comprehensive approach to disaster preparedness in schools is critical in reducing risks and improving response capacity, thereby safeguarding the lives of students and everyone in school and infrastructure from potential disasters.

For Earthquake preparedness, the result emphasized the need for education, regular drills, and infrastructure reinforcement. Recommendations included integrating earthquake safety into educational programs, conducting drills at the start of each semester. There should be a communication strategy to coordinate responses during an earthquake, and the school buildings should be inspected for any potential hazards and strength. Additionally, collaboration with local emergency services is crucial for effective preparedness.

In terms of fire safety and preparedness, the results highlighted the significance of educating the staff, instructors, and especially students on fire prevention and safety. Fire drills were recommended at the start of every semester to ensure that everyone knows what to do and is familiar with the routes and evacuation areas. Furthermore, emergency equipment like fire extinguishers, fire alarms, water sprinkles, and smoke detectors should be installed in every classroom and office to help, or control extinguish small fires and provide early warning signs, allowing for fast evacuation. The institution should also conduct routine facility inspections like electrical wirings, structural issues etc., allowing repairs and maintenance. Collaboration with local fire departments and offer training for staff on safety practices and response. Flood preparedness recommendations focused on creating comprehensive flood risk management plans. Floods can be controlled and reduced if the school’s drainage systems are well-maintained, this includes regular cleaning of gutters and practicing proper garbage disposal in the school. The school should have evacuation strategies and ensure emergency supplies and collaboration with local emergency services for quick responses during a flood event.

In addition to the previously mentioned recommendations for disaster preparedness, it is essential to ensure that emergency supplies, including medications and first aid materials, are readily available in the institution. These should be

easily accessible in the event of disaster. Furthermore, staff and faculty members should be equipped with the necessary skills and knowledge to effectively manage emergencies and be efficient in the event of any disaster.

References:

Asian Disaster Reduction Center (2013)

Corpuz, Araceli. (2019). Disaster Risk Management Practices and Readiness for Disasters among Selected Schools in City of Binan, Laguna, Philippines. *International Journal of Humanities and Social Science*. doi:10.30845/ijhss.v9n3p9

Global Disaster Risk Index 2023

Philippine Disaster Risk Reduction and Management (PDRDM) Act of 2010

Republic Act. 10121, The Philippine Disaster Risk Reduction and Management Act of 2010.

Miasco, M. (2017). Disaster preparedness is now part of the school curriculum. *The Freeman*.

Tabangcura, Kevin Kline et. al (2023). Student Awareness of Disaster Risk Reduction and Management of a Private Higher Education Institution. *Paradigm Academic Press*

Research and Advances in Education. ISSN 2788-7057

International Federation of Red Cross and Red Crescent Societies, Geneva, 2013

Integrating Disaster Risk Reduction into School Curriculum 2007

Ong, A.K. et. al (2023). Factors affecting the intention to prepare for tsunami in Thailand. <https://doi.org/10.1016/j.ocecoaman.2022.106464>

Quimada, G., Kilag, et. al. (2024). Integrating Scientific Literacy into Disaster Risk Reduction Strategies in the Philippine Basic Education Program. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE)*, 1(3), 269-275.

Malipot, M. H. (2019). Philippines: DepEd, BFP partner to 'impart awareness on fire prevention, response'.

Buchanan et al., (2017) Structural Design for Fire Safety.

Wankmüller, C.; Reiner, G (2020). Coordination, cooperation, and collaboration in relief supply chain management. <https://doi.org/10.1007/s11573-019-00945-2>

Cadag, Jake Rom, et. al (2017). Hidden disasters: Recurrent flooding impacts on educational continuity in the Philippines, *International Journal of Disaster Risk Reduction*. <https://doi.org/10.1016/j.ijdr.2017.07.016>

Ardales et. al. (2016). Impacts of floods on public schools in the municipalities of Los Baños and Bay, Laguna, Philippines. 15, 19-40.

Peneciba, Elmer (2020) The Implementation of Disaster Risk Reduction management program in Preparedness and awareness for school safety: Basis for intervention Plan. ISSN 2313-7797

Escobar, M. (2021). Disaster Risk Reduction and Management Plan of Selected Public Schools in Marikina City. <http://dx.doi.org/10.2139/ssrn.3792508>

Tizon, R.T. & Comighud, S. T. (2020). Implementation of the Public Schools' Disaster Risk Reduction Management Program and Level of Capabilities to Respond. UBT International Conference. 1.Oban, 2022. DOI:10.21275/SR20404215026

Lim, M. B. (2019). Thematic areas of DRR. In good practices on disaster risk reduction and management. In (1st ed., Vol. 1, pp. 5-9).

Creswell, J. W., & Creswell, J. D. (2018). Research design (5th edition.). SAGE Publications