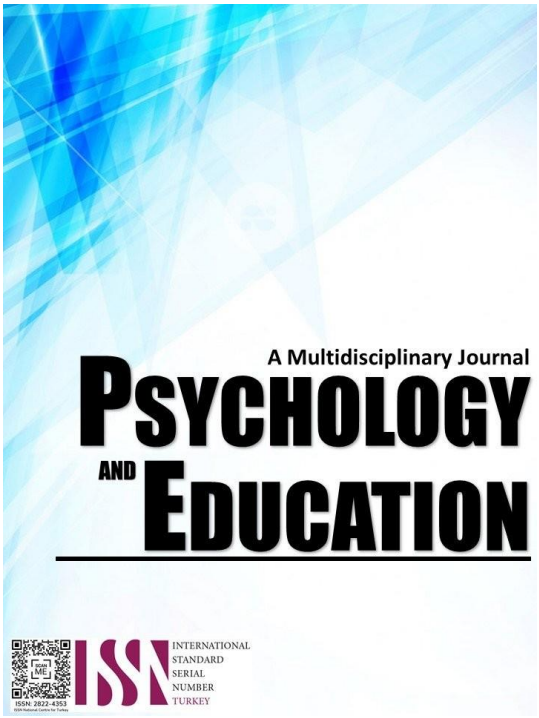
DISASTER PREPAREDNESS OF THE LOCAL GOVERNMENT UNIT EMPLOYEES OF BORONGAN SAMAR: INPUTS TO CITY PREPAREDNESS PLAN



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 28
Issue 10
Pages: 1143-1158
Document ID: 2024PEMJ2733
DOI: 10.5281/zenodo.14510732
Manuscript Accepted: 11-14-2024

Psych Educ, 2024, **28**(10): 1143-1158, Document ID:2024PEMJ2733, doi:10.5281/zenodo.14510732, ISSN 2822-4353

Research Article

Disaster Preparedness of the Local Government Unit Employees of Borongan Samar: Inputs to City Preparedness Plan

Niño Carlo S. Castillejos, * Lelanie D. Perido
For affiliations and correspondence, see the last page.

Abstract

This study examined the level of disaster preparedness among Local Government Unit (LGU) employees in Borongan, Samar, Philippines. The research explored the demographic profile of the respondents, their disaster preparedness knowledge, readiness, adaptation, awareness, and risk perception, and the relationships between these factors and employee characteristics. A survey of 150 LGU employees revealed a predominantly young workforce, with the majority aged 25-29 years old. The majority of respondents were female, married, and had not attended disaster-related seminars. While respondents generally agreed that disasters cannot be prevented, they exhibited varying levels of preparedness across different domains. They strongly agreed on the importance of sharing knowledge and experiences, community activities for disaster risk reduction, and building relationships with neighbors. However, they expressed less confidence in their awareness of evacuation systems and plans, and their ability to predict when a disaster will occur. Statistical analysis revealed significant relationships between age, sex, and attendance at disaster-related seminars, and the level of disaster preparedness. Specifically, younger employees, females, and those who had attended disaster seminars demonstrated higher levels of preparedness. Based on the findings, the study proposes a comprehensive disaster preparedness plan for Borongan City. This plan emphasizes risk assessment and planning, public awareness and education, infrastructure and building resilience, emergency response and coordination, community engagement, and continuous evaluation and improvement. The study underscores the importance of targeted interventions to enhance disaster preparedness among LGU employees, considering their demographic characteristics and specific needs. It highlights the need for ongoing training and education, fostering a culture of community engagement, and prioritizing risk reduction measures to build a more resilient community.

Keywords: *disaster, preparedness, employees*

Introduction

The Philippines ranks second highest in terms of risks associated with natural disasters (UNU-EHS and ADW-2014 as cited by Andriesse 2018). A steady population increase, combined with a geography consisting of islands and poor infrastructure, makes it vulnerable to humanitarian crises (Lum and Margesson 2014). Situated in the north-west Pacific Ocean, it is the most tropical cyclone-affected country in the world with an average of 20 annually, of which 6 are classified destructive. It is also found just below the Inter-tropical Convergence Zone with northeast and southwest monsoons posing threats to its whole territory with flood and storm surge. These result to casualties and billions of pesos in damages to structures and houses (Peñalba et al. 2012; Lee and Vink 2015; Cas 2016; Enteria 2016). Its location along the Pacific Ocean's Ring of Fire exposes this country to earthquakes, tsunamis and volcanic eruptions (Pe Symaco 2013).

The increasing frequency of disasters has challenged the preparedness of highly vulnerable countries (Yadav and Barve 2019) in Asia Pacific to take actions toward mitigating risks (Merone and Tait 2018). Since communities are first responders to any disaster (Walia 2008), strengthening their capacity to cope with calamities is crucial.

The magnitude 7.2 earthquake that struck the provinces of Bohol and Cebu on October 15, 2013 has challenged the preparedness of the Philippines against natural hazards. After less than a month, tropical cyclone Haiyan (locally named Yolanda) devastated central Philippines.

In light of the more recent disasters in the Philippines, disaster research has become even more urgent (Center for Research on the Epidemiology of Disasters 2014 as cited by Dalisay and De Guzman 2016). An investment in preparedness substantially reduces future disaster damage (Healy and Malhotra 2009). It consists steps to minimize harm and aid in recovery should a disaster occurs (e.g., Dooley et al. 1992 as cited by Scannel et al. 2016).

However, disaster plans may lack testing, such as practice drills, to assess their effectiveness before hazards hit (Muir and Shenton 2002 as cited by Tansey 2015). The Philippines poorly performs in disaster management particularly on financial utilization, information management, leadership, monitoring, collaboration, and coordination with various stakeholders (Commission on Audit [COA] Report 2014). Its rehabilitation and recovery effort in the past has been the weakest (Office of Civil Defense [OCD] 2020).

The country's disaster risk management (DRM) policy environment is continuously changing. DRM has finally received substantial domestic and international policy backing after being static for three decades with just a 1978 Presidential Decree (PD1566) encouraging disaster preparedness and response programs.

The ratification of the Hyogo Framework (2005-2015), Sendai Framework (2015-2030), and the Paris Agreement on Climate Change

(2015), as well as the landmark passage of the Climate Change Act of 2009 (RA9729) and the National Disaster Risk Reduction and Management Act of 2010 (RA10121), have augmented and reinvigorated efforts toward disaster resiliency among sectoral stakeholders and local communities. International collaboration is alive and well, but it is also demanding in terms of accountability.

Republic Act No. 7160, or the Local Government Code (LGC) of 1991, was enacted more than a decade later, it gave statutory support to the push for local government autonomy and self-reliance. The legislation promoted decentralization and local autonomy in order to help the state's political subdivisions develop and become more self-reliant and effective partners in achieving national goals. Local government entities were granted increased powers, authority, duties, and resources as a result of the implementation of appropriate local government structures. Disaster response was still an ad hoc task at the time, and existing people were simply allocated the additional job of disaster planning and response.

PD 1566, along with some measures in Republic Act No. 7160, constituted the default DRM policy until major climate change and disaster risk reduction and management legislation was passed in 2009 and 2010, respectively. The Philippine Disaster Risk Reduction and Management Act of 2010 and the Climate Change Act of 2009 established proactive national framework strategies and plans, as well as the institutional structures and resources needed for disaster risk management and climate change mitigation and adaptation in the country. More resources were made available to government agencies for DRRM activities, initiatives, and programs under the new law.

Disaster preparedness is the extent to which individuals and organizations are equipped and ready to respond to negative environmental threats (Perry & Lindell, 2003). At the individual level, it is a self-protective behavior that is a response to potential losses to life and property (Mishra & Suar, 2012). To this extent, advanced measures and plans aimed at developing capabilities are put in place to effectively respond to an emergency (Kuppuswamy, 2012). The government has signed the Hyogo Framework of Action, a United Nations program that established a worldwide roadmap for disaster risk management with the goal of considerably reducing catastrophe losses by the year 2015. The Sendai Framework, which spans from 2016 to 2030, intends to maintain global catastrophe risk reduction cooperation while taking into account the complex characteristics of risk and the presence of global and national platforms.

Community experiences also influence when and how much we prepare for disasters (Sagala et al., 2009). Community members and civic agencies play significant roles in predicting intentions to prepare for hazards (Sagala et al., 2009). The local media, community organizations, and interpersonal networks have a direct impact on the likelihood of pre-disaster preparedness activities (Kim & Kang, 2010).

The sunset review of RA10121 revealed the current law's shortcomings in terms of basis and implementation. It cited a lack of high-level institutional leadership capable of pursuing and directing DRRM activities at all levels of government bureaucracy, perhaps transcending political subdivisions and mobilizing the resources and strengths of the corporate sector and civil society.

This viewpoint is consistent with the ongoing call for a more robust and organic bureaucratic platform that can meet the demands of all.

In DRRM, the role of institution development is frequently disregarded. The institutional factor has been historically disregarded in the discourse on integrated disaster risk management, according to Gopalakrishnan and Okada (2007). At the global, regional, national, state, and municipal levels, historical data and empirical evidence obtained from national and international sources point to various instances of ineffective disaster management organizations.

It is necessary to strengthen institutions. M. Ahrens and Ahrens Rudolph (2006) examines the interdependence between underdevelopment and catastrophe susceptibility by identifying institutional failure as the primary reason. They showed that sustainable livelihoods and catastrophe susceptibility can only be accomplished if a country's governance structure allows for the adoption and execution of public policies that promote economic and social growth.

The important qualities of a governance system that stimulates development and supports risk reduction were identified as accountability, involvement, predictability, and transparency. While natural calamities such as earthquakes and some catastrophic hydro meteorological phenomena are beyond human control, Persson and Povitkina (2017) believe that governments' ability to safeguard communities significantly influences the degree of human suffering in disasters. Broad public engagement and representation are seen to promote resilience, yet democratic institutions confront difficulties in providing catastrophe protection in the face of corruption, bad planning, and inept public administration.

Institutional dynamism at the local level is critical for DRRM efforts to take root. Municipal operational rules, in combination with representation, municipal structures, institutional trajectories, and polycentric relationships between municipal governing councils and society, are influential factors for successful environmental disaster risk management, according to Valdivieso and Andersson (2017). (EDRM). This is why some local governments have effectively tackled EDRM challenges while others have not.

Institutional capacity building transfers to operational capabilities in the event of a crisis. Institutional capacities and the antecedents of disaster management performance were positively associated to disaster-oriented skills, according to Kaynak, Ramazan, and Erel, Mahmut (2016). Inter-organizational collaboration and effective logistics services were cited as critical variables in disaster management effectiveness and reducing crisis length.

The urgency of action and the capacity of institutions to mobilize resources are determined by logistical efficiency, operational preparedness, and the ability of institutions to deploy resources. When preparing for disasters, governments and other disaster responders should consider the role of country logistics performance, particularly the customs clearance process, infrastructure, the ability to track and trace consignments, the complexity of the logistics service supplier network, and the possibilities for shipments and transportation timeliness, according to Vaillancourt, Alain; Haavisto, Ira (2016).

Furthermore, contingency planning inside institutions helps to ensure operational continuity and reaction in the case of a crisis. The three key themes necessary to properly handle a catastrophic event, according to Norbert Steigenberger (2016), are cognition, communication, and coordination. The creation of a well-tailored plan as well as appropriate training are critical. A successful disaster response plan establishes roles and duties, as well as a command structure that is both decentralized and centralized.

It is vital to take a more informed and holistic approach to catastrophe risk management, local economic growth, and resilience building. Despite the fact that the link between disasters and development has been widely accepted, combining institutional programs for disaster resiliency and local development among target communities is not easy. Disasters, according to Manyena (2012), are created by a complex combination of hazards, vulnerability, and resilience.

Disaster risk management, local economic growth, and resilience building all require a more informed and comprehensive approach. Despite the fact that the link between disasters and development has been widely accepted, merging institutional measures for disaster resiliency and local development in target areas is not straightforward. Disasters, according to Manyena (2012), are the result of a complex combination of hazards, vulnerability, and resilience.

In the context of Borongan Samar, Limorte, (n.d) said that Samar is the third largest island in the Philippines and faces the Pacific Ocean making it amongst the most vulnerable regions to typhoons. Typhoons are part of life in Samar, and the people know how to react in case of an emergency.

Given the abovementioned situation, the researcher believe that it is a must that the there must be an evaluation on the disaster preparedness of the employees. The output of this research paper will be an input to a city preparedness plan.

Research Questions

This study aims to assess the disaster preparedness of the employees in Borongan Samar. Specifically, this sought to answer the following questions.

1. What is the profile of the respondents in terms of:
    1.1. age;
    1.2. sex;
    1.3. civil status; and
    1.4. attended disaster-related seminar?
2. What is the level of disaster preparedness of the selected LGU employees in Borongan Samar in terms of:
    2.1. disaster-related knowledge;
    2.2. disaster readiness;
    2.3. disaster adaptation;
    2.4. disaster awareness; and
    2.5. disaster risk perception?
3. Is there a significant relationship between the level of pupils' learning achievements and the extent of utilization of user-centered word game-based approach in teaching Science and Mathematics?
4. Is there a significant relationship between the profile and the level of disaster preparedness of LGU employees?
5. What disaster preparedness plan must be proposed to enhance the city disaster preparedness?

Methodology

Research Design

The design of this research is descriptive quantitative research. Descriptive research is also called as survey research that collected numerical data to answer question about the correct status of the subject of the study. According to Gay (2012) stated that descriptive research is a survey research. This research are involves collecting data in order to test hypotheses or to answer questions about the opinions of people about some topic or issue.

Besides, Creswell (2012) stated that survey research designs are procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population. And descriptive research is concerned with how what is or what exists is related to some preceding event that has influenced or affected a present condition or event (Cohen, 2000).

Based on the statements above, it can be seen that descriptive research is a research design where the researcher surveys the people to

describe the attitudes, opinions, behaviors, or characteristics that concerns with the problem exist recently.

Respondents

The research participants were the selected one hundred fifty (150) local government employees from Borongan Samar. The researcher believed that local government employees need to be assessed in terms of its disaster preparedness because according to govpilot.com, preparing the government's employees and citizens is critical to ensuring the local government's business continuity, the safety of community members, and an effective recovery.

The total participants were determined using the Raosoft sampling. The researcher will be disseminating letters to different local government units, asking for the approval of the conduct of research. As such, the letter be granted, the researcher will pursue in determining the total number of participants.

Instrument

This research used an adapted questionnaire from the study of Columna, et.al. 2019. The researcher chose an adapted questionnaire because it has been suited in a specific research context, audience, and purpose.

The research questionnaire has two parts. The first part has the demographic profile of the respondents such as age, gender, civil status and attended seminar on disaster preparedness.

The second part is the Disaster Preparedness, with indicators under the following variables; disaster knowledge, readiness, adaptation, awareness, and risk perception. Since the research applied an adapted questionnaire, the researcher asked the author of the questionnaire for the reliability and validity.

Procedure

To begin with the data gathering, the researcher asked for the total number of employees of the local government unit of Borongan Samar, then asked approval letter for the conduct of study. Furthermore, a hybrid distribution of questionnaire was conducted. The research chose the hybrid dissemination because this approach can help maximize the reach and effectiveness of the survey by accommodating the preferences and circumstances of the target audience.

While doing this, the researcher was mindful of data privacy and security, especially when collecting information through online channels. Finally, the researcher retrieved all pieces of questionnaire distributed to intended respondents; and data reflected in the questionnaire was collected, analyzed and interpreted with the help of the statistician and research expert.

Data Analysis

The data that was obtained from the questionnaires were analyzed through the use of quantitative and interpretative method of analysis.

Percentage. This was employed in order to know the percent equivalent of the number of participants in each profile category.

Rank. This was used to determine the position of the profile categories as well as the position of the respondents on their disaster preparedness..

Weighted Mean. This was applied to determine the overall average of the responses of the respondents.

Ethical Considerations

Ethical considerations in research are vital to protect the rights, well-being, and dignity of participants while maintaining the integrity of the research process. The researcher obtained voluntary and informed consent will be provided to all participants before they take part in the study. Moreover, the researcher clearly explains the purpose, procedures, risks, benefits, and their right to withdraw without consequences.

Furthermore, it is also a priority to safeguard the collected data, ensuring it is stored securely and is only accessible to authorized personnel, and lastly anonymize or de-identify data whenever possible.

Results and Discussion

This part of the study shows the presentation, analysis and interpretation of the data gathered from the questionnaires answered by the respondents. Such presentation is in accordance with the specific questions posited on the objectives of the study.

Profile of the Respondents

As given in Table 1, the age range of 25 - 29 years old gained the highest frequency count of 32 or 21.33% at rank 1 while 45 - 49 and 50 years old and above made the least equal frequency counts of 12 or 8.00% at ranks 6.5.

For the respondents' sexes, female yielded the highest frequency count of 83 or 55.33% at rank 1 while male had 67 or 44.67% at rank 2. In terms of the respondents' civil statuses, married yielded the highest frequency count of 93 or 62.00% at rank 1. On the other hand,

widowed made the least frequency count of two or 1.33% at rank 4.

Table 1. *Profile of the Respondents*

Profile Variables	*Frequency*	*Percentage*	*Rank*
Age			
50 years old and above	12	8.00	6.5
45 - 49 years old	12	8.00	6.5
40 - 44 years old	17	11.33	5
35 - 39 years old	24	16.00	3
30 - 34 years old	31	20.67	2
25 - 29 years old	32	21.33	1
Below 25 years old	22	14.67	4
Total	150	100	
Sex			
Female	83	55.33	1
Male	67	44.67	2
Total	150	100	
Civil Status			
Single	52	34.67	2
Married	93	62.00	1
Separated	2	1.33	4
Widowed	3	2.00	3
Total	150	100	
Attended Disaster Related Seminar			
Yes	55	36.67	2
No	95	63.33	1
Total	150	100	

With regard to the question if respondents attended disaster-related- seminars, no gained the highest frequency count of 95 or 63.33% at rank 1 while yes garnered the least of 55 or 36.67% at rank 2.

Level of Disaster Preparedness of the Selected LGU Employees in Borongan Samar

In Terms of Disaster Related Knowledge

Table 2. *Level of Disaster Preparedness of the Selected LGU Employees in Borongan Samar In Terms of Disaster Related Knowledge*

Items	*Weighted Mean*	*Interpretation*	*Rank*
1. I know when a disaster will happen.	2.15	Disagree	3
2. I know disasters cannot be prevented.	4.01	Agree	1
3. I have attended disaster risk reduction and management trainings or seminars.	2.17	Disagree	2
Composite Mean	2.78	Moderately Agree	

As shown in Table 1, the respondents strongly agreed that they know disasters cannot be prevented which yielded the highest weighted mean of 4.01 and the highest rank of 1. This suggests a prevailing perception of the inevitability of disasters despite efforts to prevent them.

Daran (2022) further emphasized the importance of awareness, particularly in the context of disaster risk reduction factors, which can be influenced by an individual's exposure to different types of disasters. Park (2009) identified the transfer of disaster prevention knowledge as a key factor in enhancing disaster response ability, with the literacy of beneficiaries being a particularly influential characteristic. These studies collectively underscore the importance of disaster-related knowledge and preparedness in effectively responding to emergencies.

However, the said group of respondents disagreed that they know when a disaster will happen which yielded the least weighted mean of 2.15 and least rank of 3.

Predicting large-scale human behavior in response to catastrophic events remains a challenge, with virtual worlds proposed as a potential tool for studying these dynamics (Guitton, 2013). Animal models have shown promise in predicting earthquakes, suggesting the potential for early warning systems (Schnytzer, 2012). Experimental models, such as the observation of critical slowing down in a solder wire, have also been proposed for predicting catastrophes (Peters, 2012).

However, this deviate on the study of Song, (2014) that human emergency behavior and mobility following large-scale disasters can be predicted to some extent, based on factors such as social relationships, disaster intensity, and government response.

The composite mean of 2.78 generalized that the respondents moderately agreed on their level of disaster preparedness in terms of disaster related knowledge. This finding suggests that there's a moderate level of perceived preparedness among the respondents regarding their disaster-related knowledge. Research on the level of disaster-related knowledge among local government unit employees reveals varying levels of understanding and awareness. Goso (2023) found that while employees were generally aware of disaster response measures, there were discrepancies in understanding between departments.

On the other hand, Ringel (2011) emphasized the importance of training programs in increasing knowledge, particularly in response to emerging threats. Soriano (2019) highlighted the good disaster risk reduction knowledge among local people in the Philippines, suggesting the effectiveness of disaster education initiatives.

Moreover, Hamdollah (2014) underscored the vital role of knowledge and awareness in crisis management, particularly in rural areas.

In Terms of Disaster Readiness

Table 3. *Level of Disaster Preparedness of the Selected LGU Employees in Borongan Samar In Terms of Disaster Readiness*

Items	*Weighted Mean*	*Interpretation*	*Rank*
1. I know the government is ready to provide assistance after disasters.	4.21	Strongly Agree	2
2. I know the importance of sharing knowledge and experiences of disasters.	4.24	Strongly Agree	1
3. I know government will provide enough facilities after disaster and we will not face any problem.	4.08	Agree	3
4. I am confident that reconstruction activities can be implemented after disaster.	3.96	Agree	4
5. I recognize the importance of making conversations about disasters with family members, relatives, neighbors, friends and colleagues.	3.94	Agree	5
6. I gain enough knowledge about disaster experts who work or conduct activities for disaster risk reduction and management.	3.64	Agree	6
Composite Mean	4.02	Agree	

As reflected in Table 3, the respondents strongly agreed that they know the importance of sharing knowledge and experiences of disasterswhich yielded the highest weighted mean of 4.24 and the highest rank of 1. This finding is significant because it indicates a collective recognition among the respondents of the value in sharing information and lessons learned from past disasters. It suggests that they believe in the importance of collective learning and knowledge exchange to better prepare for and respond to future disasters. This strong consensus on the importance of sharing knowledge and experiences can have positive implications for disaster preparedness, as it lays a foundation for collaboration, communication, and mutual support within communities or organizations.

The importance of sharing knowledge and experiences of disasters is underscored by several studies. Pathirage (2008) emphasizes the need for an organized platform to capture and share disaster management strategies, while Waring (2018) highlights the role of common understanding and communication in inter-team information sharing.

Additionally, Bharosa (2010) identifies obstacles such as limited information sharing and concerns about receiving information, and suggests the use of incentives and understanding of work processes to facilitate sharing.

Moreover, Kato (2020) underscores the role of citizens in sharing disaster experiences, with a focus on the intention to share and learn, and the use of different communication channels.

Meanwhile, the said group of respondents only agreed that they gain enough knowledge about disaster experts who work or conduct activities for disaster risk reduction and managementwhich obtained the least weighted mean of 3.64 and least rank of 6.

This finding may suggest that respondents feel they have some level of knowledge about disaster experts involved in risk reduction and management activities, but there may be gaps in their understanding or familiarity with these experts and their work. It could indicate a need for more education or awareness- building initiatives to enhance the understanding of the roles and contributions of experts in disaster risk reduction and management among the respondents.

This study is supported by the study of Nanayakkara (2021) underscores the need for built environment professionals to possess disaster resilience knowledge, while Timovska (2016) highlight the critical role of knowledge in informed decision-making and coordinated action. The latter also emphasizes the need for better integration of knowledge systems and the promotion of data collection, analysis, and management.

On the other hand, Soriano (2019) provides a practical example, finding that local people in the Philippines have good knowledge of disaster risk reduction, suggesting that disaster education initiatives in the country are effective.

The composite mean of 4.02 deduced that the respondents agreed on their level of disaster preparedness in terms of disaster readiness.

This finding suggests a high level of perceived readiness among the respondents regarding their ability to handle disasters. It reflects confidence in their preparedness measures and indicates a sense of assurance in their capacity to respond to and cope with disaster events.

This result is also supported by the study of Matunhay (2018). Constant typhoons and floods have exposed the vulnerability of the disaster risk and reduction management of local government units and such untold miseries are an inescapable effect of ill-preparedness. While disaster cannot be prevented, measures can be taken to reduce the possibility of trouble. Data from the Office of the Department of Interior and Local Government (DILG) revealed that in 2014, the Municipality of Compostela has been awarded the "Seal of Disaster

Preparedness" (SDP) on flood. Thus, this captures the interest of the researcher to determine indicators of the local government unit's disaster preparedness that predict disaster resiliency to the major natural disasters occurring in the Municipality of Compostela for the last five years which include flooding and typhoon. The findings found that technical competency and community awareness significantly influence LGU's resiliency towards flooding and typhoons.

In Terms of Disaster Adaptation

Table 4. *Level of Disaster Preparedness of the Selected LGU Employees in Borongan Samar In Terms of Disaster Adaptation*

Items	*Weighted Mean*	*Interpretation*	*Rank*
1. I am aware of the shelter areas or evacuation centers and open spaces in case of a disaster.	3.93	Strongly Agree	3
2. I am aware about which government office needs to be coordinated with after the disaster.	4.15	Agree	2
3. I am informed about disaster prone areas.	3.72	Agree	4.5
4. I am getting enough information about disaster adaptation from non-government organizations (NGOs).	3.72	Agree	4.5
5. I have knowledge about an evacuation area during a disaster.	3.65	Agree	6
6. I know the importance of community activities for disaster risk reduction.	4.25	Strongly Agree	1
7. I am fully aware and informed about evacuation system and plan in my locality or barangay	3.63	Agree	7
Composite Mean	3.86	Agree	

As given in Table 4, the respondents strongly agreed that they know the importance of community activities for disaster risk reduction which got the highest weighted mean of 4.25 and the highest rank of 1. This finding reflects a strong commitment to community engagement and collaboration in efforts to mitigate the impact of disasters, which can have positive implications for building more resilient communities and reducing disaster risk.

Ahmed (2012) and Haque (2012) both stress the importance of long-term, sustainable partnerships between various stakeholders, including first responders, government, and local communities.

Moreover, Rico (2019) and Schoch-Spana (2007) further highlight the potential of school-community collaboration and structured dialogue in enhancing disaster preparedness and response.

In contrast, the said group of respondents only agreed that they are fully aware and informed about evacuation system and plan in their locality or barangay which garnered the least weighted mean of 3.63 and least rank of 5.

This finding may suggest that respondents feel they have some level of awareness about evacuation systems and plans in their locality or barangay, but there may be gaps in their understanding or information about these systems and plans. It could indicate a need for more education, communication, or dissemination of information about evacuation procedures and plans to ensure that residents are fully informed and prepared for potential disasters.

The Philippines faces significant challenges in its evacuation center infrastructure, with a lack of centralized data on their location and an uneven distribution in Metro Manila (Cajucom, 2019). This is compounded by inadequate facilities and services in these centers, as seen in the aftermath of Typhoon Haiyan (Ramos, 2015). There is also a need for better education and awareness of disaster risks, as highlighted by the underestimation of storm surges in the lead-up to Typhoon Haiyan (Esteban, 2015).

Furthermore, the determinants of earthquake evacuation in the Philippines, such as the role of warnings and damage, need to be better understood to inform effective planning and management (Calumba, 2021).

The composite mean of 3.86 assumed that the respondents agreed on their level of disaster preparedness in terms of disaster adaptation.

This finding suggests a moderate to high level of perceived readiness among the respondents regarding their ability to adapt to disasters. While they may not feel entirely prepared, they recognize the importance of adaptation strategies and have taken steps to address them. This indicates a proactive approach to disaster preparedness, focusing not only on initial response but also on adjusting and evolving strategies to meet changing conditions.

Adaptability is a manifestation of adaptation, which is the ability to absorb hazard impacts and to prepare for and recover from them; adaptation in most cases is a proactive action to the anticipated hazards so that potential negative effects or risks can be alleviated in

advance. (Jia, 2014).

The content of adaptation involves the process of natural and sudden disaster impact assessments, which includes countermeasures against climate change to enhance the process of designing and improving measures for sustainable regional development. (Yin, 2002)

In Terms of Disaster Awareness

Table 5. *Level of Disaster Preparedness of the Selected LGU Employees in Borongan Samar In Terms of Disaster Awareness*

Items	*Weighted Mean*	*Interpretation*	*Rank*
1. I actively participate in disaster awareness campaigns.	3.98	Agree	6
2. I am aware on the importance of building or infrastructure retrofitting.	4.38	Strongly Agree	3
3. I am prepared with emergency kits and bags in case of disasters.	4.40	Agree	2
4. I have a good relationship with my neighbors and community.	4.58	Strongly Agree	1
5. I think repairs of road blockage and transportation break are important.	4.30	Strongly Agree	5
6. I give priority to disaster awareness in local, regional and national level.	3.95	Agree	7
7. I know recovery after disaster is a crucial work.	4.34	Strongly Agree	4
Composite Mean	4.28	Strongly Agree	

As seen in Table 5, the respondents strongly agreed that they have good relationships with their neighbors and communitywhich made the highest weighted mean of 4.58 and the highest rank of 1.

The finding reflects a strong sense of community cohesion and solidarity, which can contribute significantly to enhancing community resilience and disaster preparedness. It suggests that respondents recognize the value of building and maintaining strong social connections within their neighborhoods and communities as a key aspect of disaster readiness and response.

This is supported by the study of Quinn (2020). In the study, he emphasized the role of active belonging and relational capital in post-disaster well-being, with social identity processes playing a key role. McCauley (2021) highlighted the shift towards family and community support in the aftermath of crises, as a form of insurance against future setbacks.

On the other hand, Boyd (2021) underscored the need to establish and strengthen fair-weather local networks, as they not only enhance disaster response but also contribute to overall well-being.

However, the said group of respondents only agreed that they give priority to disaster awareness in local, regional and national levelwhich gained the least weighted mean of 3.95 and least rank of 7.

This finding may suggest that respondents acknowledge the importance of disaster awareness but may not prioritize it as highly as other aspects of disaster preparedness or response. It could indicate a need for increased emphasis or resources dedicated to raising awareness about disaster risks and preparedness measures at the local, regional, and national levels. Strengthening awareness campaigns and education initiatives may be necessary to ensure that disaster preparedness remains a top priority across all levels of governance and within communities.

The issue of disaster awareness and prioritization is a complex one, with various challenges at the local, regional, and national levels. Al-Nammari (2015) highlights the limited capacity of local governments, social and economic problems, and misleading natural disaster cognition as key obstacles. Gerdan (2014) emphasizes the importance of education and awareness in disaster preparedness, with a focus on the role of academic and administrative personnel.

In addition to this, Surianto (2019) identifies weak coordination, lack of skills in loss assessment, absence of consensus on terminology, and limited stakeholder coordination as key challenges in regional disaster risk management. Dilley (2006) underscores the need for increased attention and investment in high-risk areas, with a focus on disaster risk identification, reduction, and transfer.

The composite mean of 4.28 generalized that the respondents strongly agreed on their level of disaster preparedness in terms of disaster awareness.

This finding suggests a high level of perceived readiness among the respondents regarding their awareness of disasters. It reflects a strong commitment to staying informed and proactive in preparing for and responding to disasters. This level of awareness can significantly contribute to effective disaster management and response efforts, as informed individuals are better equipped to take appropriate actions to protect themselves, their families, and their communities in times of crisis.

Research on the level of disaster awareness among local government personnel reveals a need for improvement in specific areas. Goso (2023) found that while employees were generally aware of disaster response plans, there were discrepancies in understanding between departments. Ko (2010) highlighted the importance of equipment, budget, and communication systems in disaster response exercises.

On the other hand, Tej (2014) emphasized the need for greater awareness of crisis management concepts and public protection activities among the population. Kudou (2012) underscored the necessity of knowledge of infectious diseases for effective disaster prevention.

In Terms of Disaster Risk Perception

Table 6. *Level of Disaster Preparedness of the Selected LGU Employees in Borongan Samar In Terms of Disaster Risk Perception*

Items	*Weighted Mean*	*Interpretation*	*Rank*
1. I am very sure that large- scale disasters will certainly occur in the next 10 years.	3.00	Moderately Agree	4
2. My locality is safe from all kinds of disasters	2.95	Moderately Agree	5
3. I think my building is well designed and will with stand an earthquake event.	4.00	Agree	1.5
4. I am sure that my sleeping space is secure during and after disaster.	4.00	Agree	1.5
Composite Mean	3.49	Agree	

As revealed in Table 6, the respondents strongly agreed and think that their buildings are well designed and will withstand an earthquake event, and they are sure about the importance of building or infrastructure retrofitting which got the highest equal weighted means of 4.00 and the highest ranks of 1.5. This finding highlights a proactive approach to disaster risk reduction among the respondents, indicating a strong commitment to ensuring the safety and resilience of their built environment in the face of seismic hazards.

Assessing the value and vulnerability of residential buildings is crucial for disaster risk management in various countries. Kleist (2006) emphasizes the need for a common database to assess the risk of different hazards, while Blong (2004) highlights the importance of governance and building materials in mitigating damage.

Wu (2019) and Zhang (2014) both stress the significance of building asset value mapping in flood risk assessments, with Wu (2019) specifically focusing on the spatial distribution of building assets and Zhang (2014) developing a risk assessment system for rural housings.

Contrary wise, the said group of respondents only agreed that their locality are safe from all kinds of disasters which yielded the least weighted mean of 2.95 and least rank of 5.

This finding may suggest that respondents have some level of confidence in the safety of their locality but also recognize that it may not be completely immune to all types of disasters. It could indicate a need for greater awareness and acknowledgment of potential risks and vulnerabilities within their community. Strengthening disaster preparedness efforts and implementing risk reduction measures may be necessary to enhance resilience and ensure the safety of the locality against various disaster events.

The Eastern Visayas region of the Philippines, including Samar, has been severely affected by a series of natural disasters. The 2013 Typhoon Haiyan caused widespread destruction, with over 6,000 deaths and significant damage to infrastructure (Mas 2014). This was followed by a series of meteorologically abnormal events in 2006, including floods, landslides, and an oil spill, which further exacerbated the region's vulnerability (Yumul 2008).

The impact of these disasters was evident in the field, with significant damage to housing and infrastructure observed (Mas 2014). The region's susceptibility to such events underscores the need for effective disaster preparedness and response measures.

The composite mean of 3.49 displayed that the respondents agreed on their level of disaster preparedness in terms of disaster risk perception.

This finding suggests a moderate level of perceived readiness among the respondents regarding their ability to perceive and assess disaster risks. While they may not feel entirely prepared, they acknowledge the importance of recognizing and understanding the potential hazards and vulnerabilities present in their environment. This level of risk perception is essential for informing and guiding effective disaster preparedness and mitigation efforts.

Disaster readiness among local government employees is a critical aspect of effective disaster management. Goso (2023) highlights the need for a coherent and effective understanding of disaster response measures, particularly in coastal regions prone to earthquakes and tsunamis. Somers (2009) emphasizes the importance of public managers in assessing and managing environmental risk, including disaster preparedness.

Dean (2019) underscores the role of local government employees in coordinating and communicating during emergencies, as demonstrated by the Disaster Management Officer's Network in Queensland. Kangabam (2012) further emphasizes the need for disaster awareness and preparedness, particularly in high-risk areas, and the importance of mobilizing local resources.

Relationship Between the Profile of LGU Employeesand the Level of Disaster Preparedness

As stated in Table 7, when the responses of the LGU Employee- respondents on their level disaster preparedness were compared to their ages, the computed r-values of 0.24 for disaster readiness, 0.29 for disaster adaptation, and 0.27 for disaster awareness have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

In addition, the computed r-values of 0.19 for disaster related knowledge and 0.17 for disaster risk perception have corresponding p-values of less than 0.05, thus rejecting also the hypothesis.

Table 7. *Relationship Between the Profile of LGU Employeesand the Level of Disaster Preparednesss*

Variable	*r-value*	*p-value*	*Decision*	*Interpretation*
Age VersusLevel of Disaster Preparedness of LGU Employee Respondents				
Disaster Knowledge	0.19	0.01987	Reject Ho	Significant
Disaster Readiness	0.24	0.00309	Reject Ho	Highly Significant
Disaster Adaptation	0.29	0.00032	Reject Ho	Highly Significant
Disaster Awareness	0.27	0.00083	Reject Ho	Highly Significant
Disaster Perception Risk	0.17	0.03754	Reject Ho	Significant
Sex VersusLevel of Disaster Preparedness of LGU Employee Respondents				
Disaster Knowledge	0.20	0.01413	Reject Ho	Significant
Disaster Readiness	0.28	0.00052	Reject Ho	Highly Significant
Disaster Adaptation	0.12	0.14355	Failed to Reject Ho	Not Significant
Disaster Awareness	0.27	0.00083	Reject Ho	Highly Significant
Disaster Perception Risk	0.23	0.00463	Reject Ho	Highly Significant
Civil Status VersusLevel of Disaster Preparedness of LGU Employee Respondents				
Disaster Knowledge	0.18	0.02751	Reject Ho	Significant
Disater Readiness	0.29	0.00032	Reject Ho	Highly Significant
Disaster Adaptation	0.11	0.18024	Failed to Reject Ho	Not Significant
Disaster Awareness	0.21	0.00990	Reject Ho	Highly Significant
Disaster Perception Risk	0.26	0.00131	Reject Ho	Highly Significant
Disaster Related Seminars VersusLevel of Disaster Preparedness of LGU Employee Respondents				
Disaster Knowledge	0.19	0.01987	Reject Ho	Significant
Disater Readiness	0.23	0.00463	Reject Ho	Highly Significant
Disaster Adaptation	0.22	0.00683	Reject Ho	Highly Significant
Disater Awareness	0.29	0.00032	Reject Ho	Highly Significant
Disaster Perception Risk	0.29	0.00032	Reject Ho	Highly Significant

These safely inferred that the responses of the LGU Employee- respondents on their level disaster preparedness have high significant relationships in terms of disasters readiness, adaptation, and awareness and significant relationships in terms of disasters knowledge and risk perception when compared based on their ages.

These findings can inform targeted interventions and training programs aimed at enhancing disaster preparedness among LGU employees. By understanding the specific needs and perceptions of different age groups, authorities can tailor strategies to improve overall disaster resilience within the organization.

The disaster-related knowledge and preparedness of individuals, including LGU employees, is a critical factor in mitigating the impact of emergencies. Oridota (2015) found that while knowledge and attitude towards emergency preparedness were generally good, actual preparation was poor.

Moreover, when the responses of the LGU Employee-respondents on their level disaster preparedness were compared to their sexes, the computed r- values of 0.28 for disaster readiness, 0.27 for disaster awareness, and 0.23 for disaster risk perception have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

In addition, the computed r-value of 0.20 for disaster related knowledge has a corresponding p-value of less than 0.05, thus rejecting also the hypothesis.

Meanwhile, the computed r-value of 0.12 for disaster adaptation has a corresponding p-value of more than 0.05, thus failing to reject the hypothesis.

These safely generalized that the responses of the LGU Employee- respondents on their level disaster preparedness have high significant relationships in terms of disasters readiness, awareness, and risk perception; significant relationship in terms of disaster knowledge; and no significant relationship in terms of disaster risk adaptation when compared based on their sexes.

These findings can help inform targeted interventions and training programs aimed at enhancing disaster preparedness among LGU employees. By understanding the specific factors that contribute to disaster preparedness among different sexes, authorities can tailor strategies to improve overall disaster resilience within the organization. Additionally, exploring the lack of significant relationship between disaster preparedness and risk adaptation by sex can prompt further investigation into potential factors influencing this relationship.

Furthermore, when the responses of the LGU Employee-respondents on their level disaster preparedness were compared to their civil statuses, the computed r-values of 0.29 for disaster readiness, 0.21 for disaster awareness, and 0.26 for disaster risk perception have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

Additionally, the computed r-value of 0.18 for disaster related knowledge has a corresponding p-value of less than 0.05, thus rejecting also the hypothesis. On the contrary, the computed r-value of 0.11 for disaster adaptation has a corresponding p-value of more than 0.05, thus failing to reject the hypothesis.

These safely deduced that the responses of the LGU Employee- respondents on their level disaster preparedness have high significant relationships in terms of disasters readiness, awareness, and risk perception; significant relationship in terms of disaster knowledge; and no significant relationship in terms of disaster risk adaptation when compared based on their civil statuses.

Lastly, when the responses of the LGU Employee-respondents on their level disaster preparedness were compared to their related disaster seminars attended, the computed r-values of 0.19 for disaster related knowledge, 0.23 for disaster readiness, 0.22 for disaster adaptation, 0.29 for disaster awareness, and 0.29 for disaster risk perception have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

These safely inferred that the responses of the LGU Employee- respondents on their level disaster preparedness have high significant relationships in terms of disasters related knowledge, readiness, adaptation, awareness, and risk perception; when compared based on their related disaster seminars attended.

These findings highlight the importance of disaster seminars as effective platforms for improving disaster preparedness among LGU employees. By providing education and training opportunities, seminars can empower individuals with the knowledge and skills necessary to effectively respond to disasters and mitigate their impact. Furthermore, the significant relationships observed indicate that investing in such educational initiatives can have tangible benefits in terms of enhancing disaster resilience within the organization.

Disaster seminars have been shown to be effective in improving disaster preparedness among LGU employees. Collins (2011) found that these seminars can contribute to building a culture of safety and resilience, while Kohn (2014) demonstrated that they can lead to significant increases in knowledge and preparedness activities.

Moreover, Semien (2019) further emphasized the importance of tailoring the content and teaching methods of these seminars to the specific needs of high-risk communities. These studies collectively highlight the potential of disaster seminars as a key platform for enhancing disaster preparedness among LGU employees.

Proposed Disaster Preparedness to Enhance the City Disaster Preparedness

To enhance city disaster preparedness, it's essential to develop a comprehensive plan that addresses various aspects of disaster management.

Risk Assessment and Planning

Conduct a thorough risk assessment to identify potential hazards and vulnerabilities within the city.

Develop a comprehensive disaster preparedness plan based on the identified risks, incorporating input from relevant stakeholders, including local government agencies, emergency responders, community organizations, and residents.

Ensure the plan includes clear protocols for disaster response, evacuation procedures, communication strategies, and resource allocation.

Public Awareness and Education

Launch public awareness campaigns to educate residents about potential hazards, disaster preparedness measures, and the importance of community resilience.

Organize workshops, training sessions, and drills to enhance residents' knowledge and skills in disaster preparedness, response, and recovery.

Promote the use of various communication channels, including social media, local newspapers, radio broadcasts, and community events, to disseminate important information and updates during emergencies.

Infrastructure and Building Resilience

Invest in infrastructure improvements to enhance resilience against natural disasters, such as earthquakes, floods, hurricanes, and wildfires.

Implement building codes and standards that prioritize safety and resilience in new construction and retrofitting of existing structures.

Develop green infrastructure initiatives, such as stormwater management systems, green roofs, and urban forests, to mitigate the impacts of climate-related disasters and enhance urban resilience.

Emergency Response and Coordination

Establish an effective emergency response system that includes clear chains of command, communication protocols, and coordination

mechanisms among relevant agencies and stakeholders.

Conduct regular drills and simulations to test the city's emergency response capabilities and identify areas for improvement.

Foster partnerships and collaboration with neighboring jurisdictions, regional authorities, and national agencies to ensure a coordinated response to large-scale disasters that may exceed local capacities.

Community Engagement and Participation

Engage residents, community organizations, businesses, and schools in disaster preparedness and planning efforts.

Establish community-based disaster preparedness committees or task forces to facilitate local initiatives, share information, and coordinate response activities.

Encourage the development of neighborhood emergency plans and the establishment of community emergency response teams (CERTs) to support first responders and provide immediate assistance during disasters.

Continuous Evaluation and Improvement

Regularly review and update the city's disaster preparedness plan to reflect changes in risk profiles, population demographics, and available resources.

Conduct post-disaster assessments to evaluate the effectiveness of response efforts, identify lessons learned, and implement corrective actions to enhance future preparedness.

Foster a culture of continuous learning and improvement within the city's disaster management framework, encouraging innovation, flexibility, and adaptability in the face of evolving challenges.

Conclusions

Based from the findings of the study, the following conclusions were:

The Disaster knowledge of the LGU employee-respondents were moderate level of perceived preparedness among the respondents regarding their disaster-related knowledge.

Respondents feel they have some level of knowledge about disaster experts involved in risk reduction and management activities, but there may be gaps in their understanding or familiarity with these experts and their work. It could indicate a need for more education or awareness-building initiatives to enhance the understanding of the roles and contributions of experts in disaster risk reduction and management among the respondents.

There is a moderate to high level of perceived readiness among the respondents regarding their ability to adapt to disasters. While they may not feel entirely prepared, they recognize the importance of adaptation strategies and have taken steps to address them. This indicates a proactive approach to disaster preparedness, focusing not only on initial response but also on adjusting and evolving strategies to meet changing conditions.

There is a high level of perceived readiness among the respondents regarding their awareness of disasters. It reflects a strong commitment to staying informed and proactive in preparing for and responding to disasters. This level of awareness can significantly contribute to effective disaster management and response efforts, as informed individuals are better equipped to take appropriate actions to protect themselves, their families, and their communities in times of crisis.

There is a moderate level of perceived readiness among the respondents regarding their ability to perceive and assess disaster risks. While they may not feel entirely prepared, they acknowledge the importance of recognizing and understanding the potential hazards and vulnerabilities present in their environment. This level of risk perception is essential for informing and guiding effective disaster preparedness and mitigation efforts.

The Local Government Employees should attend regular training sessions and workshops on disaster preparedness, response, and recovery organized by the local government or relevant agencies. They should familiarize themselves with the city's disaster preparedness plan, emergency protocols, and your role and responsibilities during a disaster. Moreover, they should be informed about local hazards, evacuation routes, shelter locations, and other critical information relevant to disaster preparedness in their area.

The Borongan Samar LGU should have a regular risk Assessment and Mapping. They should conduct thorough risk assessments to identify hazards, vulnerabilities, and exposure within the jurisdiction of the LGU. Moreover, invest and utilize Geographic Information Systems (GIS) and hazard mapping tools to visualize and prioritize areas at risk and inform decision-making processes.

Residents of Borongan Samar should develop a personalized emergency plan. Create a personalized emergency plan with family that includes evacuation routes, emergency contacts, meeting locations, and special considerations for children, elderly family members, and pets. Additionally, practice emergency plan regularly with the family members to ensure everyone knows what to do in case of a disaster.

Future researchers should conduct comparative studies to analyze differences in disaster preparedness among different regions, communities, demographic groups, and socioeconomic backgrounds. Comparing preparedness levels across diverse contexts can help identify disparities, best practices, and factors driving variations in preparedness.

References

Al-Nammari, F. M., & Alzaghal, M. H. (2015). Towards local disaster risk reduction in developing countries: Challenges from Jordan. International Journal of Disaster Risk Reduction, 12, 34-41.

Ahmed, S., Biedrzycki, P. A., Opel, S., Nelson, D. A., Sandy, M. G., & Franco, Z. (2012). Community engagement for translational disaster research: Fostering public, private & responder group partnerships. International Conference on Information Systems for Crisis Response and Management.

Andriesse, E. (2018). Primary sector value chains, poverty reduction, and rural development challenges in the Philippines. Geographical Review, 108, 345–366. doi: 10.1111/gere.12287.

Blong, R. J. (2004). Residential building damage and natural perils: Australian examples and issues. Building Research & Information, 32, 379-390.

Bharosa, N., Lee, J., & Janssen, M. (2010). Challenges and obstacles in sharing and coordinating information during multi-agency disaster response: Propositions from field exercises. Information Systems Frontiers, 12, 49-65.

Boyd, N. M. (2021). Neighbors help in a pandemic. Erasmus Journal for Philosophy and Economics.

Cajucom, E. P., Chao, G., Constantino, G., Ejares, J. A., Quillope, S. J., Solomon, H. M., & Ringor, C. L. (2019). Evaluation of the spatial distribution of evacuation centers in Metro Manila, Philippines. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences.

Calumba, S. R., Rith, M., & Fillone, A. M. (2021). Earthquake evacuation choice and management in a developing archipelagic country—A case study of Surigao City, Philippines. Sustainability, 13, 5783.

Collins, A. E., Manyena, B., Shiroshita, H., Hobbs, B., Twigg, J. H., Fordham, M., Okada, N., & Rawlinson, S. (2011). Disaster education in the UK.

Daran, D. S., Briones, M., Alvarez, M. L., Ampo, R. C., Reyes, M. G., Cabigan, V., & Aquino, J. M. (2022). A feasibility study on disasters and disaster risk reduction factors awareness of LSPU students. International Journal of Social Learning (IJSL).

Dariagan, J. D., Atando, R. B., & Asis, J. L. (2020). Disaster preparedness of local governments in Panay Island, Philippines. Natural Hazards (Dordrecht, Netherlands), 105, 1923-1944.

Dean, S., Dyer, M., & Moore, N. (2019). Queensland's disaster management officer's network. The Australian Journal of Emergency Management, 34, 16.

Dilley, M. (2006). Setting priorities: Global patterns of disaster risk. Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 364, 2217-2229.

Dekens, (2007). Local knowledge for disaster preparedness: A literature review. International Centre for Integrated Mountain Development (ICIMOD) Kathmandu, Nepal.

Disaster Readiness. (n.d.). What is disaster readiness? https://www.disasterreadiness.org/what-is-disaster-readiness

Domingo, et.al. (2018). Disaster preparedness and local governance in the Philippines. Philippine Institute for Development Studies.

Esteban, M., Valenzuela, V. P., Yun, N. Y., Mikami, T., Shibayama, T., Matsumaru, R., Takagi, H., Thao, N. D., Leon, M. P., Oyama, T., & Nakamura, R. (2015). Typhoon Haiyan 2013 evacuation preparations and awareness.

Espina,et.al. (2015). A social cognitive approach to disaster preparedness. University of the Philippines Visayas Tacloban Ateneo de Manila University.

Gerdan, S. (2014). Determination of disaster awareness, attitude levels and individual priorities at Kocaeli University. Eurasian Journal of Educational Research, 55, 159-176. doi: 10.14689/ejer.2014.55.10

Guitton, M. J. (2013). Developing tools to predict human behavior in response to large-scale catastrophic events. Computers in Human Behavior, 29, 2756-2757.

Goso, T., & Kakuzaki, T. (2023). Questionnaire on employee awareness of disaster mitigation measures in municipal governments. IOP Conference Series: Earth and Environmental Science, 1195.

Haque, C. E. (2012). Disaster risk and vulnerability: Mitigation through mobilizing communities and partnerships.

Hamdollah, S. G., Tahereh, S., & Islam, R. (2014). Measuring crisis management knowledge level between rural local administrator with emphasis on earthquake case study: Gosht County in Saravan provienc.

Healy, A., & Malhotra, N. (2009). Myopic voters and natural disaster policy. American Political Science Review, 103, 387–406. doi: 10.1017/S0003055409990104.

International Federation of Red Cross and Red Crescent Societies. (2000). Introduction to disaster preparedness. https://www.preventionweb.net/files/2743_Introdp.pdf

Jia, H., Chen, F., & Du, E. (2021). Adaptation to disaster risk—An overview. International Journal of Environmental Research and Public Health, 18(21), 11187. doi: 10.3390/ijerph182111187.

Kangabam, R. D., Panda, P. C., & Kangabam, M. (2012). Disaster preparedness among the resident community—A case study of Rajiv Gandhi University, Itanagar, India. International Journal on Environmental Sciences, 2, 1632-1642.

Kato, T., & Endo, A. (2020). Involving citizens in sharing disaster experiences across areas: An investigation into disaster-stricken communities and observing communities. International Journal of Disaster Risk Reduction, 42, 101378.

Kleist, L., Thieken, A. H., Köhler, P., Müller, M., Seifert, I., Borst, D., & Werner, U. (2006). Estimation of the regional stock of residential buildings as a basis for a comparative risk assessment in Germany. Natural Hazards and Earth System Sciences, 6, 541-552.

Khan, et.al. (2017). Disaster management risk perception of local communities. Department of Urban and Regional Planning, Faculty of Built Environment Universiti Teknologi Malaysia. https://core.ac.uk/reader/199243770

Ko, G., Lee, S., & Chae, J. (2010). A study on disaster management officer's perception about the disaster response exercise - Focused on general officers and firemen -.

Kohn, S., Semon, N. L., Hedlin, H., Thompson, C., Marum, F., Jenkins, S., Slemp, C. C., & Barnett, D. J. (2014). Public health-specific personal disaster preparedness training: An academic-practice collaboration. Journal of Emergency Management, 12(1), 55-73.

Kudou, A., Sakuma, S., Inatomi, K., Ikeda, M., & Nishina, K. (2012). Local government awareness and response to infection prevention in natural disasters. Japanese Journal of Infection Prevention and Control, 27, 171-177.

Limorte, (n.d.). Children of the Mekong. https://www.childrenofthemekong.org/samar-philippines%E2%80%AF-the-island-of-a-thousand-typhoons/#:~:text=Samar%20is%20the%20third%20largest,most%20vulnerable%20regions%20to%20typhoons.

Liu, C. Z. (1999). On some issues in studying climate change impact and adaptation. Climate and Environmental Research, 4, 129–134.

Lum, T., & Margesson, R. (2014). Typhoon Haiyan (Yolanda): U.S. and international response to Philippines disaster. Current Politics and Economics of South, South-Eastern, and Central Asia, 23, 209–246. https://search.proquest.com/openview/4583721e1283e9672756f878840eec7a/1?pq-origsite=gscholar&cbl=2034881. Accessed 20 January 2020.

Mas, E., Kure, S., Bricker, J. D., Adriano, B., Yi, C. J., Suppasri, A., & Koshimura, S. (2014). Field survey and damage inspection after the 2013 Typhoon Haiyan in the Philippines. Journal of Japan Society of Civil Engineers, 70.

Matunhay, L. M. (2018). Disaster preparedness and resiliency of the local government unit of Compostela. International Journal of Sciences: Basic and Applied Research, 42, 56-67.

McCauley, J. F. (2021). Clientelism and community support in times of crisis: Evidence following floods in Ghana. Studies in Comparative International Development, 56, 413-434.

Mañez, (2016). Risk perception. https://pure.iiasa.ac.at/id/eprint/13903/1/Chapter3-ENHANCE.pdf

Merone, L., & Tait, P. (2018). Preventing disaster in the Pacific islands: The battle against climate disruption. Australian and New Zealand Journal of Public Health, 42, 419–420. doi: 10.1111/1753-6405.12823.

Muttarak, R., & Pothisiri, W. (2013). The role of education on disaster preparedness: Case study of 2012 Indian ocean earthquakes on Thailand's Andaman Coast. Ecology and Society, 18, 1-18.

Nanayakkara, N., Thayaparan, M., & Siriwardena, M. (2021). A systematic review on disaster resilience knowledge for built environment professionals. Proceedings of the International Conference on Industrial Engineering and Operations Management.

Ojo, P., Mpyet, C., Ogbuagu, M. N., & Akpan, S. O. (2015). Pitfalls in non-utilization of basic clinical methods in the detection of kidney disease: A case report. Highland Medical Research Journal, 15, 53-54.

Park, N., & Hokugo, A. (2009). A study on the effect of transferring disaster prevention knowledge on the disaster response ability of employees. Bulletin of Japan Association for Fire Science and Engineering, 59, 61-72.

Pathirage, C. P., Amaratunga, R. D., Haigh, R., & Baldry, D. (2008). Lessons learned from Asian tsunami disaster: Sharing knowledge.

Peters, R. D., Le Berre, M., & Pomeau, Y. (2012). Prediction of catastrophes: An experimental model. Physical Review. E, Statistical, Nonlinear, and Soft Matter Physics, 86(2 Pt 2), 026207.

Pe, Symaco, L. (2013). Geographies of social exclusion: Education access in the Philippines. Comparative Education, 49, 361. doi: 10.1080/03050068.2013.803784.

Quinn, T., Adger, W. N., Butler, C., & Walker-Springett, K. (2020). Community resilience and well-being: An exploration of relationality and belonging after disasters. Annals of the American Association of Geographers, 111, 577-590.

Ramos, R. A., de los Reyes, V. C., Sucaldito, M. N., & Tayag, E. A. (2015). Rapid health assessments of evacuation centres in areas affected by Typhoon Haiyan. Western Pacific Surveillance and Response Journal: WPSAR, 6 Suppl 1, 39-43.

Raza, T. (2018). Localizing disaster risk reduction and climate change adaptation in planners' and decision makers' agenda: Technical comprehensive model, Quezon City, Philippines. Procedia Engineering, 212, 1311-1318.

Rico, G. C. (2019). School-community collaboration: Disaster preparedness towards building resilient communities. International Journal of Disaster Risk Management.

Ringel, R., Laor, D., Ohana, A. B., & Adini, B. (2011). (A22) Promoting emergency preparedness of local municipalities for disasters – Lessons learned. Prehospital and Disaster Medicine, 26, s8-s8.

Semien, J., & Nance, E. (2019). K.A.P.S.: A disaster training approach for high-risk communities. International Journal of Mass Emergencies & Disasters, 37, 264-285.

Schoch-Spana, M., Franco, C., Nuzzo, J. B., & Usenza, C. (2007). Community engagement: Leadership tool for catastrophic health events. Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, 5(1), 8-25.

Somers, S., & Svara, J. H. (2009). Assessing and managing environmental risk: Connecting local government management with emergency management. Public Administration Review, 69, 181-193.

Song, X., Zhang, Q., Sekimoto, Y., & Shibasaki, R. (2014). Prediction of human emergency behavior and their mobility following large-scale disaster. Proceedings of the 20th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining.

Soriano, G. A. (2019). Disaster risk reduction knowledge among local people in a selected community in the Philippines.

Schnytzer, A., & Schnytzer, Y. (2012). Animal modeling of earthquakes and prediction markets. The Journal of Prediction Markets, 6, 59-76.

Surianto, S., Alim, S., Nindrea, R. D., & Trisnantoro, L. (2019). Regional policy for disaster risk management in developing countries within the Sendai Framework: A systematic review. Open Access Macedonian Journal of Medical Sciences, 7, 2213-2219.

Tej, J., Živčák, P., Taha, V. A., & Šírková, M. (2014). Crisis awareness of the municipal district residents: Implication for crisis management at the local government level. Quality, Innovation, Prosperity, 18, 1-14.

Timovska, M., & Dojcinovski, M. (2016). The role of knowledge in disaster risk reduction.

Tipan, G. (2023). Policy in the institutionalization of local disaster risk reduction and management office in the municipality of Mataasnakahoy: Basis for policy enhancement.

Tierney, K., Lindell, M., & Perry, R. (2001). Facing Hazard and Disaster: Understanding Human Dimensions (Washington, DC: Joseph Henry Press).

United Nations International Strategy and Disaster Reduction. (2009). Terminologi Pengurangan Risiko Bencana (Bangkok: The Asian Disaster Reduction and Response Network).

Waring, S., Alison, L., Carter, G., Barrett-Pink, C., Humann, M., Swan, L., & Žilinský, T. (2018). Information sharing in interteam responses to disaster. Journal of Occupational and Organizational Psychology, 91, 591-619.

Walia, A. (2008). Community-based disaster preparedness: Need for a standardized training module. Aust J Emerg Manag, 23, 441–454.

Weichselgartner, et al. (2015). The Role of Knowledge in Disaster Risk Reduction. https://link.springer.com/article/10.1007/s13753-015-0052-7

Wu, J., Ye, M., Wang, X., & Koks, E. E. (2019). Building Asset Value Mapping in Support of Flood Risk Assessments: A Case Study of Shanghai, China. Sustainability.

World Meteorological Organization. (n.d.). Disaster Risk Knowledge. https://public.wmo.int/en/our-mandate/focus-areas/natural-

hazards-and-disaster-risk-reduction/mhews-checklist/knowledge

Yadav, D. K., & Barve, A. (2019). Prioritization of cyclone preparedness activities in humanitarian supply chains using fuzzy analytical network process. Nat Hazards, 97, 683–726. doi: 10.1007/s11069-019-03668-3

Yin, Y. Y. (2002). Adaptation Evaluation Tools and Analysis Methods for Climate Change. J. Glaciol. Geocryol., 24, 426–431.

Yumul, G. P., Cruz, N. A., Servando, N. T., & Dimalanta, C. B. (2008). The Meteorologically Abnormal Year of 2006 and Natural Disasters in the Philippines. Episodes, 31, 378-383.

Zhai, Linpei, & Lee, Jae Eun. (2023). "Analyzing the Disaster Preparedness Capability of Local Government Using AHP: Zhengzhou 7.20 Rainstorm Disaster". International Journal of Environmental Research and Public Health, 20(2), 952. https://doi.org/10.3390/ijerph20020952

Zhang, Q., Zhang, J., Jiang, L., Liu, X., & Tong, Z. (2014). Flood Disaster Risk Assessment of Rural Housings — A Case Study of Kouqian Town in China. International Journal of Environmental Research and Public Health, 11, 3787-3802.

Affiliations and Corresponding Information

Niño Carlo S. Castillejos
Lipa City Colleges – Philippines

Dr. Lelanie D. Perido
Lipa City Colleges – Philippines