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Key Factors Strengthening Disaster Preparedness of Barangay Councils in Rizal, Kalinga

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Abstract

This study explored the key factors influencing the disaster preparedness of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Rizal, Kalinga. Using a quantitative descriptive-correlational design, data were gathered from 168 BDRRMC members across 14 barangays to assess compliance with preparedness standards and identify the availability of supporting factors such as training, resources, leadership, and inter-agency support. Results showed that BDRRMCs were generally "Fully Compliant" (grand mean = 4.05), with strong coordination with local government units and well-prepared DRRM plans. However, limitations were found in funding, emergency supplies, and technical training access. Support from LGUs and community participation were the most available factors, while specialized training ranked lowest. Significant associations were found between resource availability and demographic variables, but not by barangay. A surprising moderate negative correlation ($r = –0.416$, $p = .000$) was found between the availability of resources and compliance level, suggesting that the presence of resources alone does not ensure preparedness. The study highlights the need for inclusive engagement, capacity-building, and improved resource utilization to enhance disaster readiness at the grassroots level.

1. INTRODUCTION

1.1. Background of the Study

The occurrence of natural or human-induced hazards poses threats to the lives, safety, livelihoods, and development of communities, especially in areas where disaster preparedness measures are lacking (UNDRR, 2015). Given the geological and geographical characteristics, the Philippines is located in the Pacific Ring of Fire and the western Pacific typhoon belt, which is highly exposed to various hazards such as earthquakes, volcanic eruptions, and tropical cyclones (Lagmay et al., 2015). Likewise, the Municipality of Rizal in the province of Kalinga is frequently affected by typhoons and flooding. These hazards were considered as priority hazards, since based on records, as it already caused significant damage to agricultural production, infrastructure, and essential services from 2016 to 2022(Municipal DRRM Plan of Rizal LGU, 2022-2024).

Given these recurring threats, the national government of the Philippines enacted Republic Act No. 10121, also known as the Philippine Disaster Risk Reduction and Management Act of 2010, which institutionalizes a proactive, community-based approach to disaster risk reduction and management (RA 10121, 2010). Moreover, it mandates the establishment of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs), which shall serve as the frontline and be responsible for formulating, implementing, and monitoring localized DRRM plans and activities at the grassroots level. The BDRRMCs are tasked with overseeing the four thematic areas of DRRM: prevention and mitigation, preparedness, response, rehabilitation, and recovery (NDRRMC, 2011).

Despite this mandate and institutional framework, some BDRRMC's in Rizal, Kalinga still experience challenges in maintaining activities under disaster preparedness. Issues like limited funding, inadequate access to equipment, lack of technical training, and weak coordination mechanisms with municipal and national DRRM agencies persist (Commission on Audit, 2020; Fernandez & Shaw, 2015). These constraints affect the capacity of BDRRMCs to manage effectively and ensure the safety of the communities in the onset of calamities.

Although, the national government through the Department of the Interior and Local Government (DILG) have developed the program "Operation Listo" that served as important tools and guidelines to enhance local disaster preparedness (DILG, 2015), gaps remain in understanding how various contextual factors influence the effectiveness of these committees at the grassroots level. Studies emphasize that successful disaster preparedness requires not only institutional presence but also strong leadership, community participation, sustained capacity-building, and resource availability (Gaillard et al., 2008; Bankoff, 2010; Mercer et al., 2010).

This research, therefore, seeks to anchor this knowledge gap through identifying and analyzing the key factors that influence barangay disaster preparedness in Rizal, Kalinga. By means of gathering local experiences, capacities, and constraints, this study will further provide evidence-based recommendations that could enhance the performance of BDRRMCs. The findings of this study will be endorsed to the policymakers, local government units, the Municipal Disaster Risk Reduction and Management Council (MDRRMC), and other concerned parties to be used in crafting more responsive disaster preparedness programs in the locality.

Eventually, strengthening disaster preparedness at the barangay level is essential to reduce disaster risks, ensure safety, and promote a resilient municipality of Rizal, Kalinga. This aligns with global frameworks such as the Sendai Framework for Disaster Risk Reduction

2015–2030, which highlights the importance of empowering local institutions in managing disaster risks (UNDRR, 2015). By focusing on the localized implementation of RA 10121, this study contributes to the broader national and global efforts to promote community-based resilience and sustainable risk governance.

1.2.Conceptual Framework

This study is anchored on the Community-Based Disaster Risk Reduction and Management (CBDRRM) Framework, which emphasizes that disaster preparedness is most effective, especially when local communities actively participate and engage with the different risk reduction efforts. The CBDRRM approach ensures that disaster management strategies are tailored to the specific needs, capacities, and vulnerabilities present in the barangays. It highlights the importance of training, resource availability, leadership, community engagement, and inter-agency coordination in enhancing disaster preparedness at the grassroots level.

Additionally, this study applies the Four Thematic Areas of Disaster Risk Reduction and Management (RA 10121) as a guiding framework, namely Prevention and Mitigation, Preparedness, Response, Rehabilitation, and Recovery.

Nonetheless, it focuses specifically on the disaster preparedness aspect, pertaining to training, coordination, and resource allocation for effective disaster response. Thus, strengthening BDRRMC capacities to enhance disaster readiness in Rizal, Kalinga.

Figure 1. Conceptual Framework of the Study illustrates the relationship between key factors influencing disaster preparedness and the level of preparedness of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs).

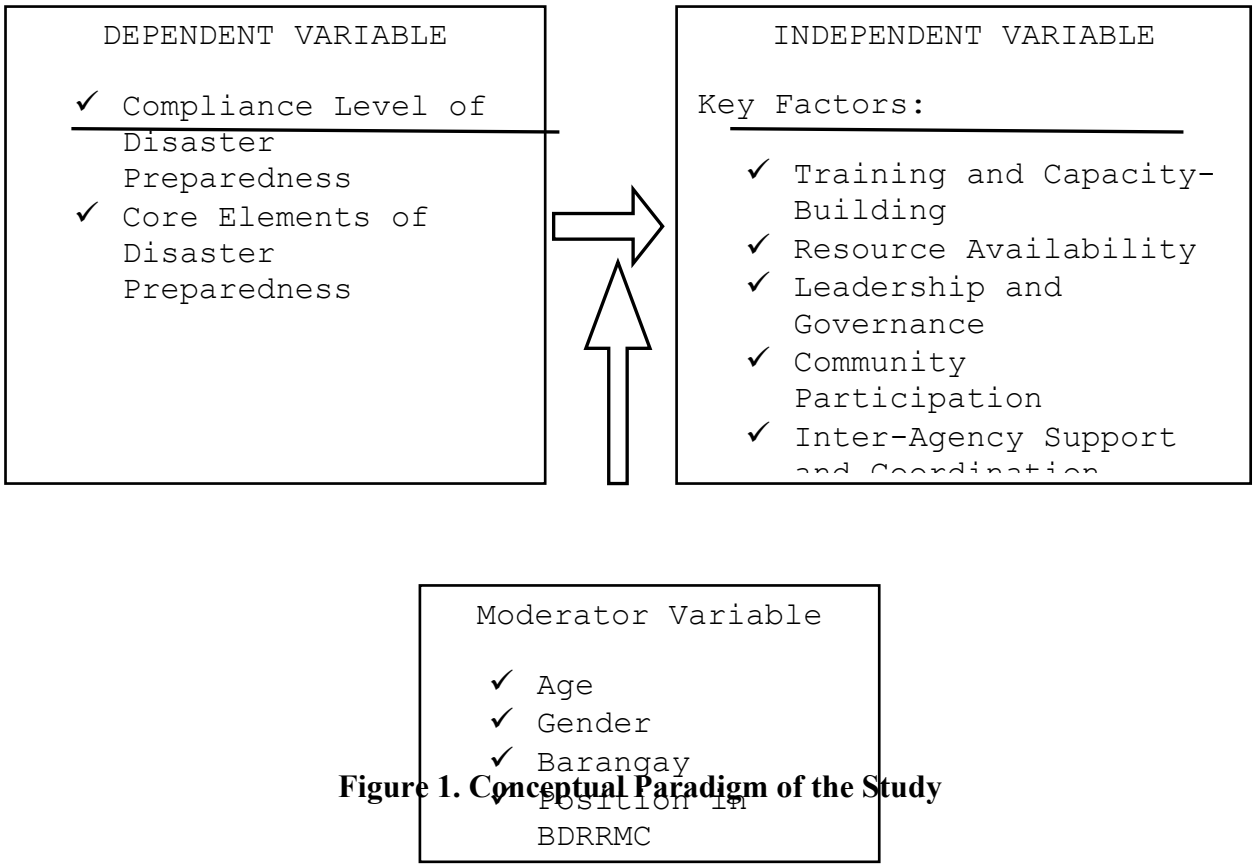

Figure 1. Conceptual Paradigm of the Study

This Framework aims to guide the formulation of research hypotheses, serve as a basis for developing research instruments, establish measurable relationships between independent and dependent variables, and provide a localized analytical model to assess and improve disaster preparedness at the barangay level in the municipality of Rizal, Kalinga.

1.3.Statement of the Objectives of the Study and Null Hypothesis

This study seeks to examine the key factors strengthening the disaster preparedness of Barangay Councils in the Municipality of Rizal, Kalinga. It aims to evaluate the current compliance level of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) with established disaster preparedness indicators and determine the influence of selected factors and demographic variables on their performance. Specifically, the study aims to:

1. Assess the current level of compliance with disaster preparedness standards among BDRRMCs in Rizal, Kalinga.
   1.1 There is no significant difference in the level of compliance with disaster preparedness standards among BDRRMCs when grouped according to the Moderator variable.
2. Describe and rank the availability of the key factors influencing the level of disaster preparedness of BDRRMC.
3. To compare the availability of factors when grouped according to moderator variables
   3.1 There is no significant association between the availability of factors when grouped according to moderator variables
4. To assess the relationship between the level of compliance and availability of key Factors that influence the disaster preparedness of BDRRMC.
   4.1 There is no relationship between the level of compliance and the availability of key Factors that influence the disaster preparedness of BDRRMC.

1.4.Definition of Terms

The following terms are defined in accordance with their contextual use in the study, with the goals of enhancing a better understanding of the study and clarifying its findings.

Barangay Council. Refers to the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) under the Barangay Development Councils (BDCs)- As mandated under Sections 11 and 12of the Republic Act 10121.

BDRRMC (Barangay Disaster Risk Reduction and Management Council). The local body is responsible for implementing disaster preparedness and response programs at the barangay level.

Capacity Building. Training and development activities that enhance the skills of individuals and institutions in disaster management.

Community Participation. Engagement of local residents in disaster preparedness programs, early warning systems, and emergency response efforts.

Disaster Preparedness. Measures taken to prepare for and reduce the effects of disasters.

DRRM. Disaster Risk Reduction and Management encompasses efforts to reduce vulnerabilities and risks to hazards.

Early Warning System. Mechanisms used to alert communities of impending disasters.

Inter-Agency Support and Coordination. Collaboration between BDRRMCs, local government units (LGUs), national government agencies, and non-government organizations (NGOs) in DRRM.

Leadership and Governance. Effectiveness of barangay officials and BDRRMC members in implementing DRRM policies and programs.

Resource Availability. Presence of facilities, emergency equipment, supplies, and financial support for disaster preparedness activities.

Training and Capacity-Building. Availability and frequency of DRRM training, simulation drills, and skills enhancement for BDRRMC members.

1.5. Importance of the Study

This study was conducted to provide support and further strengthen the vital role of barangay councils in disaster preparedness, especially in hazard-prone areas in the municipality of Rizal, Kalinga. As the frontliners in disaster response, barangays are responsible for building resilient communities against risks from natural hazards.

The findings of this study may benefit various stakeholders by identifying gaps and strengths in preparedness. Barangay officials and BDRRMC members can enhance strategies and training; the LGU can develop policies and interventions; and community members may secure their safety through increased awareness and involvement. Policymakers, concerned agencies, and practitioners are provided with data from the study to inform policy and program development, while academic institutions gain valuable insights into rural DRRM practices.

Ultimately, this research supports a more proactive and inclusive approach to disaster preparedness, fostering resilience at the grassroots level.

The Researcher. This study provided the researcher with a deeper understanding of the current state of disaster preparedness in all fourteen (14) barangays of Rizal, Kalinga. The researcher also enabled the identification of specific factors—such as training, funding, leadership, equipment, community participation, early warning systems, and inter-agency support—that significantly influence the effectiveness of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs). Through this research, the investigator gained valuable insights into the strengths and gaps in local disaster risk governance, which may serve as a basis for proposing evidence-based recommendations and future capacity-building initiatives to strengthen community resilience.

The Future Researchers. This study is a helpful reference for future researchers who are also concerned about the effectiveness of local disaster risk reduction and management systems. It provides baseline data, methodological guidance, and practical recommendations that can be used in further studies related to disaster preparedness, climate change adaptation, community resilience, and local governance. Future researchers may also use this work to conduct comparative studies or assess the long-term impact of implemented disaster preparedness measures in barangays.

2. REVIEW OF RELATED LITERATURE

In recent years, the Philippines has witnessed an increasing frequency and intensity of natural hazards, which has further emphasized the critical need for strong disaster preparedness, particularly at the community level. As the smallest administrative unit, barangays hold a responsibility in implementing Disaster Risk Reduction and Management (DRRM) measures. Despite the presence of comprehensive national policies and frameworks, significant challenges in preparedness persist. These challenges are often linked to varying levels of compliance, unequal distribution of resources, and inconsistencies in the actual implementation of plans and programs. This literature review examines key institutional frameworks, policy directives, and academic studies that contextualize the current state of disaster preparedness among Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Rizal, Kalinga.

The review aims to identify research gaps, present a thematic synthesis of relevant studies, and position the present inquiry within the broader context of local disaster governance. It draws on international and national frameworks, including the Sendai Framework for Disaster Risk Reduction 2015–2030 (UNDRR, 2015), which advocates for strengthened preparedness through active community engagement, and Republic Act No. 10121 (Government of the Philippines, 2010), which mandates the establishment of DRRMCs at the barangay level. National initiatives, such as the Operation Listo Program of the Department of the Interior and Local Government (DILG) and the Commission on Audit's (2020) report on the Local Disaster Risk Reduction and Management Fund (LDRRMF), further inform the institutional context, offering insights into support structures and gaps in resource utilization, planning, and execution.

In addition, the review synthesizes both local and international academic literature that explores themes including community-based disaster preparedness, institutional coordination, equitable resource access, and the relationship between compliance and actual disaster readiness. The review is structured around the four central objectives of this study, providing clarity on how existing literature aligns with, extends, or challenges the investigation of key factors shaping barangay disaster preparedness in Rizal, Kalinga.

Regarding compliance with disaster preparedness standards, existing studies suggest that while many barangays formally adhere to prescribed protocols, actual levels of readiness vary considerably. Villanueva (2019), in a study of Albay, observed that compliance was often limited to documentation, with substantial challenges in logistical and operational aspects during emergencies. Similarly, Lucero and Martinez (2020) reported that although DRRM plans were present in Northern Luzon, significant gaps persisted in resource allocation and the conduct of drills and actual responses. Cardona et al. (2012) emphasized that true disaster preparedness should not be measured by procedural compliance alone, but by demonstrated capacity and performance in real-world scenarios. These findings highlight the necessity of evaluating both adherence to standards and functional readiness.

In examining the availability of critical factors that contribute to preparedness, the literature consistently identifies training, leadership, community involvement, and access to necessary equipment as fundamental components. Gaillard and Maceda (2009) emphasized the importance of integrating local knowledge and community-based strategies into DRRM systems, emphasizing that community empowerment is key to enhancing preparedness. Porio (2014), focusing on urban settings, pointed to challenges such as limited funding, inadequate

training, and poor infrastructure, all of which hinder effective disaster readiness. Cutter et al. (2008) offered a broader perspective through the Social Vulnerability Index, highlighting the direct link between institutional and social resource availability and community resilience. These studies collectively point to uneven resource distribution as a persistent challenge, particularly in rural and marginalized communities.

When analyzing how access to preparedness factors differs across demographic and institutional contexts, prior research identifies patterns of inequality. For example, Perez and Luna (2017) found that women often had fewer opportunities to participate in technical DRRM training, despite their significant roles in community recovery efforts. Rañeses and Salazar (2021) reported that barangay officials with longer service tended to have better access to resources and capacity-building initiatives, owing largely to stronger institutional ties and accumulated knowledge. Nakagawa and Shaw (2004) discussed the importance of social capital—including age, experience, and civic engagement—as a key determinant of community resilience. These findings suggest that internal disparities within barangay councils may limit the collective effectiveness of preparedness measures.

The relationship between compliance and the availability of preparedness resources has been less extensively studied, though some works offer valuable insights. Twigg (2009) argued that access to training and equipment, while essential, does not guarantee improved preparedness unless accompanied by effective application. Bankoff (2003) similarly warned against assuming that resource presence equates to readiness, stressing the importance of governance quality, cultural context, and community trust. Aitsi-Selmi et al. (2015), in their review of the Sendai Framework's early implementation, found that increases in funding and resource allocation did not consistently lead to better disaster outcomes due to weaknesses in systems and coordination. These observations point to a possible disconnection between resource availability and actual performance—an issue that the present study aims to further explore in the context of Rizal, Kalinga.

In conclusion, the literature highlights the critical importance of both compliance and resource availability in achieving disaster preparedness, while drawing attention to ongoing gaps in access, equity, and implementation. Although national frameworks provide a foundation for local DRRM efforts, their translation into effective action at the barangay level remains uneven. This study seeks to contribute empirical evidence from a rural setting, addressing gaps in understanding the complex interactions between preparedness standards, resource distribution, and demographic variables within barangay councils.

3. METHODOLOGY

3.1. Research Design

This study used a descriptive-correlational research design in order to assess the level of compliance of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Rizal, Kalinga, with disaster preparedness indicators and to determine the availability of key factors influencing disaster preparedness. The descriptive aspect of the study focused on determining the extent of compliance and availability of critical factors such as training, funding, leadership and governance, equipment and facilities, community participation, early warning systems, and inter-agency support. The correlational component sought to examine the relationships between the availability of these key factors and the level of disaster preparedness compliance.

Quantitative data were gathered through a structured survey questionnaire consisting of a five-point Likert scale to measure the level of compliance of BDRRMC with disaster preparedness indicators. At the same time, a binary checklist was used to identify the different key factors influencing the level of disaster preparedness of BDRRMCs. The design allowed for systematic collection, analysis, and interpretation of data in strengthening disaster preparedness at the barangay level.

3.2.Locale and Population of the Study

Table 1. Distribution of respondents across all barangays in Rizal.

Barangay	Frequency	Percentage
Babalag East	12	7.14%
Babalag West	12	7.14%
Bulbol	12	7.14%
Calaocan	12	7.14%
Kinama	12	7.14%
Liwan East	12	7.14%
Liwan West	12	7.14%
Macutay	12	7.14%
Romualdez	12	7.14%
San Francisco	12	7.14%
San Pascual	12	7.14%
San Pedo	12	7.14%
San Quintin	12	7.14%
Santor	12	7.14%
TOTAL	168	100%

Table 1 shows that the target population of the study included all members of the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) all over 14 barangays of Rizal, Kalinga. This included the Barangay Captain (1), Sangguniang Barangay Members (7), Sangguniang Kabataan Chairperson (1), NGO/PO Representatives (2), and a Sectoral Representative (1), totaling 12 respondents per barangay. The study employed total enumeration, involving all 168 BDRRMC members as respondents.

Table 2. Profile of Respondents in terms of Age

Age	Frequency	Percentage
18-30	22	13.1
31-45	46	27.4
46-59	76	45.2
More than 60 years old	24	14.3
Total	168	100

Table 2 shows the age distribution of the respondents. The majority (45.2%) are between 46 and 59 years old, followed by 27.4% aged 31 to 45. Younger members aged 18 to 30 make up 13.1%, while those over 60 represent 14.3%.

Table 3. Profile of Respondents in terms of Gender

Gender	Frequency	Percentage
Male	115	68.5

Female	53	31.5
Total	168	100

Table 3 reflects the gender composition of the respondents. A larger proportion are male (68.5%), while females account for 31.5% of the total BDRRMC members surveyed.

Table 4. Profile of Respondents in terms of Position in BDRRMC

Position	Frequency	Percentage
Chairperson	14	8.3
Sangguniang Barangay Member	98	58.3
Sangguniang Kabataan Chairperson	14	8.3
NGO/PO representative	28	16.7
Sectoral representative	14	8.3
Total	168	100

Table 4 displays the positions held by the respondents within the BDRRMCs. Most are Sangguniang Barangay Members (58.3%), followed by NGO/PO representatives (16.7%). Chairpersons, SK Chairpersons, and Sectoral Representatives each comprise 8.3% of the total.

Table 5. Profile of Respondents in terms of Years in BDRRMC

Years in BDRRMC	Frequency	Percentage
Less than 1 year	14	8.3
1-3 Years	97	57.7
4-6 Years	34	20.2
More than 6 years	23	13.7
Total	168	100

Table 5 summarizes the respondents' length of service in the BDRRMC. More than half (57.7%) have served between 1 to 3 years. Those with 4 to 6 years of service make up 20.2%, while 13.7% have served for more than 6 years. Only 8.3% are relatively new, with less than 1 year of experience.

3.3. Scope and Delimitation of the Study

This study focused on identifying and analyzing the key factors that shape the disaster preparedness efforts of barangay councils in the municipality of Rizal, Kalinga. The research was primarily confined to the preparedness component of Disaster Risk Reduction and Management (DRRM). However, selected aspects of prevention and mitigation, response, as well as rehabilitation and recovery, were also considered where relevant. The study exclusively involved chairpersons and members of the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs), deliberately excluding other stakeholders such as residents, representatives of educational institutions, and members of the private sector.

The research covered all 14 barangays of Rizal, Kalinga—communities that are frequently affected by hazards, including typhoons and floods. The inquiry was limited to the examination of current DRRM practices and perceptions as reflected during the specific period of data collection.

3.4. Validity and Reliability of the Study

The research instrument was principally adapted from the Quality Assessment Tool for Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) developed

under the Department of the Interior and Local Government's (DILG) Operation Listo program. This tool served as the primary framework for evaluating compliance with disaster preparedness standards and for developing survey items consistent with the study's objectives.

The instrument's components—including training, funding, leadership and governance, facilities and equipment, community participation, early warning systems, and inter-agency support—were informed by national DRRM policies (such as Republic Act No. 10121) and international frameworks (such as the Sendai Framework for Disaster Risk Reduction). These were further supported by scholarly literature to ensure comprehensive coverage of critical factors influencing barangay-level preparedness.

Content validity was established through the review of the instrument by subject matter experts, including the Municipal Disaster Risk Reduction and Management Officer (MDRRMO) and faculty members specializing in DRRM and public administration. Their feedback ensured the clarity, relevance, and alignment of the instrument with the study's objectives.

The reliability of the instrument was tested using Cronbach's Alpha, yielding a coefficient of 0.783, which indicates acceptable internal consistency and reliability for the measures used in the study.

3.5.Data Gathering Tools

The primary tool for data collection was a structured survey questionnaire designed to address the specific objectives of the study. This instrument incorporated elements from established tools and prior studies on disaster risk reduction, community-based preparedness, and local governance to ensure its appropriateness for the context of Rizal, Kalinga.

The questionnaire was organized into three parts: (1) Demographic profile, which collected data on age, gender, position in the BDRRMC, and years of service; (2) Level of Compliance of BDRRMC with disaster preparedness indicators; and (3) Key Factors influencing the level of disaster preparedness of BDRRMCs, where respondents provided binary (available/not available) responses regarding the presence of specific resources in their barangay.

The questionnaire combined multiple-choice items, checklists, and Likert scale responses, allowing for the collection of standardized, quantifiable data that supported objective statistical analysis and meaningful interpretation of the results.

3.6.Data Gathering Procedure

Following the approval of the research proposal, formal permission was secured from the Municipal Mayor and Barangay Captains to conduct the study. Coordination was undertaken with barangay secretaries and BDRRMC focal persons to identify eligible participants.

The researchers personally administered the questionnaires to BDRRMC members in each barangay. Respondents were allotted adequate time to complete the survey, with clarifications provided as necessary. All collected data were carefully encoded and analyzed, with strict adherence to ethical research standards, including the protection of respondent confidentiality.

3.7.Treatment of Data

The data gathered from the respondents were carefully collated, organized, and subjected to rigorous statistical analysis utilizing the Statistical Package for the Social Sciences (SPSS) alongside Microsoft Excel. These software applications facilitated the precise computation of both descriptive and inferential statistics, ensuring the validity and reliability of the results in addressing the research objectives.

Table 6. Level of Compliance with Disaster Preparedness Indicators Using a Five-Point Likert Scale

Arbitrary Values	Limits	Descriptive Equivalent	Symbol	**Operational Definition**
5	4.21-5.00	Beyond Compliant	BC	The BDRRMC has exceeded the expected level of compliance, implementing disaster preparedness measures at a level significantly higher than the standard requirements.
4	3.41-4.20	Fully Compliant	FC	The BDRRMC meets all required standards for disaster preparedness as prescribed, with no major gaps.
3	2.61-3.40	Partially Compliant	PC	The BDRRMC meets some of the preparedness standards but has noticeable deficiencies that need to be addressed.
2	1.81-2.60	Low Compliant	LC	The BDRRMC has minimal adherence to preparedness standards, with major components lacking or inadequately implemented.
1	1.00-1.80	Non-Compliant	NC	The BDRRMC has not met the basic requirements for disaster preparedness and requires substantial improvement.

The level of compliance with disaster preparedness indicators was assessed using a five-point Likert scale, with interpretations anchored on predetermined arbitrary values, descriptive equivalents, symbols, and operational definitions outlined in the study's interpretive framework (as reflected in Table 6).

To evaluate the key factors influencing disaster preparedness compliance—specifically training, funding, leadership and governance, equipment and facilities, community participation, early warning systems, and inter-agency support—respondents were asked to indicate the availability of each factor within their respective barangay or BDRRMC. This was operationalized through binary responses: respondents checked a box if a factor was present, and left it blank if absent.

3.8.Statistical Tools Used in the Study

The study employed a combination of descriptive and inferential statistical techniques to analyze disaster preparedness among Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Rizal, Kalinga. Descriptive statistics—including mean, standard

deviation, frequency counts, and percentages—were utilized to quantify the level of compliance with disaster preparedness standards and to summarize and rank the availability of key influencing factors based on their mean availability scores and frequency distributions.

To examine differences in the availability of key factors across demographic groups, inferential statistics were applied. The Independent Samples t-test was employed to compare mean scores between two categories, such as male and female respondents. For variables encompassing more than two categories (e.g., age groups, years of service, or position within the BDRRMC), One-Way Analysis of Variance (ANOVA) was used to identify statistically significant differences in resource availability.

Additionally, the Chi-Square Test of Independence was conducted to determine whether the distribution of key disaster preparedness factors varied significantly across groups defined by age, gender, barangay, or BDRRMC position.

Finally, the Pearson Product-Moment Correlation Coefficient was applied to assess the strength and direction of the relationship between the level of compliance and the availability of key disaster preparedness factors.

4. RESULTS AND DISCUSSION

This chapter discusses the results of the study.

Table 7. Mean Compliance Level of BDRRMC with Disaster Preparedness Indicators

Indicators	Mean	Standard Deviation	Descriptive Interpretation
Our BDRRMC has an updated and functional Barangay DRRM Plan.	4.36	.86	Beyond Compliant
We conduct regular disaster preparedness training and drills.	4.05	.81	Fully Compliant
The barangay has an identified and prepared evacuation center.	4.33	.89	Beyond Compliant
The BDRRMC regularly conducts community risk assessments.	3.88	.97	Fully Compliant
We have a sufficient stockpile of emergency supplies and equipment.	3.52	.97	Fully Compliant
Our barangay has an accessible and reliable early warning system.	3.99	1.02	Fully Compliant
The community actively participates in disaster preparedness activities.	4.15	.89	Fully Compliant
There is strong coordination between BDRRMC and LGU for disaster preparedness.	4.43	.79	Beyond Compliant

We have clear disaster response protocols that are known to all members.	4.00	.92	Fully Compliant
There is sufficient funding for disaster preparedness programs and initiatives.	3.75	1.19	Fully Compliant
Grand Mean	4.05	.71	Fully Compliant

The assessment of disaster preparedness among the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Rizal, Kalinga resulted in a grand mean of 4.05 with a standard deviation of 0.71, corresponding to an overall rating of "Fully Compliant" based on the established disaster preparedness standards.

Among the ten indicators evaluated, the highest-rated item was "There is strong coordination between BDRRMC and LGU for disaster preparedness" (mean = 4.43), which was interpreted as "Beyond Compliant." This reflects the presence of a highly functional and collaborative partnership between the barangay councils and the municipal government in implementing disaster preparedness initiatives.

Similarly, the indicators "Our BDRRMC has an updated and functional Barangay DRRM Plan" (mean = 4.36) and "The barangay has an identified and prepared evacuation center" (mean = 4.33) also achieved "Beyond Compliant" ratings. These results highlight the strengths of the BDRRMCs in terms of disaster risk planning and evacuation readiness.

The majority of the remaining indicators were rated as "Fully Compliant," including community drills and training (mean = 4.05), conduct of risk assessments (mean = 3.88), availability of early warning systems (mean = 3.99), promotion of community participation (mean = 4.15), and the establishment of clear disaster response protocols (mean = 4.00). These findings demonstrate that the BDRRMCs generally exhibit a high level of preparedness and have adopted proactive measures to reduce disaster-related risks.

On the other hand, the lowest-rated indicators, though still within the "Fully Compliant" range, were "We have a sufficient stockpile of emergency supplies and equipment" (mean = 3.52) and "There is sufficient funding for disaster preparedness programs and initiatives" (mean = 3.75). These results suggest that while the BDRRMCs meet basic standards, improvements are necessary in terms of resource stockpiling and funding allocation to further enhance the barangays' capacity to respond effectively during emergencies.

Table 8. Extent of Compliance Level of BDRRMC with Disaster Preparedness Indicators in Terms of Age

Age	Mean	Descriptive Interpretation	p-value
18-30	4.01	Fully Compliant	.940ns
31-45	4.07	Fully Compliant	
46-59	4.07	Fully Compliant	
More than 60 years old	3.98	Fully Compliant	
Grand Mean	4.05	Fully Compliant	

ns-not significant

Table 8 presents the level of compliance of Barangay Disaster Risk Reduction and Management Committee (BDRRMC) members with disaster preparedness indicators when grouped according to age. All age groups attained a rating of "Fully Compliant," with mean scores ranging from 3.98 to 4.07 and a computed grand mean of 4.05. The highest level of compliance was recorded among members aged 31–59 years (mean = 4.07), while those in the 60 years and above category reported the lowest compliance (mean = 3.98), though still within the "Fully Compliant" bracket.

The p-value of 0.940 indicates that these differences in compliance across age groups are not statistically significant, suggesting that disaster preparedness standards are consistently met regardless of age.

Table 9. Extent of Compliance Level of BDRRMC with Disaster Preparedness Indicators in Terms of Gender

Gender	Mean	Descriptive Interpretation	p-value
Male	3.98	Fully Compliant	.091ns
Female	4.18	Fully Compliant	
Grand Mean	4.05	Fully Compliant	

ns-not significant

Table 9 shows the compliance levels of BDRRMC members by gender. Both male respondents (mean = 3.98) and female respondents (mean = 4.18) were classified as "Fully Compliant." This implies that gender does not play a significant role in shaping compliance with disaster preparedness measures. The computed grand mean of 4.05 supports this conclusion.

Additionally, the p-value of 0.091 indicates that the observed difference in mean compliance scores between male and female respondents is not statistically significant, highlighting that both groups exhibit comparable levels of engagement and adherence to DRRM standards.

Table 10. Extent of Compliance Level of BDRRMC with Disaster Preparedness Indicators in Terms of Barangay

Barangay	**Mean**	**Descriptive Interpretation**	***p-value***
Romualdez	3.42a	Fully Compliant	*.000**
Macutay	4.56bcd	Beyond Compliant	
San Quintin	4.62bcd	Beyond Compliant	
San Francisco	4.79bcd	Beyond Compliant	
Santor	4.70bcd	Beyond Compliant	
Liwan East	4.62bcd	Beyond Compliant	
Bulbol	3.81a	Fully Compliant	
Babalag East	4.01abd	Fully Compliant	
San Pedro	3.05a	Partially Compliant	
Liwan West	3.88ab	Fully Compliant	
Kinama	3.76a	Fully Compliant	
San Pascual	2.86a	Partially Compliant	
Babalag West	3.97abd	Fully Compliant	
Calaocan	4.62bcd	Beyond Compliant	
Grand Mean	**4.05**	**Partially Compliant**	

* Significant (Mean with the same letters are not significantly different)

Table 10 presents how well the 14 barangays in Rizal, Kalinga comply with disaster preparedness standards. The overall average rating is 4.05, indicating a "Fully Compliant" status. However, the significant p-value (0.000) shows clear differences among barangays.

Barangays like San Francisco, Santor, San Quintin, Liwan East, Calaocan, and Macutay were rated "Beyond Compliant" and belong to the same statistical group (bcd), meaning they perform at similarly high levels.

In contrast, barangays such as San Pedro and San Pascual received the lowest ratings, marked as "Partially Compliant" and grouped under "a", showing a clear gap in preparedness. Other barangays like Romualdez, Bulbol, and Kinama share the same group, suggesting similar, though slightly better, performance.

Barangays such as Babalag East, Babalag West, and Liwan West fall into overlapping groups, showing moderate performance between the top and bottom performers.

Overall, while many barangays are doing well, the data highlights the need for targeted support to improve disaster readiness, especially in lower-performing communities.

Table 11. Extent of Compliance Level of BDRRMC with Disaster Preparedness Indicators in Terms of Position in BDRRMC

Position in BDRRMC	**Mean**	**Descriptive Interpretation**	***p-value***
Chairperson	4.06	Fully Compliant	$.530_{ns}$
Sangguniang Barangay Members	3.99	Fully Compliant	
Sangguniang Katabaan Chairperson	4.03	Fully Compliant	
NGO/ PO Representative	4.10	Fully Compliant	
Sectoral Representative	4.34	Beyond Compliant	
Grand Mean	**4.05**	**Fully Compliant**	

ns-not significant

Table 11 displays the disaster preparedness compliance levels of Barangay Disaster Risk Reduction and Management Committee (BDRRMC) members according to their respective positions. Findings indicate that all position groups attained a rating of “Fully Compliant”, with a computed grand mean of 4.05. The highest level of compliance was reported among Sectoral Representatives (mean = 4.34), classified as “Beyond Compliant”. Meanwhile, compliance among other positions- such as Chairpersons, SK Chairpersons, NGO/PO Representatives, and Sangguniang Barangay Members- ranged from 3.99 to 4.10.

The statistical analysis produced a p-value of 0.530, indicating no significant differences in compliance across the various positions. This outcome suggests that regardless of their official designation, BDRRMC members consistently contribute to disaster preparedness efforts within their barangays.

Table 12. Extent of Compliance Level of BDRRMC with Disaster Preparedness Indicators in Terms of Years in BDRRMC

Years in BDRRMC	**Mean**	**Descriptive Interpretation**	***p-value***

Less than 1 year	4.16	Fully Compliant	$.579_{ns}$
1-3 years	3.99	Fully Compliant	
4-6 years	4.08	Fully Compliant	
More than 6 years	4.18	Fully Compliant	
Grand Mean	**4.05**	**Fully Compliant**	

ns-not significant

Table 12 presents the compliance levels of BDRRMC members when grouped by years of service. The results demonstrate that all tenure groups were rated "Fully Compliant", with mean scores spanning from 3.99 to 4.18, and a grand mean of 4.05. The highest compliance was recorded among members with more than six years of service (mean = 4.18) and those with less than one year (mean = 4.16), reflecting active engagement in disaster preparedness regardless of length of service.

The p-value of 0.579 signifies that these differences are not statistically significant, implying that tenure does not significantly affect compliance with disaster preparedness standards among BDRRMC members.

Table 13. Availability of Key Factors Affecting Disaster Preparedness

Key Factors Affecting Disaster Preparedness for BDRRMCs	Rank	Available		Un-available	
		F	%	F	%
1. Availability of DRRM training and capacity-building programs	7th	79	47.1	89	52.9
Community-Based DRRM Training		140	83.3	28	16.7
Basic Life Support and Standard First Aid Training		115	68.5	53	31.5
Search, Rescue, and Retrieval (SRR) Training		39	23.2	129	76.8
Incident Command System (ICS) Training		23	13.7	145	86.3
2. Adequate funding and resources for preparedness activities	6th	98	58.3	70	41.7
BLGU/ LDRRM Fund		124	73.8	44	26.2
Higher LGUs (MLGU/ PLGU)		100	59.5	68	40.5
National Government Agencies		70	41.7	98	58.3
3. Strong leadership and governance in BDRRMC	3rd	143	85.1	25	14.9
4. Availability of DRRM Facilities and Equipment	4th	121	72	47	28
a. Barangay Operations Center		151	89.9	17	10.1
b. Evacuation Center		138	82.1	30	17.9
c. Rescue Vehicle		75	44.6	93	55.4
5. Community participation in disaster preparedness programs	2nd	148	88.1	20	11.9
6. Accessibility and reliability of early warning systems	5th	119	70.8	49	29.2
7. Support from LGU and national agencies	1rst	164	97.6	4	2.4
GRAND TOTAL		872	74.1	304	25.9

Table 13 presents the availability and corresponding ranking of key factors influencing disaster preparedness among the BDRRMCs in Rizal, Kalinga. The overall findings show that 74.1% of responses confirmed the availability of these key factors, while 25.9% indicated their absence. This suggests that, although access to critical disaster preparedness resources is generally adequate, certain gaps remain that may affect overall resilience.

The most accessible factor was support from local government units (LGUs) and national agencies, reported as available by 97.6% of respondents (Rank 1). This underscores the strong institutional backing received by barangays in their disaster preparedness efforts. Community participation followed, with 88.1% availability (Rank 2), highlighting active citizen engagement in disaster risk reduction activities. Leadership and governance were ranked third, with 85.1% of respondents confirming the presence of effective organizational structures and decision-making processes.

In terms of facilities and equipment (Rank 4), high levels of access were noted for Barangay Operations Centers (89.9%) and Evacuation Centers (82.1%). However, access to rescue vehicles was notably lower, with only 44.6% availability reported, pointing to a critical area for capacity improvement.

Early warning systems were available to 70.8% of respondents, earning Rank 5, while funding and resource availability ranked 6th, with the Barangay Local Government Unit (BLGU)/Local Disaster Risk Reduction and Management Fund (LDRRMF) identified as the most frequently accessed financial resource (73.8%).

The least accessible factor was training and capacity-building programs (Rank 7), with an overall availability rate of only 47.1%. Although Community-Based Disaster Risk Reduction and Management (CBDRRM) training was relatively common (83.3%), access to more specialized capacity-building opportunities- such as Search, Rescue, and Retrieval (SRR) training (23.2%) and Incident Command System (ICS) training (13.7%)- was substantially limited. This highlights the need to strengthen technical skills development within BDRRMCs to enhance disaster response capability.

Table 14. Distribution of Observed, Expected, and Residual Frequencies on the Availability of Factors by Age

Age	**Observed**	**Expected**	**Residual**
18-30 years old	22	42	-20.00
31-45 years old	46	42	4.00
46-59 years old	76	42	34.00
More than 60 years old	24	42	-18.00
Total	168		

Table 14 presents the distribution of observed, expected, and residual frequencies regarding the availability of disaster preparedness factors across different age groups. The age group 46–59 years recorded the highest positive residual (+34), indicating that significantly more respondents in this category reported the availability of key preparedness factors than would be expected by chance. In contrast, the 18–30 and above 60 age groups had negative residuals (–20 and –18, respectively), suggesting that respondents in these categories were underrepresented in reporting available resources.

Table 15. Summary of Chi-Square Test on the Association Between Age and Availability of Factors Correlation on the Level of Compliance of BDRRMC with Disaster Preparedness and Availability of Key Factors Influencing the Level of Disaster Preparedness

	Value
Chi-Square Value	45.143
df	*3*
p-value	.000*

*significant

As shown in Table 15, these differences were statistically significant, as reflected by a Chi-Square value of 45.143, 3 degrees of freedom, and a p-value of .000. This result

demonstrates a meaningful association between age and reported availability of disaster preparedness factors.

The findings suggest that middle-aged members, particularly those aged 46–59, may be more engaged, better informed, or more active in disaster preparedness activities compared to their younger or older counterparts. This underscores the importance of designing age-inclusive strategies to enhance access to information, training, and participation in disaster risk reduction and management (DRRM) initiatives across all age groups.

Table 16. Distribution of Observed, Expected, and Residual Frequencies on the Availability of Factors by Gender

Gender	Observed	Expected	Residual
Male	115	84.00	31.0
Female	53	84.00	-31.0
Total	**168**		

Table 16 illustrates the observed, expected, and residual frequencies for the availability of preparedness factors by gender. Male respondents had an observed frequency of 115, which exceeded the expected count of 84 by +31, whereas female respondents had an observed frequency of 53, falling short of the expected by –31. This indicates a notable disparity in reported availability of disaster preparedness resources between male and female members.

Table 17. Summary of Chi-Square Test on the Association Between Gender and Availability of Factors Correlation on the Level of Compliance of BDRRMC with Disaster Preparedness and Availability of Key Factors Influencing the level of Disaster Preparedness

	Value
Chi-Square Value	22.881
Df	1
p-value	.000*

*significant

This difference was statistically confirmed in Table 17, with a Chi-Square value of 22.881, 1 degree of freedom, and a p-value of .000. The result points to a significant association between gender and the perceived availability of disaster preparedness factors.

The data suggests that male members were more likely to report access to key preparedness resources, revealing a potential gender gap in information access, participation, or involvement. Addressing this gap calls for the development of gender-sensitive DRRM programs to ensure equal opportunity and access for both male and female members.

Table 18. Distribution of Observed, Expected, and Residual Frequencies on the Availability of Factors by Barangay

Barangay	Observed	Expected	Residual
Romualdez	12	12	.0
Macutay	12	12	.0
San Quintin	12	12	.0

San Francisco	12	12	.0
Santor	12	12	.0
Liwan East	12	12	.0
Bulbol	12	12	.0
Babalag East	12	12	.0
San Pedro	12	12	.0
Liwan West	12	12	.0
Kinama	12	12	.0
San pascual	12	12	.0
Babalag West	12	12	.0
Calaocan	12	12	.0
Total	**168**		

Table 18 shows the observed, expected, and residual frequencies for each barangay regarding the availability of disaster preparedness factors. All 14 barangays recorded equal observed and expected frequencies (12 each), resulting in zero residuals. This uniformity suggests that respondents across all barangays reported similar levels of resource availability.

Table 19. Summary of Chi-Square Test on the Association Between Barangay and Availability of Factors Correlation on the Level of Compliance of BDRRMC with Disaster Preparedness and Availability of Key Factors Influencing the Level of Disaster Preparedness

	Value
Chi-Square Value	.000
Df	11
p-value	1.000_{ns}

ns-not significant

As reflected in Table 19, the Chi-Square test yielded a value of 0.000, with 11 degrees of freedom and a p-value of 1.000, indicating no statistically significant association between barangay location and the reported availability of disaster preparedness factors. This implies that the distribution of resources is equitable across the different barangays of Rizal, Kalinga.

Table 20. Distribution of Observed, Expected, and Residual Frequencies on the Availability of Factors by Position in the BDRRMC

Position in BDRRMC	**Observed**	**Expected**	**Residual**
Chairperson	14	33.6	-19.6
Sangguniang Barangay Members	98	33.6	+64.4
Sangguniang Katabaan Chairperson	14	33.6	-19.6
NGO/ PO Representative	28	33.6	-5.6
Sectoral Representative	14	33.6	-19.6
Total	168		

Table 20 displays the distribution of observed, expected, and residual frequencies based on the positions held by BDRRMC members. Sangguniang Barangay Members reported a much higher observed frequency (98) compared to the expected (33.6), resulting in a positive residual of +64.4. This indicates that this group overwhelmingly reported the availability of preparedness factors.

Conversely, all other positions- including Chairpersons, SK Chairpersons, NGO/PO Representatives, and Sectoral Representatives- had observed frequencies significantly below

expected values, with negative residuals ranging from –5.6 to –19.6. These findings suggest that members in these positions may have had more limited access to information or involvement in disaster preparedness activities.

Table 21. Summary of Chi-Square Test on the Association Between Position in the BDRRMC and Availability of Factors Correlation on the Level of Compliance of BDRRMC with Disaster Preparedness and Availability of Key Factors Influencing the Level of Disaster Preparedness

	Value
Chi-Square Value	158.667
Df	4
p-value	.000*

*significant

Table 21 confirms these findings with a Chi-Square value of 158.667, 4 degrees of freedom, and a p-value of .000, demonstrating a significant association between position and reported availability of key preparedness factors. This highlights the need for more inclusive DRRM efforts that engage all member roles equitably in preparedness planning, capacity-building, and implementation.

Table 22. Distribution of Observed, Expected, and Residual Frequencies on the Availability of Factors by Years in BDRRMC

Years in BDRRMC	**Observed**	**Expected**	**Residual**
Less than 1 year	14	42	-28.0
1-3 years	97	42	55.0
4-6 years	34	42	-8.0
More than 6 years	23	42	-19.0
Total	168		

Table 22 presents the observed, expected, and residual frequencies based on years of service. Members with 1–3 years of service had the highest observed frequency (97), far exceeding the expected (42), resulting in a positive residual of +55. Meanwhile, members with less than 1 year (–28), 4–6 years (–8), and more than 6 years (–19) had observed frequencies below what was expected, suggesting these groups were less likely to report the availability of key preparedness factors.

This suggests that BDRRMC members with 1–3 years of experience are the most actively involved or informed regarding available resources.

Table 23. Summary of Chi-Square Test on the Association Between Years in BDRRMC and Availability of Factors Correlation on the Level of Compliance of BDRRMC with Disaster Preparedness and Availability of Key Factors Influencing the Level of Disaster Preparedness

	Value
Chi-Square Value	100.810
Df	3
p-value	.000*

*significant

The Chi-Square test in Table 23 yielded a value of 100.810, with 3 degrees of freedom and a p-value of .000, confirming a significant association between years of service and the reported availability of disaster preparedness resources. This highlights the importance of enhancing engagement, orientation, and sustained involvement of both newer and longer-serving BDRRMC members to ensure consistent awareness and participation across all levels of tenure.

Table 24. Correlation Between Availability of Factors and Level Compliance of BDRRMC with Disaster Preparedness

	Value
Pearson Correlation	-.416
p-value	.000*
N	168

*significant

Table 24 presents the analysis of the relationship between the availability of key disaster preparedness factors and the level of compliance among the Barangay Disaster Risk Reduction and Management Committees (BDRRMCs). The results indicated a moderate negative correlation ($r = –0.416$), which was found to be statistically significant ($p = .000$, $N = 168$). This finding suggests that as the reported availability of key preparedness factors increases, the level of compliance with disaster preparedness standards tends to decrease, and vice versa.

This inverse relationship is contrary to expectations, as the availability of critical resources, facilities, and training is typically assumed to support and strengthen compliance with disaster preparedness requirements. The results imply that the mere presence of resources does not automatically translate to effective implementation or higher compliance levels. Several possible factors could explain this outcome, including insufficient utilization of available resources, weak engagement of stakeholders, ineffective institutional mechanisms, or inconsistencies in the reporting of resource availability. These findings highlight the need to focus not only on ensuring resource availability but also on enhancing the actual use, management, and monitoring of disaster preparedness initiatives at the barangay level.

The contrast between reported compliance and actual preparedness becomes particularly relevant when contextualized across regions. For instance, while the present study found that barangays in Rizal, Kalinga were generally "Fully Compliant" with DRRM indicators, Villanueva (2019) observed in Albay that such compliance was often limited to documentation, lacking corresponding implementation. This distinction suggests that similar administrative ratings may conceal operational challenges at the grassroots level. To provide a clearer picture of how compliance is interpreted and operationalized across various localities, a comparison of drivers and gaps observed in related Philippine studies is presented in the following table 25:

Table 25. Comparative Overview of DRRM Compliance Drivers Across Selected Philippine Regions

Study / Location	**Compliance Status**	**Key Drivers**	**Observed Gaps**	**Relevance to Rizal, Kalinga**

Villanueva (2019), Albay	Documented compliance	LGU-aligned planning, policy compliance	Weak drills, limited equipment, and implementation gaps	Rizal shows similar risks: good plans, but limited rescue logistics and specialized training
Lucero & Martinez (2020), Northern Luzon	Moderate	Availability of DRRM Plans, initial trainings	Insufficient funding, lack of refresher drills	Reinforces Rizal's issues on the limited training scope and internal disparities
Perez & Luna (2017), Selected LGUs	Variable	Community involvement, women-led efforts	Gender gaps in training access and leadership roles	Aligns with Rizal's findings: women are underrepresented in SRR/ICS training access
Fernandez & Shaw (2015), Youth Programs	Emerging youth engagement	Science-based community outreach, youth clubs	Unequal implementation, funding dependency	Suggests an opportunity to enhance youth roles in Rizal's preparedness activities
This Study (2025), Rizal, Kalinga	Fully Compliant	Strong LGU coordination, updated DRRM plans	Gaps in technical training, rescue vehicles, and resource equity	Validates national trend: documented compliance ≠ with full operational capacity

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Based on the findings of the study, several key conclusions were drawn regarding the disaster preparedness of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in Rizal, Kalinga. First, the BDRRMCs generally exhibit a high level of compliance with established disaster preparedness standards. This is particularly evident in their effective coordination with local government units (LGUs) and the presence of updated Disaster Risk Reduction and Management (DRRM) plans, which indicate strong planning capacity and collaborative efforts. However, despite these strengths, logistical challenges persist, especially in terms of maintaining sufficient emergency supplies and securing sustainable funding. While compliance levels did not show significant differences when grouped by age, gender, position, or length of service, the variance observed across barangays suggests differences in capacity and readiness that may require localized interventions.

In terms of resource availability, the study concludes that BDRRMCs benefit from strong institutional support, active community participation, and competent leadership—factors that contribute positively to their preparedness levels. However, key gaps remain in operational logistics. While infrastructure such as operations centers and evacuation sites is generally available, access to critical tools like rescue vehicles is limited. Moreover, specialized training opportunities, particularly in Search, Rescue, and Retrieval (SRR) and the Incident Command System (ICS), are insufficient and unevenly distributed. The study also notes a heavy reliance on internal barangay funding with limited support from external partners, emphasizing the need for resource diversification and stronger partnerships. When disaggregated by moderator variables, the availability of preparedness resources appears to be

influenced by demographic characteristics and roles within the organization. Middle-aged males and those holding formal positions, such as Sangguniang Barangay members, reported greater access to resources. In contrast, women, new members, and those in informal roles indicated lower levels of access. These disparities, though consistent across barangays, point to the need for more inclusive strategies in training, capacity development, and equitable resource distribution.

Finally, the study concludes that the availability of resources does not necessarily correlate with higher levels of compliance with preparedness standards. The moderate negative correlation found between resource availability and compliance implies that having access to resources alone is not sufficient for effective disaster readiness. This underscores the importance of building the capacity of BDRRMCs not just in terms of logistics but also in terms of how resources are managed and deployed. Strengthening implementation strategies and enhancing the ability of BDRRMCs to transform available tools and support into actionable preparedness measures are crucial. Future efforts should therefore prioritize not only providing resources but also ensuring that these are effectively used through proper training, planning, and inclusive community engagement.

5.2.Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed to inform policy decisions, enhance community engage

1. Sustain best practices in LGU coordination and DRRM planning. The existing collaboration between barangay councils and municipal authorities has contributed greatly to the development and implementation of comprehensive Disaster Risk Reduction and Management (DRRM) plans. These practices have proven to be effective and should be institutionalized as part of regular governance, ensuring that disaster preparedness remains a priority even during periods of calm.

2. Improve resource stockpiling and secure adequate funding through local and external sources. While many barangays rely on their internal budget allocations, these often fall short during major emergencies. It is important for barangays to seek alternative sources of support, including national government assistance, private sector partnerships, and donor-funded programs. This would help ensure that all communities have the critical resources they need when disasters strike.

3. Provide targeted support and capacity-building in underperforming barangays such as San Pascual and San Pedro. These barangays should receive targeted interventions such as focused training, technical assistance, and increased resource allocation to help them catch up with their counterparts. Tailored support that addresses their unique challenges will help raise the overall preparedness level of the entire municipality.

4. Conduct regular monitoring to ensure uniform implementation of standards. Establishing a system for routine assessments will help identify which areas are progressing and which need additional support. It will also promote accountability and continuous improvement in preparedness efforts.

5. Expand access to technical training programs such as Incident Command System and Search, Rescue, and Retrieval. Many barangay officials and responders expressed the need for more opportunities to develop these specialized skills, which are essential for managing emergencies effectively. Training should be practical, hands-on, and inclusive of all barangay personnel regardless of their role or experience level.

6. Invest in rescue vehicles and emergency logistics for barangays. Some barangays still lack even the most basic equipment needed to respond immediately and efficiently during

emergencies. These logistical gaps hinder timely response efforts and put communities at greater risk. Equipping all barangays with the tools they need should be considered a vital step toward strengthening local disaster resilience.

7. Ensure equitable distribution of equipment and training opportunities. All barangays should be given equal access to capacity-building programs, regardless of their location or population size. Likewise, support should be extended fairly across different sectors of the barangay council to avoid reinforcing existing inequalities and to promote shared responsibility in disaster preparedness.

8. Strengthen inclusive engagement strategies that involve all age groups, genders, and positions. Disaster preparedness should involve every member of the community, including men and women, youth leaders, senior citizens, and members in both formal and informal roles. Programs must be designed in a way that empowers all individuals to participate meaningfully and contribute their unique perspectives and skills.

9. Improve communication and access to resources for underrepresented groups, especially SK Chairpersons, women, and new members. These individuals often face barriers in accessing resources or being heard, and it is important to break down those barriers through targeted support and more inclusive leadership practices.

10. Tailor capacity-building activities to address identified gaps in involvement and awareness. Training activities should be aligned with the actual needs of the barangay members, using a practical and contextual approach that encourages learning by doing and fosters a sense of ownership and responsibility.

11. Conduct process evaluations to assess how available resources are being used. Having supplies or equipment on hand does not automatically translate into preparedness unless these resources are used correctly and efficiently. Evaluations will help identify challenges in implementation and areas where more training or support may be needed.

12. Provide regular training, monitoring, and coaching to ensure that resources are effectively implemented. Beyond initial training sessions, barangay officials and volunteers should be provided with continuous learning opportunities and guided support to help them apply their knowledge in real situations. Coaching and follow-ups can help bridge the gap between knowledge and practice.

13. Develop accountability mechanisms to track the utilization of training, equipment, and funds. Transparent and fair reporting systems will not only promote responsible management but also build trust within the community and among stakeholders. By knowing that every effort and resource is being put to good use, barangays can foster a stronger culture of preparedness and shared responsibility.

The results and recommendations presented in this study are intended not only to contribute to academic knowledge but also to support the practical needs of disaster management stakeholders. The data gathered shall serve as a valuable reference for local actors, including the Local Government Unit (LGU), the Municipal Disaster Risk Reduction and Management Council (MDRRMC), the Municipal Disaster Risk Reduction and Management Office (MDRRMO), Barangay DRRM Committees (BDRRMCs), National Government Agencies (NGAs), and other partners committed to strengthening disaster preparedness in Rizal, Kalinga.

To convert these recommendations into concrete and coordinated action, the following Policy Implementation Matrix has been developed. This matrix clearly links each

recommendation with designated implementers, timeframes, needed resources, and expected results. It is designed as a working tool to support policy execution, promote inter-agency collaboration, and ensure that disaster preparedness efforts are strategic, inclusive, and responsive to the specific challenges of the municipality.

Table 26. Policy Implementation Matrix

Recommendation	Key Implementers	Suggested Timeline	Resources Needed	Expected Outcome
Institutionalize barangay DRRM planning and LGU coordination	Barangay Captains, MDRRMC, MLGOO	Quarterly	DRRM planning tools, coordination memos	Regularly updated and functional Barangay DRRM Plans
Improve emergency stockpiling and funding access	BDRRMC Chairpersons, Barangay Treasurers, MDRRMO	Annual Budget Cycle	LDRRMF, supply inventory systems	Better availability of emergency supplies and equipment
Focus support on underperforming barangays (e.g., San Pedro, San Pascual)	MDRRMC, Municipal Mayor, DILG Field Officer	6–12 months	Needs assessments, technical support	Raised compliance and preparedness levels
Regularly monitor and evaluate disaster preparedness efforts	MDRRMC, MPDO, Barangay Council	Semi-Annually	Monitoring checklist, evaluation tools	Identification of gaps and improved implementation
Expand access to ICS and SRR training	MDRRMO, BFP, DOH, partner training institutions	Bi-Annual	Training modules, logistics, trainers	Broader and skilled pool of barangay responders
Provide rescue vehicles and logistics to barangays	Barangay Councils, MDRRMO, Engineering Office	Annually	LDRRM Fund, vehicle procurement	Equipped barangays with better response capacity
Promote fair distribution of training and equipment	DILG, LGU HR Office, MDRRMC	Continuous	Allocation guidelines, inclusion plans	Equal access to resources and training
Encourage inclusive engagement in DRRM (youth, women, elders)	Barangay Captains, SK, CSOs	Ongoing	IEC materials, participatory tools	Greater community involvement in preparedness
Improve access to resources for women, SK, and new members	Barangay Secretaries, MDRRMC	Quarterly	Targeted briefings, mentoring sessions	Enhanced engagement and empowerment of marginalized groups

Align training with the actual needs of barangay members	MDRRMC, TESDA, NGOs	Annually	Training Needs Assessment, local trainers	Contextualized and relevant DRRM trainings
Evaluate the actual use of DRRM resources	COA, MDRRMO, Barangay Auditors	Post-incident / Year-End	Utilization forms, monitoring reports	Transparent and effective resource management
Sustain learning through coaching and technical assistance	DILG, Provincial DRRMO, MLGOO	Every 2 months	Mentoring personnel, communicatio n tools	Strengthened implementatio n and skill application
Develop simple accountability systems (e.g., scorecards)	Sangguniang Bayan, Barangay Councils	Within the year	Scorecard template, feedback tools	Increased transparency and trust in DRRM governance

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