



Capabilities and Difficulties of Barangay Officials in the Implementation of the Barangay Disaster Risk Reduction and Management

DOI: <https://doi.org/10.5281/zenodo.11473522>

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Abstract:

Republic Act 10121, otherwise known as the "Philippine Disaster Risk Reduction and Management Act of 2010", is the law that strengthens the country's risk reduction and management system. This law aims to provide a unified management plan for responding to emergencies throughout the country. Along this premise, this paper investigated the level of readiness and capabilities of Barangay Officials, including the difficulties they encountered in the implementation of Barangay Disaster Risk Reduction Management (DRRM). Data needed for this descriptive paper was collected from 216 respondents using a 45-item self-made instrument that has hurdled the tests of validity and reliability. The ensuing analysis showed high levels of readiness ($M=4.20$, $SD=0.499$) and capabilities ($M=4.14$, $SD=0.368$) and a low level of difficulties ($M=2.10$, $SD=0.560$). The study further revealed no significant difference in the level of readiness ($p=0.196$), but notably, a significant difference was detected in their capabilities ($p=0.008$) when grouped according to civil status. Furthermore, a significant difference was found in the level of difficulties ($p=0.031$) respondents encountered when grouped and by length of service. The study recommends the conduct of a Climate and Disaster Risk Assessment (CDRA), Orientation of a Digital Readiness Strategy Plan, Implementation of Implement Semi-Annual Disaster Risk Reduction Training and Simulation, and vigorous conduct of research on mitigation and control based on the CDRA, among others.

Keywords: Disaster Risk Reduction and Management, RA 10121, Barangay Officials, readiness, capabilities, difficulties, Negros Occidental.

Introduction:

Background of the Study

The Association of Southeast Asian Nations (ASEAN) Agreement adopted the Disaster Management Framework on Disaster Management and Emergency Response (AADMER) Work Programme for 2021-2025 last November 27, 2022, which aims to build on the progress and develop a region of resilient nations that are coordinated in mitigating the effects of disaster in pursuit of safer communities and sustainable development.

In the Philippines, Republic Act 10121, otherwise known as the "Philippine Disaster Risk Reduction and Management Act of 2010", is an act that strengthens the risk reduction and management of the system of the country and provides a unified management plan in responding to emergency situations throughout the country.

The ability of each barangay to manage and reduce risks is directly associated with their readiness and capabilities, as well as in identifying possible weak points in a standing risk reduction plan of their respective localities. Readiness accounts for most of the successes in reducing or zeroing out risks during disasters. Thus, each barangay needs to have an established response protocol to address the vulnerabilities of their local communities from force majeure (Bawagan, 2016).

There is also a need to determine the capabilities of each barangay to reduce risks in every calamity and ensure that lives and properties are saved from disasters. Identifying the difficulties encountered is in consonance with the national leadership's call to address the country's weaknesses and vulnerabilities after it topped the World's Disaster Risk Index in 2022. It is important to note that readiness is not the same as capabilities (Caliwan, 2022).

The operationalization of the Barangay Disaster Risk Reduction Management Councils, the formulation of barangay disaster risk reduction and management plans, and the allocation of funds for pre-disaster, response, and recovery are keys to the success of this program; despite having these, there are still recorded damage to properties, casualties, and death due to disasters. These causes the flaw in the risk reduction management in some of the Barangays. These



motivated the researcher to conduct the study as the city planning and development coordinator of a highly urbanized city in Western Visayas.

Current State of Knowledge

The Barangay Disaster Risk Reduction Management Committee (BDRRMC) is a Barangay Development Council (BDC) committee mandated by law, the Republic Act 10121, also known as the 'Philippine Disaster Risk Reduction and Management Act of 2010'. The NDRRMC-DILG-DBM and CSC JMC No. 2014 -1 also state the "implementing guidelines" in establishing the LDRRMOs at BDRRMCs at the local government to manage and lead the safety measures and protocols to be observed by members of the community. The said committee shall lead in implementing programs and activities within the barangay to prevent or mitigate the effects of impending emergencies and disasters on the residents, households, livelihoods, and other elements of the barangay. The committee comprises members from various sectors, such as education and religious organizations, as well as representatives from different organizations within the barangay. The Punong Barangay leads the committee as chairperson.

According to the Office of Civil Defense (OCD), it has been known that the Philippines' location along the Pacific Typhoon Belt made it prone to typhoons or hydrometeorological hazards. Based on the latest data from the National Disaster Risk Reduction and Management Council (NDRRMC), the country experiences an average of twenty (20) typhoons a year, and 50% of them damage lives and properties. At the same time, the Philippines is also situated along the Pacific Ring of Fire, which makes it susceptible to earthquakes and volcanic eruptions. These risks caused the Philippine Disaster Management System to undergo a paradigm shift. From Presidential Decree 1566 to Republic Act 10121, from reactive to pro-active, from top-down and centralized management to bottom-up and participatory disaster risk reduction process.

The Philippine Institute for Development Studies (PIDS) (2021) held a public seminar on "Disaster Risk Reduction in the Philippines: Challenges and Ways Forward" on June 20, 2018. The conference featured two research papers, namely, "Public Expenditure and Institutional Review of DRRM in the Philippines" by PIDS Senior Research Fellow Sonny Domingo and "Coping with Disasters due to Natural Hazards: Evidence from the Philippines" by Dr. Majah-Leah Ravago of the University of the Philippines School of Economics. Participants from other government agencies, NGOs, CSOs, private sectors, and academe attended the seminar.

The Philippines has a high risk of natural disasters and few resources to mitigate them, according to the 2020 Policy Report on Disaster Impact and Financing by Brucal et al. Accurate estimates and evidence are essential for allocating available money for disaster relief and preparedness. Disaster Risk Managers are necessary for the provision of assistance and preparedness for disasters. Given the varying impacts of storms since 2009, a survey of disaster risk managers conducted in 2016–17 revealed significant regional variations in the managers' perceptions of risk and preparation. More complete and current data are now required to support policy decisions. Finances allocated to post-disaster aid are greater than those for pre-disaster preparation.

More significant preparedness funding is required to assist vulnerable populations before a catastrophe strikes. This is based on a better knowledge of the requirements and perceptions of disaster risk managers and a greater understanding of future climate risk. It is noteworthy that in the National Disaster Risk Reduction and Management Plan 2020-30, the challenges and gaps in the implementation of DRRM are the need for capacity building, and the review has noted that some officials, especially those who are newly elected or newly-designated, either lack knowledge or have a different understanding of DRRM; thus, leading to poor planning and implementation. Further, the LGUs need training in Climate and Disaster Risk Assessment (CDRA), hazard map interpretation, integrated risk management, integration of local knowledge and science, systems thinking, and gender sensitivity, which are deemed imperative. Capacity-building activities related to climate change (e.g., use of climate projections in development planning) are also necessary to achieve risk-informed and sustainable resilience actions. Additionally, considering the lessons learned from the pandemic, biological hazards such as emerging and re-emerging infectious diseases should always be included in capacity-building activities (NDRRMC, 2020).

The findings of Cuya-Antonio's (2017) investigation of the organizational efficacy of the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) were presented. The prone barangays of Cabanatuan City, Philippines, were the main focus of the study. The efficacy of BDRRMCs was assessed using the Goal Model of Organizational Theory in this study. The Republic Act 10121, commonly known as the Philippines Disaster Risk Reduction and Management (DRRM) Act, set goals and objectives to gauge BDRRMCs' effectiveness. According to the study, there is a need to regularly assess the efficacy of Barangay Disaster Risk Reduction and Management Committees (DRRMCs) and establish performance standards for policy review and community engagement in disaster risk reduction.

According to Dariagan's (2021) study on the readiness of municipalities in Panay Island, the Philippines, disaster preparedness plans lower potential damages. Still, they might have yet to undergo testing to see how successful they



are when put into practice. The local governments were found to be highly vulnerable to tropical cyclones and floods while vulnerable to earthquakes, droughts, and landslides. Regardless of profile, they were only somewhat prepared; the most populous, middle-class, middle-sized, coastal, and middle-earning groups were more equipped.

Theoretical Underpinnings

This study is anchored on the Emergency Management Theory of David McEntire (2004) to cover readiness and capabilities, while the Theory of Difficulty by David Perkins (2007) was used to anchor the discussion on difficulties. The Emergency Management Theory is mainly focused on the management of disasters and risk reduction, as propounded by an American expert in Emergency Response Administration, McEntire. This discussion was published in 2005 in the Journal of Emergency Management.

McEntire posited that emergencies have become a global recurrence with devastating effects on humanity; thus, there is a need for an effective management measure. The Emergency Management Theory principles are among the most rated and common measures to tackle emergencies to achieve minimal effect on lives and economies.

An emergency is an unplanned event that can cause death or significant injury or put countries' economies, including their financial gains, into peril. Ughulu et al. (2021) stated that when an emergency occurs in a country, the government usually adopts measures to curtail the adverse effects of the phenomenon. McEntire's Emergency Management Theory recommends that the measures adopted be in line with the nature of the disaster and must conform to the following fundamental principles centered on readiness, response, recovery, and mitigation.

The severity or otherwise of the effects of national emergencies, most times, depends on how the government and people react or respond to emergencies. This is where readiness tests the capabilities of a nation in dealing with emergencies (US National Research Council, 2020). This theory strongly supports the need for proactive policies geared towards community readiness and an improved capability to act in times of calamities. Regarding the Theory of Difficulty, Perkin (2007) posited that it is much easier to resolve difficult situations if there is an established knowledge for the domain. The threshold concept of this theory is similar to having a portal, opening up a new and previously inaccessible way of thinking about something. This theory is mainly applicable to this study because it accounts for the challenges or difficulties encountered by Barangay officials in implementing the Barangay Disaster Risk Reduction Management.

Objectives of the Study

This study aimed to determine the level of readiness, level of capabilities, and the level of difficulties of Barangay Officials in the implementation of the Barangay Disaster Risk Reduction and Management (DRRM) in one of the highly urbanized cities in Central Philippines for Calendar Year 2022. Furthermore, this study sought to determine:

1) the level of readiness of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management in Hazards Assessments, Essential Safety Protocol, and Mitigation and Control; 2) the level of capabilities of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management in the aforementioned areas? (3) What is the level of difficulty of Barangay Officials in the implementation of Barangay DRRM in the aforementioned areas; 4) the significant difference, if any, in the level of readiness of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management when grouped according to age, civil status, and length of service; 5) the significant difference, if any, in the level of capabilities of Barangay Officials in the implementation of Barangay DRRM when grouped according to demographics; and 6) the significant difference in the level of difficulties of Barangay Officials in the implementation of Barangay DRRM when grouped according to demographics.

Research Methodology:

This section provides information on how the study was conducted, allowing readers and other researchers to evaluate and replicate the research, and contributes to the overall rigor and credibility of the research findings.

Research Design

This research study utilized descriptive research design to determine the level of readiness, the level of capabilities, and the level of difficulties of Barangay Officials in the implementation of the Barangay Officials in the implementation of the Barangay Disaster Risk Reduction and Management. Dudovskiy (2017) stated that descriptive research design attempts to determine, describe, or identify characteristics found within the phenomena investigation. In line with the present study, it is the nature of this undertaking to choose the conditions of things in their present state.

Respondents



The study's respondents were 216 Barangay Officials in a highly urbanized city in Central Philippines. Given the size of the group being sampled and the number of respondents, stratified and random sampling methods were employed to calculate the sample size using Cochran formula. The responses from each part were divided by the total responses and multiplied by the sample size to obtain the percentage. The researcher randomly selected the respondents from each area using the lottery technique.

Instruments

This study used a self-made questionnaire with 45 line items to gather data from the Barangay Officials who served as respondents. The instrument was subjected to validity (4.99, excellent) and reliability tests as follows: for Readiness, it was 0.844; for capabilities, it was 0.930; and for difficulties, it was 0.755. The instrument was divided into two parts. The first part intended to gather the socio-economic profile of the respondents, and the second part contained the 45-line items for the questionnaire part. There were 15 line items for each area, namely readiness, capabilities, and difficulties.

Procedures

After completing the validity and reliability tests of the instrument, the researchers sent a letter to the City Mayor, the Department Head of the LGU, and the Provincial Disaster Risk Reduction Management Head, informing them of the study's objectives. After securing the approval, the same letter was distributed to all Barangays through their Barangay Captains and Secretaries. The questionnaires were distributed at the signal of the barangay. The hard copy of the instrument was distributed and retrieved after three days for recording. The responses were encoded and subjected to data analysis using the Statistical Package for Social Sciences (SPSS) software. Likewise, statistical tables were constructed based on the objectives stated in this study. The results were presented according to the sequence of the objectives.

Data Analysis and Statistical Treatment

Objective 1 used the descriptive analytical scheme and mean as statistical tools to determine the level of readiness of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management in hazard assessments, Essential Safety Protocol, and Mitigation and Control.

Objective 2 also used the descriptive analytical scheme and mean to determine the level of capabilities of Barangay Officials in the aforesaid areas.

Objective 3 still used a descriptive-analytical scheme and Mean to determine the level of difficulties in the aforesaid areas.

Objective 4 used the relational analytical scheme and Mann Whitney U test to determine if there was a significant difference in the level of readiness of Barangay Officials in the implementation of Barangay DRRM when grouped by age, civil status, and length of service.

Objective No. 5 also used relational analytical scheme and Mann Whitney U test to determine if there was a significant difference in the level of capabilities of Barangay Officials in the implementation of Barangay DRRM when grouped according to the aforesaid demographics.

Objective No. 6 also used a relational analytical scheme and Mann Whitney U test to determine if there was a significant difference in the level of difficulties of Barangay Officials in implementing Barangay DRRM when grouped according to the aforementioned demographics.

Ethical Considerations

The protection of human subjects through the application of appropriate ethical principles is important in this study. The principle of voluntary participation requires that people not be coerced into participating in research (Trochim, 2021). As to the informed consent, the participants were fully informed about the procedures and risks involved in the research and consented to participate. As such, participants were entirely enlightened about the procedures of the entire research and were encouraged to participate by signing a consent. Additionally, several safeguards were in place to minimize harm in a research protocol that involves vulnerable participants or sensitive topics. (Peter, 2015).

Results and Discussions



This section presents, analyzes, and interprets raw data gathered to find answers to the objectives of the research paper. It demonstrates the rigor and validity of the findings and contributes to the broader body of knowledge in this particular field.

Readiness of Barangay Officials in the Implementation of Barangay DRRM in terms of Hazards Assessments, Essential Safety Protocol, and Mitigation and Control

Table 1
Level of Readiness of Barangay Officials in the Implementation of Barangay Disaster Risk Reduction and Management (BDRRM) in Hazards Assessments

Items	Mean	Interpretation
As a Barangay Official, I		
1. organize and conduct training and orientation on Disaster Risk Assessments for Barangay Disaster Risk Reduction Council (BDRRMC) and Stakeholders or Organizations	4.30	High Level
2. Identify potential hazards in our community using historical data as well as Hydromet hazard information from Pag asa, Philvocs, and DOST	4.44	High Level
3. Conduct surveys and mapping of potential areas affected by hazards to determine the scope of exposure.	4.41	High Level
4. Conduct a Climate and Disaster Risk Assessment (CDRA) to reflect the extent of hazards in relation to vulnerability and identification of risk areas and integrate the results into the BDRRM Plan	4.19	High Level
5. Coordinate with the LGU for technical assistance in hazard assessment activities.	4.27	High Level
Overall Mean	4.32	High Level

Item 4, which provides that "Conduct Climate and Disaster Risk Assessment (CDRA) to reflect the extent of hazards about vulnerability and identification of risk areas and integrate the results in the BDRRM Plan," got the lowest mean score of 4.19, interpreted as "High Level." This implies that the level of risk exposure, vulnerability, and the risks of the population of some barangays need to be properly established due to the absence of a key climate-related assessment called CDRA. This process mainstreams climate change, and its associated risks, and its absence is tantamount to non-preparation for the potential impact of incoming or possible disasters.

The Municipality of Sta concurred with the importance of CDRA. Fe (2021) in the Province of Romblon, in a study conducted by the said Municipality, Climate and Disaster Risk Assessment (CDRA) intends to determine the level of risks and vulnerabilities of areas and sectors in the municipality/city to climate-related hazards and potential impacts of climate change and facilitate the identification of priority decision areas where the various interventions can be implemented. The CDRA involves six steps: collecting and organizing climate change and hazard information; scoping the potential impacts of hazards and climate change; developing the exposure database; and conducting a Climate Change Vulnerability Assessment (CCVA).

Table 2
Level of Readiness of Barangay Officials in the Implementation of Barangay Disaster Risk Reduction and Management in terms of Essential Safety Protocol

Items	Mean	Interpretation
As a Barangay Official, I		
1. Conduct research and planning for the barangay's safety protocol and standard operating procedures	4.19	High Level
2. Disseminate information before natural disasters or emergencies occur	3.83	High Level
3. Prepare barangay record frequency of disasters encountered	4.36	High Level
4. Conduct training, simulations, and drills for emergencies and disasters	3.69	High Level
5. Provide adequate information, tools, equipment, and facilities for prevention and response.	3.91	High Level
Overall Mean	4.00	High Level

Item No. 4 got the lowest mean score of 3.69, which states, "Conduct training, simulations, and drills of emergencies and disasters." This implies that barangay officials identified the lowest mean as having a low level of readiness and needing intervention to increase their readiness in the area of essential safety protocol.

The lowest mean indicated the need for more consistent simulation exercises, drills, or training for barangay officials. This means that some barangays need to be more religious in implementing emergency drills not only for officials but mainly for residents near or within disaster-prone areas like flood-prone areas. Simulation exercises



enable stress-testing of strategies and structures for efficient response and assist in preparing communities. Throughout these drills, equipment, reaction mechanisms, emergency protocols, backup plans, and systems are tested. They support the assessment of reaction abilities and team building. An organization's capabilities in terms of readiness are improved.

The results align with Dariagan's (2021) study on local governments' readiness for disasters in Panay Island, the Philippines, which found that while plans for disaster preparedness lower future damages, they may need to be tested to see how well they work. It was discovered that the local administrations were highly susceptible to floods, tropical storms, earthquakes, droughts, and landslides. All profiles were only moderately prepared, although the most populous, middle-class, coastal, middle-earning, and middle-sized groups were more prepared. While only partially prepared for floods, hurricane surges, shortages, tropical cyclones, tornadoes, tsunamis, and landslides, those most vulnerable to earthquakes and forest fires were also ready for these calamities.

Table 3
Level of readiness of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management in Mitigation and Control

Items	Mean	Interpretation
As a Barangay Official, I		
1. Conduct research or study on climate and disaster risk assessment (CDRA) to plan for the vulnerability of all areas within our scope.	4.23	High Level
2. Ensure that there is coordination between the barangay and the city in terms of planning and control.	4.33	High Level
3. Provide programs for tree and mangrove planting and other mitigation-related activities to help protect the environment and comply with the laws on proper solid waste management.	4.25	High Level
4. Coordinate and work with the Barangay Health Stations (BHS) in the conduct of activities that will increase the awareness and knowledge of residents on health and safety practices.	4.27	High Level
5. Participate in BDRRMC sets, coordinate, and manage potential hazards.	4.30	High Level
Overall Mean	4.28	High Level

Item No. 1 got the lowest mean score of 4.23, and it states, "Conduct research or study on climate and disaster risk assessment (CDRA) for planning on the vulnerability of all areas within our scope." Both items were interpreted as "high level."

This implies the fact that there are barangays whose disaster plans and actions are not based on evidence-based and scientific projections such as the climate disaster risk assessment. In planning, it is very important to have competent data to reference for future plans or actions. Simple ratings and computations based on established criteria are very important, and that spells the need for a CDRA. This is critically important because climate change has doubled the vulnerability of all barangays in the Philippines.

Soriano's (2019) study concurred that the Philippines has been categorized as highly vulnerable to natural calamities. To decrease susceptibility and manage catastrophes, it is also crucial to strengthen community capacity for the risk and adverse effects of natural hazards. The study evaluated residents' perceptions of disaster risk in a chosen town, their preparedness and readiness for disasters, their ability to adapt to disasters, their awareness of disasters, and their adaption. The findings of the study indicate that the residents of the chosen community possess enough knowledge about disaster awareness, adaptability, and preparedness, as well as a fair understanding of disaster-related information and perception of disaster risk. Additionally, there was no correlation between the amount of awareness about disaster risk reduction and age, sex, civil status, or education.

Capabilities of Barangay Officials in the Implementation of Barangay DRRM in Terms of Hazards Assessments, Essential Safety Protocol, and Mitigation and Control

Table 4
Level of capabilities of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management in Hazards Assessments

Items	Mean	Interpretation
As a Barangay Official, I		
1. Identify potential hazards in our community using historical data as well as Hydromet hazard information from Pag asa, Philvocs, and DOST.	4.49	High Level
2. Conduct participatory Climate and disaster risk assessments (CDRA) and integrate them into a comprehensive barangay disaster risk reduction plan	3.98	High Level



specific to our local community.

3. Support risk assessments and planning activities of the City Disaster Risk Reduction Management Office.	3.99	High Level
4. Conduct surveys and map potential affected areas of hazards to determine the scope of exposure.	4.00	High Level
5. Participate actively in BDRRMC, which plans, manages, and monitors potential hazards.	4.16	High Level
Overall Mean	4.12	High Level

Item No.1, which states, "Identify potential hazards in our community using historical data as well as Hydromet hazard information from Pag asa, Philvocs, and DOST," got the highest mean score of 4.49, which implies that the respondents had used historical data and information from government agencies in identifying their potential hazards. In contrast, Item No. 2 got the lowest mean score of 3.98, which states, "Conduct participatory Climate and disaster risk assessments (CDRA) and integrate to comprehensive barangay disaster risk reduction plan specific to our local community. This implies that some barangays didn't conduct participatory climate and disaster risk assessments and could not mainstream these assessments into their comprehensive disaster risk reduction plan.

Capability-wise, the result shows that barangay officials have high beliefs in their capability to assess every potential hazard in their locality. Still, there are barangays that need a more scientific approach toward risk assessments, such as the use of the CDRA. If climate and disaster risks are properly assessed with the participation of all stakeholders, it would be easier to plan out future actions for multi-hazard risk assessments. This is important because one risk after another comes out in times of calamities. Sometimes, it is too late to act if the disaster is already happening.

Granstrom (2020) gave details regarding the DRRM in Metro Manila in her case study, which validated this result. Using the 2020 typhoons as a case study, the research evaluated the country's disaster risk reduction and management (DRRM) structures and the National Capital Region (NCR). Thematic pillars of readiness, intervention and early recovery, recovery and rehabilitation, and catastrophe prevention and mitigation were used to convey the findings. It incorporates more diverse perspectives in addition to the viewpoints of three important informants from the Office of Civil Defense (OCD), the Philippine Disaster Resilience Foundation (PDRF), and the Asian Development Bank (ADB). The results indicate that while DRRM has changed since the Philippine Disaster Reduction and Management Act of 2010, also known as Republic Act No. 10121 (RA 10121), it is still possible to make improvements to address the underlying risks. Using the transformation as liberation model proposed by Roberts and Pelling (2020) as a theoretical framework, I produce policymakers' suggestions for mitigating typhoon risks.

Table 5
Level of Capabilities of Barangay Officials in the Implementation of Barangay DRRM in terms of Essential Safety Protocol

Items	Mean	Interpretation
As a Barangay Official, I		
1. Identify the total number of barangay team members and volunteers needed to respond to emergencies and disasters in the barangay	4.11	High Level
2. Equipped with emergency transportation vehicles and kits	4.01	High Level
3. Identified evacuation centers in case of emergencies and disasters	4.08	High Level
4. Disseminate to the household emergency contact numbers and focal person	4.14	High Level
5. Respond to barangay's relief recipients' needs with available health and social services such as relief goods and potable water	4.22	High Level
Overall Mean	4.11	High Level

Item No. 2 got the lowest mean score of 4.01, which states, "Equipped with emergency transportation vehicles and kits." Both items were interpreted as "high level." This implies that certain barangays may lack the necessary emergency vehicles to be used in times of emergencies. During an emergency, it is not just the vehicle that is important; the emergency kits and other critically important gadgets must also be present. Other than that, assigned transport vehicles for emergency situations must also be checked at least every six months for their worthiness and safety. The emergency kits must be suitable for at least 72 hours of usage.

Patel (2023) noted that there has been a notable rise in the frequency and intensity of natural catastrophes in India in recent times. While most people know how catastrophes may interrupt lives, many are unaware of the detrimental effects they can have on kids. Catastrophes impact children by causing disruptions to school activities, postponing courses, and causing damage to school infrastructure. In recent years, universities have started to realize how important it is to be ready for emergencies and the hazards that accompany them, and students have gained more awareness of catastrophes through lectures, media, and personal experience. The degree of knowledge about the risks of disasters and the factors that contribute to them influences the individual and collective steps that could



be taken to address vulnerability and exposure to hazards. On the other hand, disaster preparedness refers to the actions taken to anticipate or lessen the repercussions of disasters. However, even with the increased awareness, many colleges and universities need proper preparation, reaction, and mitigation plans.

Table 6
Level of Capabilities of Barangay Officials in the Implementation of Barangay DRRM in Mitigation and Control

Items	Mean	Interpretation
As a Barangay Official, I		
1. Conduct research or study on the vulnerability of all areas within our scope.	4.19	High Level
2. Coordinate between the barangay and the city in terms of planning and control.	4.06	High Level
3. Lead tree planting and related activities to help protect the environment and comply with the laws on proper solid waste management.	4.22	High Level
4. Coordinate and work with the Barangay Health Stations (BHS) and Rural Health Units (RHU) in the conduct of activities that will increase the awareness and knowledge of residents on proper nutrition and safety practices.	4.20	High Level
5. Participate actively in BDRRMC that sets, coordinates, and manages potential hazards.	4.25	High Level
Overall Mean	4.18	High Level

Item No. 2 got the lowest mean score of 4.06, which states, "Coordinate between the barangay and the city in terms of planning and control." Both items were interpreted as "high level." This implies that based on the assessment of some barangay officials, there is a need to strengthen collaboration regarding planning and control between the city and each barangay. It must be noted that the active commitment and leadership of the local government are very important for the success of risk disaster management.

The findings of the study conform with Flora (2016); in the aftermath of disasters, government agencies usually lead in disaster recovery efforts. Communities, more often than not, are reduced to passive recipients of relief goods and services. Yet, it is argued in the available literature that community-based recovery programs, in particular, and disaster management, in general, show a high level of success based on the assumption that the more the community owns disaster management plans and the resources involved, the easier it is to implement them.

Difficulties of Barangay Officials in the Implementation of Barangay Disaster Risk Reduction and Management in terms of Hazards Assessments, Essential Safety Protocol, and Mitigation and Control

Table 7
Level of Difficulties of Barangay Officials in the Implementation of Barangay DRRM in Hazards Assessments

Items	Mean	Interpretation
As Barangay Official, I		
1. Implementing Participatory Community Risk Assessment (PCRA).	2.07	Low Level
2. Identifying possible risks or dangers that could affect the residents from PAG ASA, Philvocs, and DOST regarding Hydromet hazards	2.14	Low Level
3. Conducting a survey and mapping of potential areas affected by hazards to determine scope of exposure	2.13	Low Level
4. Conducting training for Climate and Disaster Risk Assessment (CDRA) to reflect the extent of hazards, vulnerabilities, and identification of risk areas	2.27	Low Level
5. Encouraging the council participation during the assessment and planning of the BDRRM plan	2.26	Low Level
Overall Mean	2.17	Low Level

Item No. 4 got the highest mean score of 2.27, which states, "Conducting training for Climate and Disaster Risk Assessment (CDRA) to reflect the extent of hazards, vulnerabilities and identification of risk areas. This item needs attention and implies that barangays need a deeper and better understanding of CDRA through the conduct of training.

The result of the study shows that one of the problems in managing disaster risks in some barangays is the sheer lack of training for emergency responders wherein hazard-prone areas are pre-identified and properly assessed as to their level of vulnerability. The identification of major areas of concern in every barangay is of utmost importance because this is where major decisions are needed and often rendered.



It was confirmed by Lomotan (2016), who spoke on behalf of the Provincial Disaster Risk Reduction and Management Council (PDRRMC) and stated that "based on the R.A. 10121, barangay officials are the primary responders during calamities or disasters since they are the authorities closest to ground zero" (Paragraph 3, Page 1). He further explained that part of this is to conduct a vulnerability assessment wherein officials identify the hazards in their locality and the number of people who will be directly affected by disasters and list the appropriate interventions to address such scenarios, like designating a safe evacuation center. He also explained that 30% of this fund can be used as a quick response fund while 70% is for mitigation and prevention, preparedness, and rehabilitation programs.

Table 8
Level of difficulties of Barangay Officials in the implementation of Barangay Disaster Risk Reduction and Management in Essential Safety Protocol

Items	Mean	Interpretation
As Barangay Official, I		
1. Identifying Public Health Vulnerabilities in our Barangay.	2.19	Low Level
2. Communicate and respond to urgent and specific risks and need	2.33	Low Level
3. Access to immediate medical services	2.02	Low Level
4. Identifying essential protocols of safety, health, and emergency response	2.10	Low Level
5. Documentation and recording of disasters encountered	2.05	Low Level
Overall Mean	2.14	Low Level

Item No. 2 got the highest mean score of 2.33, which states, "Communicate and respond to urgent and specific risks and needs. This implies that there are cases where communications hamper responses to emergencies and extremely risky situations. In this particular instance, this may refer to the exchange of communication between those who need help and the responders. There is a need for an effective risk communication process to be established in every barangay, and this should start by making all emergency contact numbers available to the public.

The findings of Ferrer's (2021) study on disaster risk management communication provided support for this. The study's conclusions demonstrated that infomercials are respondents' least favored communication approach, whereas opinion leaders, meetings, seminars, and SMS/text messaging are the most popular. Television is currently the most popular communication method. Opinion leaders and barangay officials are considered the most accessible and readily available communication tactics since they are generally present, particularly in times of crisis.

Table 9
Level of Difficulties of Barangay Officials in the Implementation of Barangay DRRM in Mitigation and Control

Items	Mean	Interpretation
As Barangay Official, I		
1. Access of hazards maps within the barangay.	2.00	Low Level
2. Update plan with map on designated evacuation centers.	1.93	Low Level
3. Coordinate among council members during planning and emergency response.	1.91	Low Level
4. Coordinate with the CDRRMO during project implementation and emergency response.	2.10	Low Level
5. Access of record of people with disabilities in the barangays.	2.08	Low Level
Overall Mean	2.00	Low Level

Item No. 4 got the highest mean score of 2.10, which states, "Coordinate with the CDRRMO during project implementation and emergency response." This result indicates that some barangay officials think there is a need to improve the coordination between and among the elected councilors to develop a doable and practical plan to have a more organized response during an emergency.

Similarly, the study of Itaas (2020) focused on governance issues in Disaster Risk Reduction of LGUs's Controlled Social Services of Selected Barangays. Focused Group Discussions (FGD), interviews, and checklists were employed to collect data to address the following goals: (1) evaluate the disaster risk reduction management policies' pre-, during-, and post-implementation, with a particular emphasis on the provision of essential social services like food, water, electricity, and health in the designated barangays; (2) identify implementation-related problems based on the principles of good governance; and (3) suggest suitable actions to address governance-related concerns.

Comparative Analyses

Table 10



Difference in the Level of Readiness of Barangay Officials in the Implementation of Barangay DRRM when Grouped according to Demographics

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation
Age	Younger	114	114.64	5114.500	0.122		Not Significant
	Older	102	101.64				
Civil Status	Single	158	105.91	4173.000	0.308	0.05	Not Significant
	Married	58	115.55				
Length of Service	Shorter	109	114.38	5191.000	0.157		Not Significant
	Longer	107	102.51				

The result shows that age, civil status and length of service of the respondents have no significant influence in assessing their own readiness in terms of Hazards Assessments. The result further means that across various categories, the readiness of barangay officials is of the same level. There is no significant difference in the opinion of barangay officials, which mean that it would be easier to implement new programs because there will be no opposing views.

Table 11

Difference in the Level of Capabilities of Barangay Officials in the Implementation of Barangay DRRM when Grouped according to Demographics

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	Sig. level	Interpretation
Age	Younger	114	106.37	5571.500	0.594		Not Significant
	Older	102	110.88				
Civil Status	Single	158	115.26	3514.000	0.008	0.05	Significant
	Married	58	90.09				
Length of Service	Shorter	109	109.58	5713.500	0.796		Not Significant
	Longer	107	107.40				

The civil status reveals that the opinion of those who are married is different from that of the respondents who are married regarding their capabilities on essential safety protocols. Those who are single highly believed that the barangay is ready, while the older one believed otherwise. In this case, the Barangay may need to find its common denominator while working on their differences because this may not be a good indicator in implementing future plans.

Table 12

Difference in the level of Difficulties of Barangay Officials in the Implementation of Barangay DRRM in Hazards Assessments when Grouped According to Demographics

Variable	Category	N	Mean Rank	Mann Whitney U Test	p-value	Sig. level	Interpretation
Age	Younger	114	106.53	5589.500	0.622		Not Significant
	Older	102	110.70				
Civil Status	Single	158	112.41	3964.000	0.126	0.05	Not Significant
	Married	58	97.84				
Length of Service	Shorter	109	99.47	4847.000	0.031		Significant
	Longer	107	117.70				



The significant difference showed up when respondents are grouped according to their length of service. This means that age and civil status have no significant impact in assessing their own difficulties in hazards assessment. This means that the opinion of the tenured respondents is different from the opinion of the less tenure ones. This could be due to the fact that the experiences of the tenured officials made them more skilled in assessing "what's ready" versus "What's not". The implications of officials with longer length of service possessed institutional knowledge, networking, collaboration and therefore acquired more experience with their years in service.

Conclusion

The Readiness of barangay officials in disaster risk reduction management was high in all areas, which means that every barangay official works by his/her mandate on disaster risk reduction and management. This indicates that each barangay has a full grasp of RA 10121, which appoints barangay officials as first responders to any emergency, being the closest authorities to ground zero. This high readiness equally accounts for allocating the 5% portion of their funds to beef up their risk reduction and management programs. Capabilities also proved to be high, which means that many of the barangay officials are trained and participative in group/team planning and responding to emergency calls anytime. This includes conducting fire and earthquake drills, which helps equip them and their local residents to be more prepared. This high capability also accounts for the stockpiling of some emergency and basic relief goods for disaster response operations. The difficulties encountered by barangay officials were low across all areas, meaning that the challenges within their plans, actions, and overall implementation are manageable. The weaker points in implementing a disaster risk reduction program could be centered mainly on public accountability mechanisms, the integrity of individual officers, and financial management.

Acknowledgment

The completion of this study was made possible through the collaboration and encouragement of the following individuals: Dr. Mima M. Villanueva, Dr. Jennifer P. Pomperada, Dr. Zheaphard Gerhart V. Caelian, Dr. Jeetre P. Trinidad, and Dr. Rammy A. Lastierre. Dr. Anna Marie M. Porman, Bacolod City Disaster Management Officer Ram Vera, and Mayor Alfredo Abelardo Benitez, Bacolod City Mayor, for his unwavering support. Thank you all for your assistance.

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