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Barangay-Based Disaster Preparedness Programs in Local Resilience and Public Safety in Mamburao, Occidental Mindoro

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Abstract: Using the descriptive-correlational research design, this study examined the barangay-based disaster preparedness programs and their correlation with local resilience and public safety in the Municipality of Mamburao, Occidental Mindoro.

Respondents were barangay officials, BDRRMC members, and residents. A structured questionnaire was utilized to gather data.

Results revealed that barangay-based disaster preparedness programs are generally effective, while local resilience is evident and public safety is maintained. Among the indicators, tracking systems and documentation were rated highest, whereas hazard identification and risk profiling received the lowest ratings. In terms of local resilience, environmental protection measures were considered most valuable, while maintaining livelihoods received less emphasis. For public safety, emergency response efficiency was rated highest, whereas knowledge and community participation were given less importance. However, the analysis indicated only a very weak relationship between disaster preparedness programs and both local resilience and public safety.

The results suggest that although barangay disaster preparedness programs are effectively implemented, they do not significantly translate into improved outcomes in resilience and public safety. This implies that other contributing factors influence these outcomes. Therefore, barangays are encouraged to strengthen financial preparedness, enhance technological systems, promote community involvement, and develop comprehensive long-term recovery plans to improve resilience and ensure public safety.

Keywords: *Barangay-Based Disaster Preparedness Programs, Local Resilience, Public Safety, Comprehensive Long-Term Recovery Plans, Coastal Communities.*

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I. INTRODUCTION

Natural disasters remain one of the most pressing global challenges, with climate-related hazards alone displacing millions of people annually (UNDRR, 2023). The Philippines, situated along the Pacific Ring of Fire and within the Typhoon Belt, experiences frequent and intense natural hazards, averaging around 20 typhoons each year that cause significant socio-economic disruption (NDRRMC, 2023). At the local level, the Municipality of Mamburao in Occidental Mindoro is particularly vulnerable due to its coastal geography and low elevation, exposing its 15 barangays to recurrent flooding, storm surges, and typhoons. These hazards severely affect the municipality's agriculture- and fishing-based economy, which supports the majority of household incomes, thereby increasing the community's susceptibility to livelihood disruption and food insecurity (MDRRMO, 2025).

In response, the Philippine government institutionalized disaster risk reduction and management (DRRM) through Republic Act No. 10121, mandating the creation of Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) and allocating funds for local DRRM initiatives. Complementary policies, such as the Local Government Code of 1991 (RA 7160) and DILG Memorandum Circular No. 2014-150 (Operation Listo), further emphasize the role of barangays in preparedness,

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response, and coordination. Despite these established frameworks, implementation gaps persist. Reports indicate deficiencies in early warning systems, evacuation infrastructure, and inter-agency coordination, as well as underutilization of DRRM funds in parts of the MIMAROPA region (DILG, 2020). These weaknesses were evident during past disaster events, highlighting the disconnect between policy mandates and on-the-ground capacity.

While existing literature has extensively examined the implementation of DRRM policies at the national level (Atisi-Selmi et al., 2018), there remains a critical lack of localized, context-specific assessments. Most studies focus on general preparedness measures such as hazard identification and early warning systems (Mulyana et al., 2017), but fail to capture the unique socio-economic vulnerabilities of coastal municipalities like Mamburao, where dependence on agriculture and fisheries intensifies disaster impacts. More importantly, prior research tends to treat preparedness, resilience, and safety as separate constructs, with limited empirical examination of how barangay-level preparedness programs translate into measurable outcomes in local resilience and public safety.

Furthermore, there is a notable absence of multidimensional analysis that integrates economic, technological, social, and environmental aspects of resilience alongside key dimensions of public safety, such as infrastructure integrity, response and recovery capacity, and community awareness and participation. Existing studies also overlook comparative assessments across multiple barangays within a single municipality, which are crucial for identifying variations in implementation and performance at the grassroots level.

This gap underscores the need for a comprehensive, evidence-based investigation that evaluates not only the barangay-based disaster preparedness programs but also their actual contribution to enhancing resilience and public safety outcomes. In line with mandates under NDRRMC guidelines and the Seal of Good Local Governance Act of 2019 (RA 11292), such an assessment is essential to determine whether compliance translates into meaningful community-level impact.

Thus, this study addresses these gaps by examining disaster preparedness programs across all 15 barangays in the Municipality of Mamburao, focusing on key dimensions such as hazard identification, risk assessment, response coordination, and monitoring systems. It further investigates their relationship with multidimensional local resilience and public safety outcomes using a descriptive-correlational approach. By doing so, the study provides a localized, integrative, and outcome-oriented analysis, offering insights that can bridge the gap between policy intent and actual practice, and contribute to more responsive and context-specific DRRM strategies for coastal communities.

II. METHODOLGY

➢ *Study Design*

The study utilized a quantitative, descriptive-correlational research design to assess barangay-based disaster preparedness programs on local resilience and public safety in Mamburao, Occidental Mindoro. The descriptive component examined the level of implementation of disaster preparedness programs, including hazard identification, risk assessment, response coordination, and tracking systems, as well as indicators of local resilience, such as sustained livelihoods, the use of technology, community participation in development projects, and environmental protection activities. It also assessed public safety in terms of structural safety features against hazards such as earthquakes and typhoons, as well as the efficiency of emergency response and the level of knowledge about hazards and risks. Data were gathered through surveys, barangay records, and observation checklists.

The correlational component examined the relationships between program and the measured outcomes of local resilience and public safety using Pearson's correlation coefficient.

➢ *Study Setting*

The study was conducted in the Municipality of Mamburao, Occidental Mindoro, a coastal municipality, and the provincial capital. It has a land area of 283.51 square kilometers, comprising 4.83% of the total area of Occidental Mindoro, and had a population of 47,705 based on the 2020 Census. The study covered the barangays of Talabaan, Fatima, Balansay, Tangkalan, San Luis, Tayamaan, Payompon, and Barangays 1 to 8.

Mamburao was selected as the research site due to its high vulnerability to flash floods, landslides, and storm surges, given its coastal location and hilly topography, as well as the presence of active barangay-based disaster risk reduction and management (DRRM) programs. Hence, the study included all barangays to provide a holistic examination of these DRRM programs in enhancing local resilience and public safety.

➢ *Unit of Analysis and Sampling*

The respondents consisted of the entire population of BDRRMC members, four MDRRMO heads, and a sample of 395 barangay residents (Table 1). The BDRRMC members provided data on program implementation, while the MDRRMO heads offered insights on municipal coordination. The residents contributed perspectives on program benefits, including resilience factors (economic, technological, social, and environmental) and safety outcomes (infrastructure, response, and awareness).

Complete enumeration was used for the BDRRMC members, as each barangay had fewer than two members, as well as for the four (4) MDRRMO heads, due to their small population size.

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The respondents consisted of the full membership of the BDRRMC, the heads of four MDRRMO offices, and a sample of 395 barangay residents (Table 2). Data on program implementation were provided by BDRRMC members, while insights on coordination at the municipal level were obtained from MDRRMO heads. Residents' perspectives on program benefits, resilience factors (economic, technological, social, and environmental), and safety outcomes (infrastructure, response, and awareness) were also collected.

A proportional sample of 395 residents, determined using Slovin's formula based on the PSA Census 2020 population data for Mamburao's barangays, was selected.

➢ *Research Instrument*

The research instrument used was a structured survey questionnaire composed of 55 items to gather data for the three main variables. The first variable, barangay-based disaster preparedness programs, consisted of four sub-variables: 1) hazard identification and risk profiling; 2) risk analysis and vulnerability assessment; 3) speed and coordination of disaster response; and 4) tracking systems and documentation. Five items were alloted per sub-variable, totaling 20 items. The second variable is local resilience, and this included: 1) livelihood stability and financial resources; 2) use of technology in disaster preparedness and recovery; 3) community organization and participation; and 4) environmental protection and adaptation efforts. Similarly, five items wer alloted per sub-variable, hence totaling 20 items. The third variable, is public safety, and this comprised: 1) structural integrity and disaster resilience of barangay facilities; 2) efficiency of emergency response and recovery efforts; and 3) knowledge of disaster risks and information dissemination. With five items each, a total of 15 items were alloted to this last variable.

In order to validate the content of the questionnaire, a validation letter with consent was drafted before it was shared with the research advisor, data analyst, and critic reader, and revised as suggested by the panel members.

Each item was scored using a 5-point Likert scale specific to each variable (Table 3). For effectiveness, the scale ranged from 1 (Needs Improvement) to 5 (Highly Effective); for resilience, from 1 (Vulnerable) to 5 (Highly Resilient); and for safety, from 1 (Insufficient Safety) to 5 (Very Safe) (Sandoval, 2018). The use of these scales allowed respondents to evaluate criteria such as hazard mapping and evacuation center safety, in alignment with standards set by Republic Act No. 10121 and the Seal of Good Local Governance for Barangays (SGLGB).

➢ *Data Collection Procedure*

The data collection process followed a systematic approach to gather quantitative data across all 15 barangays in Mamburao, Occidental Mindoro.

The researcher distributed the questionnaire in person at barangay halls, MDRRMO offices, or at locations preferred by the respondents. Each survey required approximately 10–15 minutes to complete. Informed consent was obtained by explaining the purpose of the study and ensuring confidentiality in accordance with Republic Act No. 10173, or the Data Privacy Act of 2012. The researcher also provided guidance during the survey administration to ensure accurate responses.

Completed questionnaires were collected, checked for completeness, and prepared for encoding and statistical analysis.

➢ *Ethical Consideration*

This study ensured ethical conduct in assessing barangay-based disaster preparedness programs. Informed consent was obtained from all respondents by explaining the study's purpose, procedures, and voluntary nature, including their right to withdraw at any time without consequences.

All responses were anonymized using unique identifiers, and data were stored in password-protected files in accordance with Republic Act No. 10173, or the Data Privacy Act of 2012. No financial incentives were provided to avoid coercion. The 55-item survey, administered in person and requiring approximately 10–15 minutes to complete, focused on DRRM-related experiences and avoided sensitive questions.

The study ensured that no physical, emotional, or reputational harm was caused to participants. The findings were reported accurately to support improvements in disaster risk reduction and management.

➢ *Data Processing and Analysis*

With the assistance of a data analyst, the collected data were processed and analyzed. For computation and analysis, the Statistical Package for the Social Sciences (SPSS) and Microsoft Excel were used.

In evaluating the barangay-based disaster preparedness programs, local resilience, and public safety, mean and standard deviation were used.

In examining the relationship between the barangay-based disaster preparedness programs to local resilience and public safety, Pearson Product-Moment Correlation Coefficient (Pearson's r) was applied.

III. RESULTS

➢ *Barangay-Based Disaster Preparedness Programs*

- *Hazard Identification and Risk Profiling*

Hazard identification and risk profiling was rated effective by the respondents (Table 1). As the overall mean of 4.33 and standard deviation of 0.254 suggest the respondents agreed that the hazard identification and risk profiling activities are effective in preparing the community in response to disaster. Consequently, the community is aware of to the specific threats in the area.

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Table 1 Barangay-Based Disaster Preparedness Programs in the Municipality of Mamburao in Terms of Hazard Identification and Risk Profiling.

Indicators	Mean	SD	Description
1. Our barangay effectively conducts regular hazard detection activities and monitoring to identify new or changing risks in our area.	4.41	.537	Effective
2. Updated hazard maps are effectively maintained and made accessible to all residents, displayed in public areas and distributed to households per SGLGB 2.2.2.	4.38	.533	Effective
3. Community participation in hazard identification and risk profiling activities is effectively facilitated and managed by barangay officials.	4.38	.566	Effective
4. The risk profiling process in our barangay effectively categorizes and prioritizes hazards based on their likelihood and potential impact on the community.	4.31	.599	Effective
5. Our barangay has effectively completed comprehensive hazard identification covering all potential disasters (typhoons, floods, earthquakes, landslides) as required by RA 10121.	4.17	.725	Effective
Overall Mean	**4.33**	**.254**	**Effective**

Scale: 1.00- 1.50-Needs Improvement; 1.51-2.50-Slightly Effective; 2.51-3.50-Moderately Effective; 3.51-4.50-Effective; 4.51-5.00- Highly Effective

- *Risk Analysis and Vulnerability Assessment*

Table 2 revealed that the barangay-based disaster preparedness programs in the Municipality of Mamburao, in terms of risk analysis and vulnerability assessment, was rated as effective, with a mean of 4.38 and a standard deviation of 0.209. This indicates that the authorities had conducted periodic risk analyses and vulnerability assessments in the locality. The low standard deviation suggests that the responses were homogeneous among the respondents.

Table 2 Barangay-Based Disaster Preparedness Programs in the Municipality of Mamburao in Terms of Risk Analysis and vulnerability Assessment.

Indicators	Mean	SD	Description
1. Our barangay effectively conducts comprehensive vulnerability assessments that categorize households according to their disaster risk levels and capacities.	4.41	.496	Effective
2. Multi-stakeholder participation in risk analysis and vulnerability assessment is effectively coordinated as mandated by RA 10121 and SGLGB 2.2.1.	4.40	.535	Effective
3. Our barangay effectively assesses the vulnerability of critical facilities (schools, health centers, evacuation centers) to various disasters.	4.38	.550	Effective
4. Risk analysis in our barangay effectively evaluates the interaction between hazards, exposure, and vulnerability to determine disaster risk levels.	4.35	.551	Effective
5. Vulnerability assessment reports in our barangay are effectively prepared with detailed analysis and regular updates in compliance with NDRRMC MC No. 4 s. 2012.	4.35	.527	Effective
Overall Mean	**4.38**	**.209**	**Effective**

Scale: 1.00- 1.50-Needs Improvement; 1.51-2.50-Slightly Effective; 2.51-3.50-Moderately Effective; 3.51-4.50-Effective; 4.51-5.00- Highly Effective

- *Speed and Coordination of Disaster Response*

Table 3 revealed that the barangay-based disaster preparedness programs in the Municipality of Mamburao, in terms of speed and coordination of disaster response, was rated as effective, with a mean of 4.37 and a standard deviation of 0.223. This indicates that the authorities had effective and functional disaster response mechanisms in the barangays. The low standard deviation suggests that the responses were similar among the respondents.

Table 3 Barangay-Based Disaster Preparedness Programs in the Municipality of Mamburao in Terms of Speed and Coordination of Disaster Response.

Indicators	Mean	SD	Description
1. Coordination among BDRRMC members during emergency response is effectively managed to ensure rapid and organized disaster response.	4.42	.530	Effective
2. The speed of disaster response in our barangay effectively meets or exceeds the standards set by RA 10121 and Operation Listo protocols.	4.38	.557	Effective
3. Inter-agency coordination between our barangay and higher government levels effectively facilitates rapid disaster response per SGLGB 2.2.3 and 2.3.2.	4.37	.533	Effective
4. Deployment of trained disaster response personnel in our barangay is effectively coordinated to ensure quick mobilization during emergencies.	4.36	.531	Effective
5. Early warning systems in our barangay effectively disseminate disaster alerts to all residents through multiple communication channels with appropriate speed.	4.33	.535	Effective
Overall Mean	**4.37**	**.223**	**Effective**

Scale: 1.00- 1.50-Needs Improvement; 1.51-2.50-Slightly Effective; 2.51-3.50-Moderately Effective; 3.51-4.50-Effective; 4.51-5.00- Highly Effective

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- *Tracking Systems and Documentation*

Table 4 revealed that the barangay-based disaster preparedness programs in the Municipality of Mamburao, in terms of tracking systems and documentation, was rated as effective, with a mean of 4.41 and a standard deviation of 0.221. This indicates that the authorities consistently conducted the recording, documentation, and monitoring of all activities and operations related to disaster preparedness and response. The low standard deviation suggests that the responses were closely clustered around the mean.

Table 4 Barangay-Based Disaster Preparedness Programs in the Municipality of Mamburao in Terms of Tracking Systems and Documentation.

Indicators	Mean	SD	Description
1. Our barangay's tracking system effectively monitors the implementation and outcomes of disaster preparedness programs per RA 10121.	4.45	.538	Effective
2. Documentation systems in our barangay effectively capture real-time data during disasters to support decision-making processes.	4.43	.532	Effective
3. Disaster monitoring reports are effectively prepared with high quality and submitted regularly to comply with reporting requirements to higher government levels.	4.41	.547	Effective
4. Documentation and reporting processes effectively support the monitoring and evaluation system for continuous improvement of disaster preparedness programs.	4.39	.517	Effective
5. Our barangay effectively tracks and documents all disaster-related events with comprehensive record-keeping systems as required by DILG MC 2022-118.	4.37	.533	Effective
Overall Mean	**4.41**	**.221**	**Effective**

Scale: 1.00- 1.50-Needs Improvement; 1.51-2.50-Slightly Effective; 2.51-3.50-Moderately Effective; 3.51-4.50-Effective; 4.51-5.00- Highly Effective

➢ *Summary of Barangay-Based Disaster Preparedness Programs*

Table 5 revealed that the barangay-based disaster preparedness programs in the Municipality of Mamburao was rated as effective, with a grand mean of 4.37 and a standard deviation of 0.106. This indicates that the respondents perceived that their barangays were effectively fulfilling their responsibilities in disaster preparedness.

Table 5 Summary of Barangay-Based Disaster Preparedness Programs in the Municipality of Mamburao.

Indicators	Mean	SD	Description
Tracking Systems and Documentation	4.41	.221	Effective
Risk Analysis and Vulnerability Assessment	4.38	.209	Effective
Speed and Coordination of Disaster Response	4.37	.223	Effective
Hazard Identification and Risk Profiling	4.33	.254	Effective
Grand Mean	**4.37**	**.106**	**Effective**

Scale: 1.00- 1.50-Needs Improvement; 1.51-2.50-Slightly Effective; 2.51-3.50-Moderately Effective; 3.51-4.50-Effective; 4.51-5.00- Highly Effective

➢ *Level of Local Resilience*

- *Livelihood Stability and Financial Resources*

Table 6 revealed that the level of local resilience in the Municipality of Mamburao, in terms of livelihood stability and financial resources, was rated as resilient, with a mean of 4.37 and a standard deviation of 0.228. This indicates that residents in the community had stable and profitable livelihoods, as well as sufficient income and financial resources. The low standard deviation suggests that the responses of the participants were relatively similar.

Table 6 Level of Local Resilience in the Municipality of Mamburao in Terms of Livelihood Stability and Financial Resources.

Indicators	Mean	SD	Description
1. Alternative livelihood programs in our barangay provide resilient income sources that help residents maintain financial stability during and after disasters.	4.40	.598	Resilient
2. Economic assistance programs demonstrate resilience by being readily available and accessible to disaster-affected residents in our barangay.	4.40	.522	Resilient
3. Our barangay shows financial resilience through proper utilization of at least 50% of the BDRRM fund for preparedness activities as required by SGLGB 2.1.4.	4.37	.530	Resilient
4. Local businesses in our barangay demonstrate resilience by quickly recovering and resuming operations after disaster events.	4.36	.522	Resilient
5. Our barangay maintains financial resilience through reserve funds and contingency budgets specifically allocated for disaster response and recovery activities.	4.34	.552	Resilient
Overall Mean	**4.37**	**.228**	**Resilient**

Scale: 1.00- 1.50- Vulnerable; 1.51-2.50- Low Resilience; 2.51-3.50- Moderately Resilient; 3.51-4.50- Resilient; 4.51-5.00- Highly Resilient

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- *Disaster preparedness and recovery*

Table 7 revealed that the level of local resilience in the Municipality of Mamburao, in terms of the use of technology in disaster preparedness and recovery, was rated as resilient, with a mean of 4.38 and a standard deviation of 0.220. This indicates that both authorities and residents in the community utilized modern and updated technologies related to disaster preparedness. The low standard deviation suggests that the responses were homogeneous among the respondents.

Table 7 Level of Local Resilience in the Municipality of Mamburao in Terms of Use of Technology in Disaster Preparedness and Recovery.

Indicators	Mean	SD	Description
1. Technology-based monitoring tools deployed in our barangay demonstrate resilience in tracking weather conditions, water levels, and other disaster-related parameters.	4.42	.530	Resilient
2. Residents in our barangay demonstrate resilience through adequate access to disaster information via various digital channels and technological platforms per SGLGB 2.2.3.	4.41	.537	Resilient
3. Our barangay shows technological resilience through modern communication systems (radio, internet) that maintain connectivity during emergency situations.	4.40	.508	Resilient
4. Our barangay demonstrates technological resilience through functional early warning systems including SMS alerts, sirens, and other technological solutions as mandated by RA 10121.	4.38	.514	Resilient
5. Digital platforms and communication technologies in our barangay show resilience by remaining operational during disasters to disseminate information and coordinate response.	4.31	.535	Resilient
Overall Mean	**4.38**	**.220**	**Resilient**

Scale: 1.00- 1.50- Vulnerable; 1.51-2.50- Low Resilience; 2.51-3.50- Moderately Resilient; 3.51-4.50- Resilient; 4.51-5.00- Highly Resilient

- *Community Organization and Participation*

Table 8 revealed that the level of local resilience in the Municipality of Mamburao, in terms of community organization and participation, was rated as resilient, with a mean of 4.40 and a standard deviation of 0.220. This indicates that both authorities and residents collaborated and were well-organized in addressing disaster preparedness and response. The low standard deviation suggests that the responses were similar among the respondents.

Table 8 Level of Local Resilience in the Municipality of Mamburao in Terms of Community Organization and Participation.

Indicators	Mean	SD	Description
1. Our barangay shows social resilience through strong community networks and mutual support systems that effectively help members during and after disasters.	4.43	.541	Resilient
2. Community-based disaster risk reduction organizations in our barangay demonstrate resilience through active participation and well-functioning operations as promoted by RA 10121.	4.41	.543	Resilient
3. Community participation in disaster preparedness activities demonstrates resilience with high engagement rates in training sessions and education programs.	4.40	.527	Resilient
4. Our barangay demonstrates social resilience by effectively including vulnerable groups (elderly, persons with disabilities, children) in disaster preparedness plans and support systems.	4.40	.527	Resilient
5. Barangay-wide participation in disaster drills and preparedness activities shows community resilience through high engagement and social cohesion.	4.35	.510	Resilient
Overall Mean	**4.40**	**.220**	**Resilient**

Scale: 1.00- 1.50- Vulnerable; 1.51-2.50- Low Resilience; 2.51-3.50- Moderately Resilient; 3.51-4.50- Resilient; 4.51-5.00- Highly Resilient

- *Environmental Protection and Adaptation Efforts*

Table 9 revealed that the level of local resilience in the Municipality of Mamburao, in terms of environmental protection and adaptation efforts, was rated as resilient, with a mean of 4.41 and a standard deviation of 0.218. This indicates that both authorities and residents actively engaged in preserving and enhancing the natural environment to support disaster resilience and protection. The low standard deviation suggests that the responses were closely clustered around the mean.

Table 9 Level of Local Resilience in the Municipality of Mamburao in Terms of Environmental Protection and Adaptation Efforts.

Indicators	Mean	SD	Description
1. Our barangay demonstrates environmental resilience through implementation of reforestation, coastal protection, and conservation projects that reduce disaster risks per RA 9729 requirements.	4.47	.540	Resilient
2. Environmental management programs demonstrate resilience by integrating disaster risk reduction considerations and following SGLGB environmental indicators for climate change adaptation.	4.45	.547	Resilient

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3. Environmental adaptation efforts in our barangay show resilience by promoting sustainable practices that minimize disaster-related environmental degradation.	4.43	.541	Resilient
4. Our barangay demonstrates resilience through climate-resilient agricultural practices and sustainable livelihood options that adapt to changing environmental conditions.	4.41	.525	Resilient
5. Environmental protection measures in our barangay show resilience through established protected areas, green spaces, and natural barriers that serve as disaster risk reduction measures.	4.30	.513	Resilient
Overall Mean	**4.41**	**.218**	**Resilient**

Scale: 1.00- 1.50- Vulnerable; 1.51-2.50- Low Resilience; 2.51-3.50- Moderately Resilient; 3.51-4.50- Resilient; 4.51-5.00- Highly Resilient

➢ *Summary of Level of Local Resilience in the Municipality of Mamburao*

Table 10 revealed that the level of local resilience in the Municipality of Mamburao was rated as resilient, with a grand mean of 4.39 and a standard deviation of 0.098. This indicates that both authorities and residents in the barangays demonstrated resilience to disasters; however, there remained areas for further improvement.

Table 10 Summary of Level of Local Resilience in the Municipality of Mamburao.

Indicators	Mean	SD	Description
Environmental Protection and Adaptation Efforts	4.41	.218	Resilient
Community Organization and Participation	4.40	.220	Resilient
Use of Technology in Disaster Preparedness and Recovery	4.38	.220	Resilient
Livelihood Stability and Financial Resources	4.37	.228	Resilient
Grand Mean	**4.39**	**.098**	Resilient

Scale: 1.00- 1.50- Vulnerable; 1.51-2.50- Low Resilience; 2.51-3.50- Moderately Resilient; 3.51-4.50- Resilient; 4.51-5.00- Highly Resilient

➢ *Level of Public Safety*

- *Structural Integrity and Disaster-Resilience of Barangay Facilities*

Table 11 revealed that the level of public safety in the Municipality of Mamburao, in terms of structural integrity and disaster resilience of barangay facilities, was rated as safe, with a mean of 4.37 and a standard deviation of 0.228. This indicates that buildings and structures intended to shelter residents during calamities were properly constructed and capable of withstanding disasters. The low standard deviation suggests that the responses were closely clustered around the mean.

Table 11 Level of Public Safety in the Municipality of Mamburao in Terms of Structural Integrity and Disaster-Resilience of Barangay Facilities.

Indicators	Mean	SD	Description
1. Evacuation centers in our barangay ensure public safety by meeting certification requirements and proper equipment standards per SGLGB 2.3.1.	4.43	.557	Safe
2. Our barangay maintains infrastructure safety through updated inventories of facility conditions and preventive maintenance programs for disaster resilience.	4.41	.547	Safe
3. Essential infrastructure (roads, bridges, utilities) in our barangay maintains safety through established repair and maintenance protocols for quick post-disaster restoration.	4.37	.530	Safe
4. Critical structures in high-risk areas of our barangay provide safety through retrofitting and upgrading to meet disaster-resilient building standards.	4.35	.532	Safe
5. Public buildings and facilities in our barangay ensure safety through regular structural integrity assessments and safety inspections.	4.32	.531	Safe
Overall Mean	**4.37**	**.228**	**Safe**

Scale: 1.00- 1.50- Insufficient Safety; 1.51-2.50- Minimal Safety Measures; 2.51-3.50- Moderately Safe; 3.51-4.50- Safe; 4.51-5.00- Very Safe

- *Efficiency of Emergency Response and Recovery Efforts*

Table 12 revealed that the level of public safety in the Municipality of Mamburao, in terms of the efficiency of emergency response and recovery efforts, was rated as safe, with a mean of 4.38 and a standard deviation of 0.216. This indicates that the authorities effectively designed and implemented emergency response and recovery programs at the barangay level. The low standard deviation suggests that the responses among the respondents were relatively consistent.

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Table 12 Level of Public Safety in the Municipality of Mamburao in Terms of Efficiency of Emergency Response and Recovery Efforts.

Indicators	Mean	SD	Description
1. Emergency response teams in our barangay ensure public safety by efficiently providing initial relief assistance to disaster-affected residents within prescribed timeframes.	4.49	.519	Safe
2. Post-disaster recovery programs in our barangay maintain safety by efficiently reaching all affected residents and providing necessary rehabilitation assistance.	4.41	.551	Safe
3. Our barangay ensures safety through efficient post- disaster recovery assessments that evaluate response effectiveness and identify improvement areas.	4.36	.535	Safe
4. Coordination mechanisms ensure public safety through efficient emergency response and resource mobilization between our barangay and higher government levels.	4.33	.539	Safe
5. Recovery planning in our barangay maintains safety through efficient implementation of established protocols and timelines to restore normalcy following Operation Listo and SGLGB 2.3.2.	4.33	.535	Safe
Overall Mean	**4.38**	**.216**	**Safe**

Scale: 1.00- 1.50- Insufficient Safety; 1.51-2.50- Minimal Safety Measures; 2.51-3.50- Moderately Safe; 3.51-4.50- Safe; 4.51-5.00- Very Safe

- *Knowledge of Disaster Risks and Involvement in Preparedness Activities*

Table 13 revealed that the level of public safety in the Municipality of Mamburao, in terms of knowledge of disaster risks and involvement in preparedness activities, was rated as safe, with a mean of 4.36 and a standard deviation of 0.247. This indicates that residents in the community were informed and aware of potential disasters and calamities in their area. The low standard deviation suggests that the responses among the respondents were relatively similar.

Table 13 Level of Public Safety in the Municipality of Mamburao in Terms of Knowledge of Disaster Risks and Involvement in Preparedness Activities.

Indicators	Mean	SD	Description
1. Community participation in barangay-led disaster education programs contributes to public safety through high engagement rates in information campaigns.	4.41	.543	Safe
2. Residents in our barangay enhance public safety through their knowledge of primary disaster risks and appropriate response actions for our community.	4.37	.539	Safe
3. Regular information dissemination ensures public safety by keeping residents updated on disaster risks and preparedness measures as required by DILG MCs.	4.36	.582	Safe
4. Our barangay maintains public safety through community members' high satisfaction levels with disaster response measures and confidence in local emergency systems.	4.34	.601	Safe
5. Community involvement in preparedness activities enhances public safety through active participation from various sectors and demographic groups meeting SGLGB participation indicators.	4.32	.609	Safe
Overall Mean	**4.36**	**.247**	**Safe**

Scale: 1.00- 1.50- Insufficient Safety; 1.51-2.50- Minimal Safety Measures; 2.51-3.50- Moderately Safe; 3.51-4.50- Safe; 4.51-5.00- Very Safe

➢ *Summary of Level of Public Safety in the Municipality of Mamburao*

Table 14 presented that the level of public safety in the Municipality of Mamburao was rated as safe, with a grand mean of 4.37 and a standard deviation of 0.127. This indicates that public safety in the municipality was generally good but still had room for improvement.

Table 14 Summary of Level of Public Safety in the Municipality of Mamburao.

Indicators	Mean	SD	Description
Efficiency of Emergency Response and Recovery Efforts	4.38	.216	Safe
Structural Integrity and Disaster-Resilience of Barangay Facilities	4.37	.228	Safe
Knowledge of Disaster Risks and Involvement in Preparedness Activities	4.36	.247	Safe
Grand Mean	**4.37**	**.127**	**Safe**

Scale: 1.00- 1.50- Insufficient Safety; 1.51-2.50- Minimal Safety Measures; 2.51-3.50- Moderately Safe; 3.51-4.50- Safe; 4.51-5.00- Very Safe

➢ *Relationship Between Barangay-Based Disaster Preparedness Programs and the Level of Local Resilience*

Table 15 showed that the barangay-based disaster preparedness programs had a negligible relationship with the level of local resilience, as indicated by a correlation coefficient of -0.047 and supported by a p-value greater than 0.05. This indicates that, in this study, the two variables were independent and did not significantly influence each other.

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Table 15 Relationship Between Barangay-Based Disaster Preparedness Programs and the Level of Local Resilience.

Variables		Correlation Coefficient	p-value	Relationship
Barangay-based disaster preparedness programs	Local resilience	-.047	.202	Negligible

Scale: .000-.150 Negligible; .151-.400 Weak; .401-.650 Moderate; .651-.900 Strong; .901-1.000 Perfect

➢ *Relationship Between Barangay-Based Disaster Preparedness Programs and Public Safety in the Municipality of Mamburao*

Table 16 revealed that the barangay-based disaster preparedness programs had a negligible relationship with public safety, as indicated by a correlation coefficient of -0.046 and supported by a p-value greater than 0.05. This indicates that the respondents perceived the two variables as independent, suggesting that they can exist and function separately from one another.

Table 16 Relationship Between Barangay-Based Disaster Preparedness Programs and Public Safety in the Municipality of Mamburao.

Variables		Correlation Coefficient	p-value	Relationship
Barangay-based disaster preparedness programs	Public safety	-.046	.204	Negligible

Scale: .000-.150 Negligible; .151-.400 Weak; .401-.650 Moderate; .651-.900 Strong; .901-1.000 Perfect

IV. DISCUSSIONS

➢ *Barangay-Based Disaster Preparedness Programs*

- *Hazard Identification and Risk Profiling*

The overall mean of 4.33, interpreted as effective, indicated that barangays in the Municipality of Mamburao were capable of identifying hazards and profiling risks within their localities. This suggests that disaster threats such as typhoons, floods, and earthquakes were generally recognized and understood by both authorities and residents. Hazard identification is a fundamental component of disaster preparedness, as emphasized by Santos et al. (2016), who noted that community-based hazard mapping enhances awareness and preparedness. The relatively low standard deviation further indicated consistency in responses, implying uniform implementation across barangays.

The highest mean (4.41) was observed in the barangay's conduct of regular hazard detection and monitoring activities, suggesting strong performance in continuous risk identification. This reflects the proactive approach of barangays in monitoring emerging and evolving hazards. According to Hidayat et al. (2017), continuous hazard monitoring strengthens early detection and improves preparedness planning. Regular monitoring ensures updated and relevant disaster risk information, enabling communities to respond effectively to changing conditions.

The lowest mean (4.17) was recorded in comprehensive hazard identification covering all potential disasters, indicating that some barangays may not fully assess all possible hazards. This suggests limitations in achieving complete hazard coverage, possibly due to a lack of technical expertise or resources. Tuladhar et al. (2019) explained that comprehensive hazard assessment often requires technical tools and training, which may not always be available at the local level. Gaps in technical capacity can hinder full compliance with disaster risk assessment standards.

- *Risk Analysis and Vulnerability Assessment*

The overall mean of 4.38, interpreted as effective, indicated that barangays were capable of analyzing risks and assessing vulnerabilities within their communities. This suggests that local authorities were able to evaluate the exposure and susceptibility of households and infrastructure to disasters. This finding aligns with Vahanvati et al. (2017), who emphasized that vulnerability assessments are essential in strengthening disaster preparedness. It further supports the idea that combining local knowledge with structured risk analysis improves disaster planning and mitigation strategies.

The highest mean (4.41) was observed in the conduct of comprehensive vulnerability assessments that categorize households based on risk levels, indicating strong performance in identifying vulnerable populations. This reflects the barangays' ability to prioritize assistance and interventions. According to Atisi-Selmi et al. (2018), identifying vulnerable groups enhances targeted disaster response and resource allocation. This underscores the importance of identifying at-risk populations for effective disaster risk reduction.

The lowest mean (4.35) was noted in both evaluating the interaction between hazards, exposure, and vulnerability, and in preparing detailed vulnerability reports. This suggests slight gaps in technical and analytical processes and may indicate challenges in applying advanced risk assessment frameworks. Pathirage et al. (2018) highlighted that complex risk analysis requires technical expertise and standardized tools, which may not always be available in local settings. Inconsistencies in assessment methodologies can also affect the quality of vulnerability analysis.

- *Speed and Coordination of Disaster Response*

The overall mean of 4.37, interpreted as Effective, indicates that barangays demonstrate efficient and functional disaster response systems. This suggests that emergency response mechanisms are well-established and operational.

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This supports Mulyana et al. (2017), who emphasized that organized response systems improve disaster outcomes. It further noted that coordination and preparedness are key factors in minimizing disaster impacts.

The highest mean (4.42) was recorded in effective coordination among BDRRMC members, indicating strong teamwork and organization during emergencies. This reflects the ability of barangay officials and responders to work collaboratively. Gibbs et al. (2016) found that coordinated response efforts significantly reduce disaster-related damages and casualties. It was also emphasized that well-trained and coordinated response teams enhance disaster management effectiveness.

The lowest mean (4.33) was observed in early warning systems dissemination, suggesting that communication of disaster alerts may not fully reach all residents with optimal speed. This indicates potential gaps in communication infrastructure or accessibility. According to Mulyana et al. (2017), timely dissemination of warnings is critical in disaster preparedness. It was highlighted that communication barriers, especially in rural areas, can affect the effectiveness of early warning systems.

- *Tracking Systems and Documentation*

The overall mean of 4.41, interpreted as effective, indicated that barangays maintained efficient systems for monitoring and documenting disaster-related activities. This suggests strong accountability and transparency in disaster management processes. Mashi et al. (2019) emphasized that proper documentation enhances the monitoring and evaluation of disaster programs. It also supports the idea that systematic documentation contributes to the continuous improvement of disaster risk reduction and management (DRRM).

The highest mean (4.45) was observed in monitoring the implementation and outcomes of disaster preparedness programs, indicating strong performance in tracking progress and effectiveness. This reflects the barangays' ability to evaluate and improve their DRRM initiatives. Hapsari et al. (2017) noted that monitoring systems enhance decision-making and program effectiveness.

The lowest mean (4.37) was recorded in the comprehensive record-keeping of all disaster-related events, suggesting minor gaps in documentation systems. This may be due to limitations in technology or manpower. Manual reporting systems and the lack of digital tools can hinder efficient documentation, affecting data accuracy and accessibility.

➢ *Level of Local Resilience in the Municipality of Mamburao*

- *Livelihood Stability and Financial Resources*

The overall mean of 4.37, interpreted as resilient, indicated that residents possessed stable livelihoods and sufficient financial capacity to cope with disasters. This suggests that economic resilience was present within the community. Béné et al. (2016) emphasized that financial stability enhances recovery capacity. Access to resources and diversified income sources further strengthened resilience.

The highest mean (4.40) in alternative livelihood and economic assistance programs indicated strong support systems for income stability. This reflects the barangays' ability to provide financial assistance during crises. Pomeroy et al. (2016) highlighted that diversified livelihoods reduce vulnerability.

The lowest mean (4.34) in reserve funds and contingency budgets suggests that, while barangays demonstrated overall resilience, there were notable limitations in financial preparedness for disaster situations. This indicates that not all barangays consistently maintained sufficient allocated funds specifically intended for emergency response and recovery operations. As a result, their capacity to immediately mobilize resources during disasters may be constrained, particularly in the early stages when timely financial support is most critical. Cardenas and Esguerra (2017) emphasized that limited fiscal capacity at the local level often results in slower recovery processes and prolonged community disruption.

- *Use of Technology in Disaster Preparedness and Recovery*

The overall mean of 4.38, interpreted as resilient, indicated a moderate to strong level of technological integration in disaster preparedness and recovery efforts among barangays in the Municipality of Mamburao. This suggests that both local authorities and residents were increasingly relying on information and communication technologies (ICT), such as mobile alerts, radio systems, and internet-based platforms, to enhance disaster readiness and response. The finding reflects a shift toward more modern and data-driven approaches in disaster risk reduction and management (DRRM). As emphasized by Bautista (2018), the use of technology significantly improves communication, coordination, and decision-making during emergencies. Furthermore, ICT tools facilitate real-time information dissemination, enabling faster and more organized responses, which ultimately strengthens community resilience.

The highest mean of 4.42 in technology-based monitoring tools demonstrated that barangays were highly effective in utilizing technological systems to track environmental conditions such as weather patterns, water levels, and other disaster-related indicators. This reflects a proactive approach to disaster preparedness, where early detection and monitoring allow authorities to anticipate risks and implement preventive measures. Chen et al. (2017) emphasized that technologies such as Geographic Information Systems (GIS), early warning systems, and environmental sensors play a crucial role in improving disaster forecasting and risk assessment. The integration of monitoring technologies enhances situational awareness and enables timely interventions, thereby reducing potential damages and casualties.

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On the other hand, the lowest mean of 4.31 in the operational continuity of digital platforms during disasters indicates that challenges still exist in maintaining technological functionality under extreme conditions. This suggests that while technology is available and utilized, its reliability during actual disaster events may be compromised due to infrastructure limitations such as unstable internet connectivity, power outages, or the lack of backup systems. Technological resilience is not only about the presence of digital tools but also their ability to remain functional during emergencies. Connectivity issues, especially in geographically vulnerable or resource-limited areas, can disrupt communication and delay response efforts.

This is supported by Chen et al. (2017), who emphasized that disaster technologies are only effective when supported by stable infrastructure systems, and by Hapsari et al. (2017), who noted that interruptions in communication networks significantly affect disaster response efficiency. Furthermore, Bautista (2018) highlighted that ICT-based disaster systems in local communities often face operational challenges due to limited technical capacity and infrastructure constraints. This finding underscores the need for barangays to invest in more robust and disaster-resilient technological infrastructure, such as backup communication systems and alternative power sources, to ensure continuous operation during critical situations.

- *Community Organization and Participation*

The overall mean of 4.40, interpreted as resilient, indicated a high level of community involvement in disaster risk reduction and management (DRRM) activities within the Municipality of Mamburao. This suggests that residents, barangay officials, and local organizations were actively collaborating in planning, implementing, and sustaining disaster preparedness initiatives. Such strong participation reflects a sense of shared responsibility and collective awareness of disaster risks, which are essential components of community resilience. When communities are well-organized and engaged, they are better able to anticipate hazards, respond effectively, and recover more quickly from disasters. As emphasized by Ahrens et al. (2016), active social participation and community engagement significantly enhance resilience by strengthening cooperation, trust, and information sharing among stakeholders.

The highest mean of 4.43 in strong community networks and mutual support systems highlights the presence of solid social cohesion within barangays. This indicates that residents were willing to support one another during and after disaster events, creating a reliable system of mutual aid. Strong interpersonal relationships and organized community groups enable faster dissemination of information, efficient mobilization of resources, and coordinated response efforts. Berkes et al. (2017) noted that communities with strong social networks are more capable of collective action, which improves disaster response and recovery outcomes. This finding demonstrates that social capital—built through trust, cooperation, and shared experiences—plays a critical role in enhancing disaster resilience at the grassroots level.

On the other hand, the lowest mean of 4.35 in participation in disaster drills and preparedness activities suggests that, while overall engagement was strong, there was still room for improvement in consistent and active participation in formal preparedness activities. This may indicate that some residents were less involved in organized drills due to factors such as time constraints, lack of awareness, or limited motivation. Regular participation in drills is essential because it allows community members to practice emergency procedures, understand their roles, and build confidence in responding to actual disasters. According to Shaw et al. (2018), sustained community engagement in disaster preparedness activities remains a common challenge, as participation often declines over time without continuous awareness campaigns and incentives. This highlights the need for barangays to strengthen strategies that encourage active and sustained involvement, such as conducting more inclusive, accessible, and engaging preparedness programs to ensure that all sectors of the community are adequately prepared.

- *Environmental Protection and Adaptation Efforts*

The overall mean of 4.41, interpreted as resilient, indicated that barangays in the Municipality of Mamburao demonstrated strong environmental resilience practices, reflecting their commitment to protecting natural resources and adapting to disaster risks. This suggests that local communities were actively implementing strategies such as conservation, sustainable resource management, and climate adaptation measures to reduce vulnerability to hazards. Environmental protection plays a crucial role in disaster risk reduction, as healthy ecosystems can act as natural buffers against disasters such as floods, storm surges, and landslides. Beck et al. (2018) emphasized that ecosystem-based disaster risk reduction (Eco-DRR) enhances resilience by utilizing natural systems—such as forests, mangroves, and watersheds—to mitigate disaster impacts while supporting sustainable livelihoods.

The highest mean of 4.47 in reforestation, coastal protection, and conservation projects highlights the strong implementation of environmental initiatives at the barangay level. This indicates that local governments and communities were actively engaging in programs that restore and protect ecosystems, which in turn contribute to disaster mitigation. Reforestation helps prevent soil erosion and landslides, while coastal protection measures such as mangrove rehabilitation reduce the impact of storm surges and flooding. According to Colls et al. (2016), ecosystem-based approaches not only reduce disaster risks but also provide long-term environmental and socio-economic benefits. This finding reflects that barangays recognize the importance of integrating environmental sustainability into disaster preparedness efforts.

However, the lowest mean of 4.30 in the establishment of protected areas, green spaces, and natural barriers suggests that there is still room for improvement in institutionalizing and sustaining these environmental measures. While conservation efforts are present, the development of formally designated protected areas and long-term environmental

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safeguards may be limited by factors such as funding constraints, land-use conflicts, and insufficient technical expertise. Estrella and Saalismaa (2013) noted that implementing ecosystem-based adaptation strategies often requires significant investment, policy support, and community engagement, which can be challenging at the local level. This implies that barangays may need to strengthen policy enforcement, allocate more resources, and enhance collaboration with environmental agencies to fully maximize the benefits of natural defenses in disaster risk reduction.

➢ *Level of Public Safety in the Municipality of Mamburao*

- *Structural Integrity And Disaster-Resilience Of Barangay Facilities*

The overall mean of 4.37, interpreted as safe, indicated that barangay facilities in the Municipality of Mamburao were generally structurally sound and capable of withstanding disaster impacts, reflecting a satisfactory level of infrastructure resilience. This suggests that key facilities such as evacuation centers, barangay halls, health stations, and other public buildings were designed, maintained, and utilized in a manner that promotes public safety during emergencies. Resilient infrastructure is a critical component of disaster risk reduction, as it ensures that communities have safe spaces for evacuation, coordination, and recovery operations. As emphasized by Opdyke et al. (2017), infrastructure resilience plays a vital role in minimizing damage, protecting lives, and sustaining essential services during and after disaster events.

The highest mean of 4.43 in evacuation centers meeting certification requirements and equipment standards reflects strong compliance with established safety protocols and government standards. This indicates that barangays prioritize the readiness and adequacy of evacuation facilities, ensuring that they are properly equipped, structurally stable, and capable of accommodating affected residents. Well-maintained evacuation centers contribute significantly to public safety by providing secure shelter, reducing exposure to hazards, and facilitating organized disaster response. According to Bruneau et al. (2017), adherence to infrastructure standards and proper facility design enhances the capacity of communities to withstand and recover from disasters effectively.

On the other hand, the lowest mean of 4.32 in the regular conduct of structural integrity assessments and safety inspections suggests a need for more consistent and systematic monitoring of public facilities. While infrastructure may currently be in good condition, the lack of frequent inspections could lead to undetected structural weaknesses over time, especially in areas exposed to recurring hazards. Continuous monitoring is essential to ensure that facilities remain compliant with safety standards and are capable of functioning effectively during emergencies. As noted by Bosher et al. (2019), regular inspection and maintenance are critical in sustaining infrastructure resilience, as neglecting these processes can increase vulnerability and compromise safety during disaster events. This highlights the importance of strengthening maintenance programs and institutionalizing routine inspections to ensure long-term structural safety and reliability.

- *Efficiency of Emergency Response and Recovery Efforts*

The overall mean of 4.38, interpreted as safe, indicated that barangays in the Municipality of Mamburao demonstrated effective and well-functioning emergency response systems, particularly in providing immediate assistance during disaster events. This suggests that response mechanisms such as evacuation, relief distribution, and coordination among responders were generally organized and capable of addressing urgent needs. Efficient emergency response is critical in minimizing casualties and preventing further damage during disasters. As emphasized by Doocy et al. (2016), timely and well-coordinated response efforts significantly reduce the adverse impacts of disasters and improve survival outcomes among affected populations.

The highest mean of 4.49 in the rapid provision of relief assistance highlights the strong capability of barangays to deliver immediate support to disaster-affected residents. This indicates that emergency response teams were able to mobilize quickly and distribute essential resources such as food, water, and medical aid within the required timeframe. Such efficiency reflects good preparedness, availability of resources, and effective coordination among response units. According to Kapucu (2017), rapid response and efficient resource mobilization are key indicators of an effective disaster management system, as they directly influence the well-being and recovery of affected communities.

However, the lowest mean of 4.33 in recovery planning implementation suggests that while immediate response was strong, there were gaps in the execution of long-term recovery strategies. This indicates that activities such as rehabilitation planning, rebuilding infrastructure, and restoring livelihoods may not be as consistently implemented or prioritized. Long-term recovery requires sustained effort, adequate funding, and strategic planning to ensure that communities can fully return to normal conditions. Mannakkara and Wilkinson (2016) highlighted that effective disaster management should extend beyond immediate response to include well-planned recovery processes that promote resilience and sustainability. This finding implies that barangays may need to strengthen their recovery frameworks, ensuring that post-disaster actions are systematically planned and executed to support long-term community stability.

- *Knowledge of Disaster Risks and Involvement in Preparedness Activities*

The overall mean score of 4.36, interpreted as safe, indicated that residents were generally well-informed about disaster preparedness and risk reduction measures. This level of awareness suggests that individuals possessed adequate knowledge of hazards, warning systems, and appropriate response actions during emergencies. Such findings align with Scolobig et al. (2017), who emphasized that community awareness is a critical foundation for effective disaster risk

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reduction, as it enhances preparedness, promotes timely response, and reduces vulnerability to hazards.

The highest mean of 4.41, observed in education program participation, reflects strong community engagement in training, seminars, and awareness campaigns. This suggests that residents were actively involved in learning initiatives that equipped them with practical knowledge and skills for emergency situations. High participation in educational programs strengthens community resilience, as continuous learning fosters preparedness, improves risk perception, and encourages proactive behavior during disasters.

On the other hand, the lowest mean of 4.32 in multi-sector participation suggests that there are still gaps in inclusivity and collaboration among different sectors of the community. This may indicate that some groups, such as vulnerable populations or specific local stakeholders, were less involved or not fully integrated into disaster preparedness efforts. Limited multi-sector engagement can hinder the effectiveness of disaster risk reduction initiatives, as collaboration among government units, organizations, and community members is essential for a comprehensive and coordinated response. Addressing this gap requires strengthening partnerships and ensuring that all sectors are actively included in the planning, implementation, and evaluation of disaster preparedness programs.

- *Relationship Between Barangay-Based Disaster Preparedness Programs and the Level of Local Resilience*

The findings revealed a negligible relationship between barangay-based disaster preparedness programs and the level of local resilience ($r = -0.047$, $p > 0.05$). This suggests that even if disaster preparedness programs were being implemented effectively, their impact did not necessarily translate into a measurable improvement in the overall resilience of the community. The very weak and negative correlation indicates that other factors may have influenced resilience more significantly than preparedness programs alone.

This result implies that preparedness initiatives, while essential, may not be sufficient on their own to strengthen resilience at the community level. Local resilience is a multifaceted concept that extends beyond preparedness training, early warning systems, and response planning. It also involves access to resources, socio-economic stability, governance, infrastructure, health services, and community cohesion. When these underlying factors are not adequately addressed, the full benefits of disaster preparedness programs may not be realized.

This finding is consistent with the perspective of Twigg (2015), who emphasized that resilience is shaped by broader socio-economic and institutional conditions. According to this view, disaster preparedness programs contribute to resilience only when they are integrated with efforts to improve livelihoods, strengthen institutions, and reduce vulnerabilities. Without addressing these structural and contextual factors, preparedness programs may have limited influence on enhancing a community's ability to withstand, adapt to, and recover from disasters.

- *Relationship Between Barangay-Based Disaster Preparedness Programs and Public Safety in the Municipality of Mamburao*

The findings showed a negligible relationship between barangay-based disaster preparedness programs and public safety ($r = -0.046$, $p > 0.05$), indicating that improvements in program effectiveness did not significantly correspond to higher levels of public safety. The very weak and negative correlation suggests that even when preparedness measures were implemented efficiently, they did not directly translate into measurable improvements in safety outcomes within the community.

This result implies that public safety is influenced by a combination of interrelated factors beyond preparedness programs alone. Elements such as the quality of infrastructure, the responsiveness of governance systems, law enforcement presence, availability of emergency services, and external support systems all play critical roles in ensuring safety. If these components are weak or insufficient, the impact of even well-designed preparedness programs may be limited. In this sense, preparedness serves as only one component of a broader safety framework rather than the sole determinant of safety outcomes.

The finding aligns with the principles of disaster risk reduction, which emphasize that preparedness alone cannot guarantee safety without the support of strong institutions and systems. As highlighted by Wisner et al. (2012), safety and reduced disaster risk are achieved not only through preparedness but also through addressing underlying vulnerabilities, strengthening governance, and improving access to resources and services. Therefore, a holistic and integrated approach is necessary to enhance public safety, where preparedness programs are complemented by improvements in infrastructure, governance, and community support systems.

V. CONCLUSIONS AND RECOMMENDATIONS

- *Conclusions*

- The findings indicate that disaster preparedness programs in the selected barangays are consistently implemented at an effective level, as reflected by the high mean scores across all key components—hazard identification, risk assessment, disaster response, and monitoring and evaluation. This suggests that local government units (LGUs) and Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) are actively complying with mandated disaster risk reduction frameworks. The presence of structured plans, regular drills, and organized response mechanisms demonstrates a strong institutional commitment to preparedness. However, effectiveness in implementation does not necessarily imply optimal outcomes in all areas of disaster management.

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- The study reveals that communities are generally resilient in terms of livelihood stability, technological adaptation, community participation, and environmental awareness. This indicates that residents possess the capacity to adapt to and recover from disasters. However, resilience appears to be influenced by a combination of factors beyond disaster preparedness programs alone, such as socio-economic conditions, access to resources, education, and external support systems. This implies that resilience is a complex and multidimensional construct, not solely dependent on formal preparedness initiatives.
- The results show that the level of public safety in the barangays is perceived as safe, reflecting adequate emergency response systems, community awareness, and basic infrastructure support. Residents likely feel secure due to visible preparedness activities and functioning response mechanisms. However, public safety is not exclusively determined by disaster preparedness programs; it is also shaped by infrastructure quality, healthcare access, law enforcement, and environmental management. This highlights that public safety is a system-level outcome requiring coordination across multiple sectors.
- The study revealed no significant relationship between disaster preparedness programs and local resilience. This may imply that while barangays perform well in immediate and visible aspects such as emergency response and awareness campaigns, comparatively less emphasis on long-term recovery planning, financial preparedness, and inclusive participation may limit the overall impact of these programs on broader resilience outcomes.
- Despite the effective implementation of disaster preparedness programs and the generally positive levels of resilience and public safety, the statistical analysis reveals no significant relationship between these variables. This suggests a disconnect between program implementation and actual community outcomes. It implies that while preparedness programs are necessary, they are not sufficient on their own to directly influence resilience and public safety. Other underlying factors—such as economic stability, governance quality, infrastructure, and social capital—play a more decisive role in shaping these outcomes.

➢ *Recommendations*

- LGUs and BDRRMCs should continue strengthening existing disaster preparedness initiatives by standardizing best practices, ensuring regular training, and improving monitoring and evaluation systems to maintain high levels of effectiveness.
- To enhance community resilience, disaster risk reduction efforts should be aligned with programs that address livelihood development, poverty reduction, education, and access to financial and technological resources.
- Public safety initiatives should involve stronger coordination among various sectors, including infrastructure development, healthcare services, law enforcement, and environmental management, to create a more comprehensive safety system.
- Barangays should allocate more resources and attention to post-disaster recovery and rehabilitation planning while promoting the active involvement of private sectors, non-government organizations, and vulnerable groups in disaster management processes.
- Policymakers and local leaders should move beyond program implementation and focus on a whole-of-system approach, integrating governance, infrastructure, socio-economic development, and community engagement to effectively improve resilience and public safety outcomes.

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