

Levels of Disaster Awareness and Preparedness in the Disaster-Prone Barangays of Bagabag, Nueva Vizcaya

Leal, Jean Chloe D., Gajelomo, Renz Carl S., Abad, Ashley Carleslie O., Vallejos, Tatiana Jane G., Cortez, Jermain Von C. (+), and Villanueva, Hansen T., MA

ABSTRACT

Typhoons and flooding are the most frequent natural disasters experienced by the municipality of Bagabag. Casualties and damages are inevitable during these catastrophic events making disaster awareness and disaster preparedness of residents essential. This study was conducted to determine the levels of disaster awareness and disaster preparedness of residents in the municipality of Bagabag, Nueva Vizcaya focusing mainly on disaster-prone Barangays which include Bakir, Nangalisan and Paniki. A descriptive-correlational research design that outlines the profile characteristics of respondents and relationship between awareness and preparedness of the 150 respondents on disaster response was utilized. The result revealed that the respondents have a moderate level of disaster awareness suggesting the respondents possess a reasonable understanding of disaster-related information. In terms of disaster preparedness, respondents are moderately prepared. While they possess a fair level of readiness in various aspects of disaster preparedness, there are still notable areas that require improvement. Moreover, a significant relationship between disaster awareness and disaster preparedness was established as the results indicate comparable ratings of “moderately aware” and “moderately prepared” which suggests that as people become more aware of disasters, their levels of preparedness tend to increase accordingly. The study highlights the importance of integrating disaster awareness and preparedness into community programs to enhance residents' understanding and readiness for emergencies. It emphasizes that widespread dissemination of disaster-related information and curriculum integration can guide effective disaster risk reduction strategies for policymakers and practitioners.

Keywords: community participation, evacuation plans, policymakers readiness, vulnerability assessment

INTRODUCTION

Natural disasters which are part of the world's cycle have an immediate impact on millions of people, nations, and international organizations as they often result in destruction of lives and properties, and disruption in society (Sawalha, 2020). Agencies and organizations are formed to provide disaster relief assistance and immediate action in locating casualties, attending injuries, giving out food, drink, and shelter for the survivors. However, when disasters strike developing countries, relief agencies may face various challenges such as absolute poverty, lack of local government collaboration, and security concerns.

Being located inside the Pacific Ring of Fire and near the Pacific Ocean, the Philippines ranks as the topmost natural disaster risk in the world (World Risk Index, 2023). The country has experienced a lot of disastrous natural calamities such as typhoons, earthquakes, volcanic eruptions, tsunamis, fires, and prolonged drought. To mitigate these disasters, Presidential Decree No. 1566, issued by President Marcos established the nation's program for community disaster preparedness. The decree reinforced the inter-agency and multi-sectoral coordination between NGAs, LGUs, the media, and civil society. It also gave the local chief executives of provinces, municipalities/cities, and barangays to carry out regular operations, including drills and training at all levels in connection to disaster preparedness.

Earlier in 2010, the Congress passed the Philippine Act 10121 or the Disaster Risk Reduction and Management (DRRM) Act, incorporating a better and faster way of public approach via a well-defined network system, including the involvement of the educational

system in DRRM. This transformed the framework for disaster risk reduction and management from reactive to proactive. Four key areas for DRRM implementation includes: prevention and mitigation, readiness for catastrophe, disaster response, and restoration.

Community-based disaster preparedness (CBDP) means are increasingly essential elements of vulnerability reduction and disaster management strategies. They are associated with a policy trend that values the knowledge and size of local residents and builds on local sources, including social capital. CBDP may be instrumental in creating local coping and alteration strategies. In theory, local residents can be mobilized to withstand unsustainable forms of development or livelihood practices and to elevate local concerns more effectively with political representatives (Allen, 2006).

Ebreo (2010) reported that the municipality of Bagabag often encounters typhoons. Initial report from the Department of Agriculture (DA) showed that the Typhoon Juan destroyed more than P6 million-worth of crops such as rice, corn, fruits and vegetables in Bagabag town alone, affecting 80 farmers. Barangays in Bagabag such as Paniki, Nangalisan and Bakir were one of the most affected Barangays during the time of typhoon because they are located near the Lamut river where the water level rises during heavy rains. In retrospect, the residents' negligence and lack of preparedness to the typhoon caused their economic and agricultural losses.

The ultimate objective of this research is to evaluate the way in which the Bagabag Local Government Unit (LGU) and Sanguniang Barangay controls and lowers the risks of disaster in the residents of the area. Specifically, this study was conducted to assess the level of disaster awareness and preparedness among residents of the disaster-prone Barangays of Bagabag, Nueva Vizcaya—specifically Bakir, Nangalisan, and Paniki—over the period of June 2024 to May 2025. It aims to understand how these communities respond to various disasters and the impact such events have on their daily lives. The research focused on four key questions. First, it sought to determine the level of disaster awareness among the respondents, evaluating their understanding of risks and readiness to act. Second, it examined the extent of disaster preparedness, including the availability of emergency plans, resources, and training. Third, the study explored whether there is a significant relationship between awareness and preparedness, hypothesizing that higher awareness may lead to better preparedness. Lastly, it aims to propose strategic interventions that could enhance both awareness and preparedness, thereby strengthening community resilience against future disasters.

METHODOLOGY

The study employed a descriptive-correlational research design. The descriptive method part of the study described profile characteristics, level of awareness and preparedness on disaster response. The correlational part covered the relationship between awareness and preparedness of the respondents on disaster response. The findings from these objectives were utilized in the policy recommendations crafted to enhance the said Barangays community guidelines on disaster response.

This study was conducted in the selected disaster-prone Barangays in the Municipality of Bagabag, Nueva Vizcaya namely: Bakir, Paniki and Nangalisan. These barangays are located near Lamut River which makes them prone to flooding especially during the rainy season. When typhoons strike, residential areas and infrastructures including agricultural fields are badly affected.

The target respondents in this study are barangay officials, disaster responders, and residents. The respondents were chosen through random sampling. Barangay officials and disaster responders who expressed willingness to become respondents and were available during the data gathering period participated in the study. The demographic breakdown of the

150 survey participants shows a wide range of age groups. Young adults aged 18 to 27 make up the largest segment at 24%, suggesting many are likely in the early phases of their careers or education. Middle-aged groups also have strong representation, with 19% aged 38 to 47 and 17% aged 48 to 57, indicating the involvement of individuals with more life experience and responsibilities. Other age groups include 28 to 37 years (12%), 58 to 67 years (15%), 68 to 77 years (9%), and 78 to 87 years (3%), showing a gradual decrease in participation with age. In terms of gender, 57% of respondents are female and 43% are male, which may reflect either demographic realities or a greater willingness among women to participate in the survey. The geographic distribution is evenly split among the three Barangays—Bakir, Nangalisan, and Paniki—each contributing 33%, ensuring balanced area representation. Educationally, the group is relatively well-educated: 41% have completed college, and 24% have attended some college. High school graduates account for 26%, while a smaller portion has only elementary-level education. Despite this, only 33% have participated in Disaster Risk Reduction and Management (DRRM) seminars or training, and just 31% have received first aid training. This highlights a notable gap in disaster preparedness and emergency response knowledge, underscoring the need for more accessible training programs in these communities.

The survey questionnaire used was adapted and slightly modified from the study of Columna et al. titled "Assessment on the Level of Disaster Awareness and Preparedness of Senior High School and College Students in STI College, Las Pinas City." Part I was on the demographic profile of the respondents which includes the age, sex, barangay, highest educational attainment, history of DRRM related seminar/training/workshop, and history of previous first aid training. Part II covered questions regarding the level of disaster awareness and preparedness. A 4-point Likert Scale was used in measuring the disaster preparedness of responders in disaster-prone Barangays of Municipality of Bagabag, Nueva Vizcaya.

Different statistical measures, both descriptive and inferential, were used to analyze the data. Descriptive statistics such as frequency counts, percentages, and mean were used to describe the respondent's profile and level of knowledge of the respondent.

RESULTS AND DISCUSSION

Section 1. Level of Disaster Awareness of the Residents of Bakir, Nangalisan, and Paniki, Bagabag, Nueva Vizcaya

Table 1
Level of Disaster Awareness of the Respondents

Statements	Mean	SD	QI
1. A natural disaster such as typhoons, floods, storm surge and earthquake can occur anytime.	3.55	0.61	High
2. There are specific action responses during a disaster event.	3.47	0.62	Moderate
3. The country has been experiencing numerous disastrous events in a year.	3.54	0.56	High
4. As a result of a disaster, more possible disastrous events may likely to follow.	3.35	0.65	Moderate
5. The Philippines ranks among the most disaster-prone country in the South-East Asia.	3.26	0.68	Moderate
6. The Philippines, as an archipelago, puts risk during a storm surge.	3.37	0.60	Moderate
7. The Philippines is situated in a weather pathway near the equator known as the Typhoon Belt.	3.33	0.65	Moderate
8. I apply my knowledge in order to manage and prevent the impact of disaster.	3.43	0.61	Moderate
9. I have enough knowledge on operation for the aftermath of a disaster.	3.24	0.60	Moderate
10. I actively participate in disaster awareness campaigns.	3.03	0.78	Moderate
11. I am prepared with emergency kits and bags in case of disasters.	3.10	0.78	Moderate

12. I am aware of the signages or posters set up by the barangay or LGU.	3.06	0.87	Moderate
13. I have participated in practice of Earthquake and Fire drills hosted by our barangay or community in order for me to know how to respond appropriately and recover in times of disaster.	3.07	0.83	Moderate
14. I always watch or listen to TV, radio forecast or social media platforms like facebook and youtube to update news about certain disaster.	3.48	0.55	Moderate
15. I share information to my friends and family on the proper things to be done before, during, and after the disaster.	3.39	0.59	Moderate
16. I am aware of the shelter areas or evacuation centers and open spaces in case of disaster.	3.39	0.70	Moderate
17. I am informed about disaster prone areas.	3.37	0.66	Moderate
18. I am fully aware and informed about evacuation system and plan in my locality or barangay.	3.33	0.76	Moderate
19. During disaster, I make sure to safeguard myself and others out of danger.	3.47	0.58	Moderate
20. I make sure to establish a good communication with the people in our community to ensure that they are safe.	3.43	0.63	Moderate
OVERALL	3.34	0.44	Moderate Level of Awareness

Legend: 1.00-1.49 (Very Low); 1.50-2.49 (Low); 2.50-3.49 (Moderate); 3.50-4.00 (High)

The findings indicate that the respondents have a moderate level of disaster awareness, with an overall mean score of 3.34. This suggests that while the respondents possess a reasonable understanding of disaster-related information, there is still potential for deeper comprehension and more consistent application of knowledge.

The statement with the highest mean is “A natural disaster such as typhoons, floods, storm surge and earthquake can occur anytime” (3.55), followed closely by “The country has been experiencing numerous disastrous events in a year” (3.54). Both statements fall under the High awareness category, indicating that respondents are most familiar with the reality and frequency of natural disasters in their area. This reflects an accurate general perception of the Philippines’ vulnerability to such hazards.

On the other hand, the lowest mean was recorded in the statement, “I am aware of the signages, or posters set up by the barangay or LGU” (3.06), followed by “I am prepared with emergency kits and bags in case of disasters” (3.10). These relatively lower scores imply a gap in awareness of localized disaster preparedness materials and personal readiness actions, such as having emergency kits on hand.

Moreover, items related to participation in drills and actual awareness of evacuation systems and centers also scored on the lower end, which points to limited exposure to practical and location-specific disaster information. While respondents show a broad understanding of disasters and their impacts, there is a need to strengthen their familiarity with local protocols, available resources, and preparedness actions that are crucial during an actual emergency.

The result of this study aligns with the interpretation of Sauquillo (2023), which highlights a cognitive-behavioral gap: while individuals recognize the risks, they do not consistently act on this awareness. The interpretation also emphasizes that community-level integration and infrastructure are present but underutilized, as reflected in moderate scores for awareness of evacuation systems ($M = 3.33$) and disaster-prone areas ($M = 3.37$).

Additionally, the relatively high score for media consumption ($M = 3.48$) reinforces the interpretation that digital platforms are effective tools for spreading disaster-related information. This suggests that leveraging media could be a strategic way to bridge the gap between awareness and action.

The moderate scores across items related to community drills, evacuation plans, and communication imply that while some infrastructure exists, community engagement and integration remain limited. This reflects a broader challenge in disaster risk reduction efforts in Southeast Asia, where awareness often lacks depth and actionable follow-through

Section 2. Extent of Disaster Preparedness of the Residents of Barangay Bakir, Nangalisan, and Paniki, Bagabag, Nueva Vizcaya

Table 2
Extent of Disaster Preparedness of the Respondents

Statements	Mean	SD	QI
1. I stay away from large bodies of waters, especially when I hear about a new disaster.	3.53	0.59	Moderately Prepared
2. I will evacuate calmly.	3.50	0.55	Highly Prepared
3. I attend seminars about being prepared for a disaster hosted by the local council.	3.01	0.79	Moderately Prepared
4. I have obtained the established specific meeting place to reunite with other students and teachers.	3.17	0.75	Moderately Prepared
5. I participate in the disaster plan that has been formulated by our barangay.	3.05	0.86	Moderately Prepared
6. I participate in government-hosted mass simulation drills in preparation for future disastrous events.	3.02	0.81	Moderately Prepared
7. I will leave immediately when I am told so.	3.57	0.56	Moderately Prepared
8. I have emergency numbers and contact details of MDRRMO, BFP, PNP and RHU.	3.43	0.66	Moderately Prepared
9. I attend seminars and forums laid out by the government, in partnership with several non-government offices for more knowledge.	3.09	0.77	Moderately Prepared
10. I conducted a home hazard assessment to identify potential risks.	3.21	0.68	Moderately Prepared
11. We have a communication plan in case of a disaster.	3.22	0.68	Moderately Prepared
12. The barangay is equipped with Evacuation Plans and Procedures, Functional Early Warning System and Personnel Tracking System in case of Disaster.	3.10	0.91	Moderately Prepared
13. Trainings in emergency response and disaster preparedness should be mandatory for all health professionals.	3.47	0.62	Moderately Prepared
14. I participate in community activities that aim to save the environment and reduce disaster risks	3.34	0.67	Moderately Prepared
15. I know basic skills that are important in disaster situation.	3.39	0.65	Moderately Prepared
OVERALL	3.27	0.50	Moderately Prepared

Legend: 1.00-1.49 (Poorly Prepared); 1.50-2.49(Fairly Prepared); 2.50-3.49 (Moderately Prepared); 3.50-4.00(Highly Prepared)

The data above reveals that the respondents are generally moderately prepared for disasters, as indicated by the overall mean score of 3.27. This suggests that while they possess a fair level of readiness in various aspects of disaster preparedness, there are still notable areas that require improvement. Among the indicators, the highest mean score was observed in the statement, “I will leave immediately when I am told so” (3.57), followed closely by “I will evacuate calmly”(3.50). Both fall under the category of “highly prepared,” showing that respondents are most confident in their ability to follow evacuation orders and maintain composure during disaster situations—critical traits in ensuring safety and minimizing panic. On the other hand, the lowest mean score was recorded in the statement, “I participate in government-hosted mass simulation drills in preparation for future disastrous events” (3.02), indicating relatively low participation in actual disaster drills. Similarly, “I attend seminars about being prepared for a disaster hosted by the local council” scored 3.01, highlighting a lack of involvement in formal educational activities related to disaster preparedness. These findings

point to a need for increased engagement in practical and knowledge-based initiatives, such as seminars and drills, which are essential in strengthening preparedness and ensuring that theoretical knowledge can be effectively translated into real-life action during emergencies.

This study supports the interpretation of Bollettino et al. (2018) by indicating that while Filipinos are increasingly aware of disaster risks, preparedness efforts must be more inclusive and better integrated at both household and community levels. Participation in seminars, drills, and community planning is present but not widespread, indicating a need for stronger engagement and institutional support. The relatively lower scores in areas like attending government-hosted forums ($M = 3.09$) and barangay preparedness systems ($M = 3.10$) reflect gaps in local governance and community integration, which are critical for effective disaster risk reduction.

Moreover, the data underscores the importance of personal and household-level preparedness, such as having emergency contacts ($M = 3.43$) and conducting hazard assessments ($M = 3.21$), but these practices are not yet universal. This aligns with findings that local-level resilience and preparedness vary significantly across regions, often due to disparities in resources and awareness.

Table 3

Level of Disaster Awareness of the Respondents and Extent of Disaster Preparedness of the Respondents

Overall Statement	Mean	SD	QI
1. Level of Disaster Awareness of the Respondents	3.34	0.44	Moderate Level of Awareness
2. Extent of Disaster Preparedness of the Respondents	3.27	0.50	Moderately Prepared

Legend: 1.00-1.49 (Very Low/Poorly Prepared); 1.50-2.49 (Low/Fairly Prepared); 2.50-3.49 (Moderate/Moderately Prepared); 3.50-4.00 (High/Highly Prepared)

The table above shows the mean, standard deviation and interpretation of the Level of awareness of the respondents and extent of disaster preparedness of the respondents. The results in the table above show that the participants possess a moderate level of disaster awareness, reflected by an overall mean score of 3.34. This indicates that although the respondents have a good grasp of disaster-related information, there remains an opportunity for enhanced understanding and more consistent use of knowledge. On the other hand, the extent of disaster preparedness of the respondents shows that participants are typically moderately prepared for disasters, reflected in the average score of 3.27. This indicates that although the participants are somewhat equipped in different facets of disaster preparedness, there are still significant areas needing enhancement.

The moderate mean scores for both disaster awareness ($M = 3.34$) and preparedness ($M = 3.27$) suggest that while respondents have a foundational understanding and some readiness for disasters, there is still considerable room for improvement. The strong positive correlation ($r = 0.861^*$) between these two variables indicates that as awareness increases, so does preparedness. This relationship aligns with findings from Hargono et al. (2023), who reported that individuals with lower disaster awareness were significantly more likely to exhibit lower levels of preparedness, emphasizing the critical role of awareness in shaping proactive disaster behaviors. This suggests that enhancing public awareness through education, community engagement, and targeted training programs could substantially improve disaster preparedness outcomes. It also highlights the need for integrated strategies that not only inform but also empower communities to act on their knowledge.

Section 3. Significant Relationship Between Disaster Awareness and Preparedness of the Respondents

Table 4

Significant Relationship Between Level of Disaster Awareness and Extent of Preparedness

		Extent of Preparedness
Level of Disaster Awareness	r	0.861*
	N	150
	Sig.	0.000

*Significant($p < 0.05$)

The computed Pearson correlation coefficient is 0.861, indicating a very strong positive relationship between the two variables. This suggests that as individuals become more aware of disaster-related information, their level of preparedness significantly increases. The correlation is statistically significant at the 0.05 level ($p < 0.05$), confirming that the observed relationship is unlikely to have occurred by chance. This finding reinforces the importance of enhancing disaster awareness programs, as increased awareness is closely associated with improved readiness for disaster response. The result provides empirical support for integrating awareness initiatives into community preparedness strategies, thereby strengthening overall disaster resilience.

The strong positive correlation between disaster awareness and preparedness among residents of Bagabag, Nueva Vizcaya reflects a deeper systemic implication that knowledge dissemination and community engagement are not just supportive measures but foundational pillars of resilience. This relationship suggests that disaster readiness is not merely a function of individual behavior but is shaped by broader socio-political structures, including local governance, educational systems, and cultural attitudes toward risk. The moderate ratings in both awareness and preparedness indicate a transitional stage in community resilience—where basic understanding exists but is not yet fully institutionalized or internalized. Therefore, integrating disaster education into formal curricula and community programs can serve as a transformative strategy, empowering individuals while reinforcing collective capacity. This insight aligns with national frameworks like RA 10121 and the Sendai Framework, emphasizing the need for proactive, inclusive, and localized disaster risk reduction approaches.

Section 4. Educational Campaign Material Crafted Based on the Salient Findings of the Study

After the completion of the study, the researchers coordinated with the Municipal Disaster Risk Reduction and Management Office of Bagabag, Nueva Vizcaya, and with the different barangay councils of Bakir, Nangalisan and Paniki, Bagabag, Nueva Vizcaya to organize a conference for the dissemination of the research findings. After finalizing a suitable schedule, the researchers conducted the conference, sharing essential findings and insights from their study with the attendees. During the event, they presented their results and explored the study's broader implications. The discussion highlighted how the research could enhance the disaster awareness and preparedness of the different Barangays, offering practical recommendations and actionable insights. To promote understanding, the researchers also dedicated time to a question-and-answer session, allowing the attendees to seek further clarification on the methodology and outcomes.

As part of the dissemination process, the researchers handed a brochure to the residents of the Barangays Bakir, Nangalisan, and Paniki, Nueva Vizcaya. The brochure is entitled “The Complete Guide to “Disaster Awareness and Preparedness in the Disaster-Prone Areas.” It offers a brief summary of typhoons and floods, the most common natural disasters encountered by the municipality of Bagabag. It also contains information on actions to take before, during, and after

an event, along with details about emergency supplies, strategies and contact information of Bagabag Police Station, Bagabag Fire Station and MDRRMO Bagabag. Lastly, a translated version of the contents of the brochure from English to Tagalog was included to eliminate the language barrier.

Through involvement of local councils and residents, the researchers used a collaborative method to share knowledge, which supports international standards like the Sendai Framework for Disaster Risk Reduction. This effort marks a move away from traditional top-down approaches, instead focusing on local involvement, community participation, and customized communication tools like brochures. Hosting a conference and handing out easy-to-understand materials shows a clear effort to make scientific knowledge more accessible, helping residents take an active role in protecting themselves and their communities. Additionally, this strategy can help build stronger community ties—encouraging trust, cooperation, and shared responsibility between citizens and local leaders. Over time, such efforts may lead to lasting changes in behavior, better learning within institutions, and the integration of DRR practices into local policies, possibly serving as a model for other at-risk areas.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The respondents have a moderate level of disaster awareness which means they reasonably understand disaster-related information. They are also moderately prepared which means there are still notable areas that require improvement. Moreover, a significant relationship between disaster awareness and disaster preparedness was established as the results indicate comparable ratings of “moderately aware” and “moderately prepared” which suggests that as people become more aware of disasters, their levels of preparedness tend to increase accordingly. A conference was conducted among the residents and an informative brochure was distributed to them to increase their awareness and preparedness for disasters.

Recommendations

To elevate disaster awareness from moderate to high, the LGU and MDRRMO should launch targeted multimedia campaigns, community forums, and school-based programs. These initiatives must prioritize local risks, early warning systems, and practical safety measures. To ensure accessibility, the LGU should produce simplified disaster guides translated into local dialects, ensuring all residents—regardless of language or education level—can interpret life-saving information.

The MDRRMO should also transition from theoretical seminars to hands-on capacity building. This includes practical drills for regular evacuation simulations, first aid demonstrations, and household safety planning tailored to specific local hazards; developing localized contingency plans and reinforcing the resilience of critical infrastructure, such as schools and evacuation centers and Involving barangay officials and community members in the planning process to foster a culture of shared responsibility and long-term sustainability.

As technology progresses, the MDRRMO should implement mobile applications or SMS-based alert systems for rapid information dissemination. To broaden its impact, the LGU must collaborate with diverse stakeholders, including religious groups and local businesses. Finally, a continuous feedback loop should be established, using community input to refine educational materials and ensure they remain relevant to the evolving needs of the residents.

By integrating these recommendations, the LGU moves from simple awareness to a comprehensive management cycle that balances proactive mitigation with reactive response.

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