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Preparedness and Challenges of the Municipal Disaster Risk Reduction and Management Office During Emergencies

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A B S T R A C T

This study determined the level of preparedness of the Municipal Disaster Risk Reduction and Management Office (MDRRMO) during emergencies and examined the challenges encountered by MDRRMO personnel, with the aim of recommending strategies to enhance emergency management operations. A mixed-method research design was employed using a structured assessment tool aligned with national DRRM standards and Focus Group Discussions thru a semistructured interview guide. Findings revealed that the MDRRMO exhibited an excellent level of preparedness across all DRRM pillars. Prevention and mitigation, and Preparedness measures were well-established, with a very good rating. Response, and Recovery and rehabilitation measures are excellent. However, challenges persisted, particularly in manpower and logistics, such as limited personnel complement, gaps in specialized skills, inadequate access to advanced rescue equipment, and constraints in risk financing mechanisms. It was recommended that risk financing, inter-agency coordination and community-based preparedness be strengthened, continuous capacity development be institutionalized, logistics and equipment be enhanced, to improve overall emergency response and resilience.

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INTRODUCTION

Extreme weather events linked to climate change are increasing, putting more pressure on communities prone to disasters. This highlights the urgent need for stronger local disaster management. Preparedness is key to reducing local risks and softening disaster impacts (UNDRR, 2022). Experts argue that fast urban growth, ongoing social and economic inequalities, high population density, and weak governance make preparedness much harder. These underlying problems mean that local Disaster Risk Reduction and Management Offices (DRRMOs) often work in complex, high-risk situations with limited resources (Olorvida, 2023). In many areas, local offices struggle to turn global disaster reduction plans into local, practical, and lasting actions. This is often due to limited control over funds, poor coordination, and changes in political leadership. Matunhay (2018) highlight that local governments face major hurdles in making communities ready and resilient. These include a lack of trained staff, not enough money, poor emergency facilities, and weak monitoring systems.

Even in developed countries like the United States, where emergency systems are often thought to be strong, local emergency management offices still face significant preparedness problems. A study across multiple U.S. cities found that local emergency management abilities vary widely. Many cities believed they were more ready than they actually were, even with detailed policies in place (Galzote et al., 2023). The study highlighted that while national rules guide local disaster programs, how well these systems actually work differs greatly based on funding, technical skills, and leadership dedication (Cabanig, 2023). In the Philippines, local DRRMOs face even bigger challenges because the country is naturally prone to many disasters. The Philippines is one of the riskiest countries globally for disasters, often hit by typhoons, earthquakes, volcanic eruptions, floods, and landslides. Even with a strong law, Republic Act 10121, there are still major differences in what local disaster management offices can do and how well they work. Recent national reviews show that while many disaster reduction policies have been adopted, they are not put into practice consistently. Many local governments lack proper emergency plans and readiness (Araña, 2025). Samson et al. (2023) found that only about half of local government units (LGUs) have complete emergency plans for their main risks.

The goal of this mixed-method study is to assess how prepared Municipal Disaster Risk Reduction and Management Offices are and to understand the challenges they face during emergencies. It will do this by combining statistical data with direct accounts from disaster staff. The study aims to measure readiness, available resources, and operational methods. It also seeks to capture the views, difficulties, and adaptive strategies of staff who manage emergencies directly.

Systems Theory, introduced by Ludwig von Bertalanffy (1968), views organizations as complex systems made up of interconnected parts. In disaster risk reduction and management (DRRM), this means the MDRRMO operates as a network of four key areas—prevention and mitigation, preparedness,

response, and rehabilitation and recovery—rather than separate units. Each area depends on the others, so weaknesses in one, such as a lack of staff or equipment, can harm the entire system. Recent research shows that fragmented disaster management often leads to poor coordination and wasted resources (Adekola et al., 2024). By using Systems Theory, this study can assess how well the MDRRMO is structured and identify where improvements are needed.

This study aims to evaluate the MDRRMO's level of preparedness and the challenges it encounters during emergency situations. The findings will generate empirical knowledge to inform improvements in local disaster risk reduction and management (DRRM). Furthermore, the study will propose practical recommendations and strategies to support the development of policies, training, and capacity-building initiatives designed to enhance the MDRRMO's effectiveness during emergencies.

This study examines how the Municipal Disaster Risk Reduction and Management Office (MDRRMO) prepares for and responds to emergencies by combining two key theories: Systems Theory and Protection Motivation Theory (PMT). These theories help explain both the organizational structure of the MDRRMO and the behavior of its personnel during disasters.

THEORETICAL REVIEW

Republic Act No. 10121, also known as the Philippine Disaster Risk Reduction and Management Act of 2010, is the foundation of the country's disaster management system. It marked a significant shift from a traditional approach that mainly reacted to disasters toward a complete, forward-looking system. This new system prioritizes preventing disasters, preparing for them, responding effectively when they occur, and recovering afterward (Zhong et al., 2024). The law requires the establishment of local offices dedicated to disaster risk reduction and management, including Municipal Disaster Risk Reduction and Management Offices (MDRRMOs). These offices are primarily responsible for planning, coordinating, and carrying out disaster management programs at the municipal level (Olorvida, 2023). RA 10121 also allocates a Local Disaster Risk Reduction and Management Fund, ensuring that local governments have the financial resources to support preparedness efforts, training programs, and emergency response operations.

For this study, RA 10121 is important because it sets the legal standard for evaluating whether MDRRMOs are adequately structured, resourced, and authorized to perform their mandated functions. By outlining how MDRRMOs are created, organized, and what their responsibilities are, the law provides a clear framework to assess how prepared and capable municipalities are (Orbeta et al., 2020).

The Implementing Rules and Regulations (IRR) of RA 10121 operationalize the law by providing detailed guidance on the structure, processes, and procedures that local disaster risk reduction and management offices must follow. The IRR standardizes disaster risk reduction and management processes, mandates the creation and regular updating of Local DRRM Plans, and prescribes the establishment of early warning systems,

hazard mapping, and coordination mechanisms (Ocampo, 2023). It further outlines requirements for personnel training, documentation of protocols, emergency response procedures, and quick-response funding. This ensures that MDRRMOs have clear and practical guidelines for both preparing for and responding to disasters.

Local and international research consistently indicates that the preparedness of Municipal Disaster Risk Reduction and Management Offices (MDRRMOs) must be evaluated across all four thematic areas: prevention and mitigation, preparedness, response, and rehabilitation and recovery. Weaknesses in any of these areas compromise overall resilience. Lorenzo (2024) emphasizes that even when municipalities possess comprehensive DRRM plans, hazard maps, and early-warning systems, operational gaps—such as in drills, Emergency Operations Center activation, and resource mobilization—commonly arise. Similar observations were documented by Almelor, Villanueva, Bayos, and Orbita (2024) and further supported by Pardillo (2025), who note that many local governments meet technical requirements on paper but lack practical readiness during actual emergencies. Studies assessing DRRM implementation in schools, such as Balanggoy's (2024) work in Benguet, found high performance in prevention, preparedness, and rehabilitation initiatives, yet revealed weaker performance in the response phase, suggesting that institutional plans do not consistently translate into practical operational capabilities. This pattern also appears in community-based studies. Cureg's (2025) study of flood-prone barangays found that communities repeatedly affected by hazards showed varying levels of preparedness despite frequent exposure, indicating a deficit in localized prevention, mitigation, and response capacity. Even institutions like local universities, which are typically better resourced, demonstrated variations in DRRM implementation across the four pillars, although disaster response emerged as their strongest area (Mendoza, 2025).

METHODOLOGY

This study used a mixed-methods approach to thoroughly assess the MDRRMO's readiness and the obstacles it faced when responding to emergencies. The first part of the study, which was quantitative, focused on measuring MDRRMOs' level of readiness across the four main areas of disaster risk reduction and management: Prevention and Mitigation, Preparedness, Response, and Recovery and Rehabilitation. Standardized questionnaires were used, following the Gawad KALASAG CY 2018 LDRRMC Checklist, a tool developed by the National Disaster Risk Reduction and Management Council (NDRRMC). This allowed for a consistent and unbiased evaluation of key readiness indicators. The second part of the study, which was qualitative, aimed to explore the difficulties MDRRMO staff faced during emergencies, particularly regarding staffing and resources. Information was gathered through Focus Group Discussions, which used semi-structured interview questions. These questions were designed to understand participants'

experiences, views, and ideas about practical limitations and the methods they used to overcome these difficulties.

The respondents of this study included 40 personnels of MDRRMO, staff and volunteers who are directly involved in disaster preparedness and emergency response operations in selected research locale. A purposive sampling technique was used to select 15 respondents per municipality for quantitative study thus securing a total of 30 Respondents, who have direct knowledge, involvement and experience in emergency operations. They are ambulance drivers and crew and staff. For the quantitative study, 5 participants were selected as Key informats for the Focus Group Discussion (FGD) per municipality, for a total of 10 Participants, they were MDRRMO Heads, ambulance crew and driver, logistic staff, and operation staff who also partakes in field works during emergencies.

RESULTS AND DISCUSSION

This section presents the results and findings of the study based on the aforementioned objectives.

Level of Preparedness in terms of the four pillars of DRRM

Table 1 shows the level of preparedness in terms of Prevention and Mitigation**,** focusing on risk assessment, planning and budgeting, early warning systems, risk financing, environmental management, and infrastructure resilience.

Table 1. Level of Preparedness in Prevention and Mitigation Pillar

Indicators	YES		Max Points (35)	Score / Rating
	f, n=30	%		
1. Risk Assessment				
1.1 Are there maps available? (hazard, vulnerability, capacity and resource)	30	100	4	4
1.2 Is there a database on elements at risk?	22	73	2	1.4
1.3 Conduct of Risk Assessment and Analysis	30	100	2	2
2. Plans, Policies and Budget				
2.1 Are there disaster prevention and mitigation measures integrated/mainstreamed in the local development plans?	30	100	3	3
2.2 Are there funds appropriate and utilized for mitigation measures?	30	100	3	3
2.3 Are all non-state stakeholders involved in the planning and implementation of prevention and mitigation projects/activities of the DRRMC. (CSOs, women, youth, and others such as religious, business and other basic sectors i.e. Victims of Disasters and Calamities, PWDs. Elderly, children, etc?)	30	100	2	2
3. Early Warning System (EWS)				
3.1 Is there an established EWS for specific hazards in the locality?	22	73	4	2.9
4. Risk Financing				

4.1 Are there facilities and equipment covered by insurance?	15	50	2	1
4.2 Has the LGU facilitated an agreement with cooperatives, micro finance institutions to extend calamity loans to the affected community (RA 10121 Section 17)	4	13	1	0.13
4.3 Accredited Community Disaster Volunteers (ACDVs)	30	100	2	2
5. Environmental Management				
5.1 Is/are there environmental ordinance/s?	30	100	2	2
5.2 Is/are there environmental programs?	30	100	2	2
6. Infrastructure Resilience				
6.1 Inspection/Assessment of all Public Infrastructure and all infrastructure utilized by the public.	30	100	2	2
6.2 Ensuring all constructions comply to accepted standards and specifications.	30	100	2	2
6.3 Does the LGU conduct periodic maintenance of public facilities?	30	100	2	2
Total Actual Score				31.43 (89.8%)
Legend: Excellent = 91%-100% ; Very Good = 81%-90%; Good = 71%-80%; Needs Improvement = 61%-70%				

The findings demonstrated robust performance across most areas within the Prevention and Mitigation Pillar, achieving a total score of 31.43 (89.8%), which corresponds to a "Very Good" rating. Key indicators, showing 100% compliance, included: the availability of hazard and risk maps, the execution of risk assessment and analysis, the integration of Disaster Risk Reduction and Management (DRRM) measures into local development plans, the allocation and utilization of mitigation funds, stakeholder involvement, the implementation of environmental ordinances and programs, and comprehensive infrastructure inspection, standards compliance, and maintenance. These findings collectively suggest that Prevention and Mitigation measures are well-established and strongly supported at the local governance level.

Conversely, the lowest-rated indicators were identified within risk financing. Specifically, the establishment of agreements with cooperatives and microfinance institutions for calamity loans exhibited only 13% compliance, while insurance coverage for facilities and equipment stood at 50%. Furthermore, the presence of early warning systems for specific hazards achieved a rating of 73%, suggesting deficiencies in comprehensive hazard-specific coverage.

The overall conclusion from these findings, despite the "Very Good" rating in the Prevention and Mitigation Pillar, is that while structural, policy, and environmental measures are well-established, financial preparedness remains a significant vulnerability. Therefore, strengthening risk financing mechanisms and expanding access to insurance and calamity loans are crucial for enhancing community resilience and ensuring expedited recovery following disasters.

Table 2 outlines the extent of preparedness within the Disaster Risk Reduction and Management (DRRM) Preparedness Pillar, specifically focusing on organizational structures, planning processes, capacity development initiatives, and partnership mechanisms.

Table 2. Level of Preparedness in Preparedness Pillar

Indicators	YES		Max Point (30)	Score / Rating
	f, n=30	%		
1. DRRMC Organization				
1.1 Functionality of LDRRMCs				
1.1.1 Organization of LDRRMCs	30	100	1	1
1.1.2 Composition of the LDRRMC compliant to section 11 of RA 10121 particularly non-state stakeholders	30	100	1	1
1.2 Regularity of Council Meetings (at least Quarterly)	30	100	1	1
1.3 Quorum during Council Meetings	30	100	0.5	0.5
1.4 Regularity of Committee Meeting (at least Quarterly)	30	100	0.5	0.5
1.5 Organization of DRRMCs of LGUs under your responsibility/supervision	30	100	2	2
1.6 Institutionalized DRRM Office	30	100	2	2
2. Established DRRM Office				
2.1 DRRM Office	30	100	1	1
2.2 Personnel Compliment	22	73	3	2.2
2.3 Capacity Development of Personnel	22	73	0.5	.36
2.4 Equipage (adequacy of equipment)	30	100	2	2
2.5 Operations Center manned on a 24hr basis	30	100	0.5	0.5
2.6 Efficient and effective IEC materials on hazards, risks, vulnerabilities, EWS, and counter-measures	30	100	0.5	0.5
2.7 Pre-positioned stockpiles of relief goods (food and non-food) or a negotiated agreement with local suppliers	30	100	0.5	0.5
2.8 Submission of the DRRMO of the LDRRMF Utilization Report to the LDRRMC and LDC	30	100	0.5	0.5
3. Plans				
3.1 BDRRM Plan	30	100	1	1
3.2 Contingency	30	100	1	1
3.3 Communication Plan of the LDRRMP and the Contingency Plan	30	100	1	1
4. Capacity development for the community and stake holders				
4.1 Disaster Risk Reduction and Management (DRRM)	30	100	0.5	0.5
4.2 Evacuation Camp Management	27	90	0.5	0.45
4.3 Community-based DRRM	28	93	0.5	0.46
4.4 Search and Rescue	30	100	1	1
4.4.1 Water	19	63		
4.4.2 Collapsed Structure	6	20		
4.4.3 Mountain	6	20		
4.4.4 Swift Water	19	63		
4.5 Fire Suppression	27	90	0.5	0.45
4.6 Medical Services (BLS, First Aid)	28	93	0.5	0.46
4.7 Incident Command System	27	90	0.5	0.45

4.8 Family and Community-Based Disaster Preparedness & Monitoring System	19	63	0.5	0.31
4.9 RDANA	21	70	0.5	0.35
4.10 Psycho-social Intervention	21	70	0.5	0.35
4.11 Involvement of NGOs/CSOs/Business and Private in the conduct of training (enabler and receiver)	21	70	0.5	0.35
5. Partnership Mechanisms/Linkages				
5.1 Participation of NGOs, Business and Private Sectors, and others	30	100	1	1
5.2 Resource Mobilization (Monetary and Non-Monetary)	30	100	1	1
5.3 Inter-LGU Cooperation and Alliances	30	100	1	1
Total Actual Score				26.69 (88.96%)
Legend: Excellent = 91%-100% ; Very Good = 81%-90%; Good = 71%-80%; Needs Improvement = 61%-70%				

Analysis of the Preparedness Pillar revealed a total score of 26.69 (88.96%), correlating to a 'Very Good' rating. This high rating was further supported by several top-performing indicators, all achieving a 100% rating. These indicators include the organization of the Disaster Risk Reduction and Management Council (DRRMC), the formal establishment of Disaster Risk Reduction and Management (DRRM) offices, comprehensive planning, and strong partnerships. This achievement signifies a robust governance structure, functional councils, consistent meeting schedules, formally established offices, comprehensive plans, effective coordination mechanisms, and active involvement from Non-Governmental Organizations (NGOs), private sector entities, and inter-Local Government Unit (LGU) alliances.

Conversely, some indicators within the Preparedness Pillar received lower ratings. These include personnel complement and specific capacity-building activities, such as Rapid Damage Assessment and Needs Analysis (RDANA), psychosocial intervention, and NGO/private sector engagement in training, each scoring 70%. The lowest-rated indicators, signaling critical areas for improvement, pertained to specialized search and rescue (SAR) capacities. Specifically, capacities for collapsed structures and mountain rescue both registered only 20%. This was followed by water and swift water SAR, and family and community-based preparedness systems, which scored 63%.

These findings suggest that despite strong organizational and planning preparedness, significant deficiencies persist in technical and specialized response skills at both community and responder levels. Consequently, despite achieving a 'Very Good' rating in this pillar, the Municipal Disaster Risk Reduction and Management Office (MDRRMO) must prioritize enhancing training, equipment, and certification in specialized rescue operations. This is essential for elevating overall preparedness.

Table 3 presents the level of preparedness for the Response Pillar, distinguishing between scenarios with and without actual disaster response operations.

Table 3. Level of Preparedness in Response Pillar

Indicators	YES		Max Point (20)	Score / Rating
	f, n=30	%		
1. Demonstrated Capability				
1.1 Without disaster response operations				
1.1.1 Standard Operating Procedures (SOPs) in place for specific hazards in the area	30	100	5	5
1.1.2 Availability of Templates for LCE directives	30	100	1	1
1.1.3 Readiness to deploy functional Incident Management Team by the first responder on site	30	100	3	3
1.1.4 Availability of timely, accurate and reliable response	30	100	3	3
1.1.5 Identification of relief distribution points/centers	30	100	2	2
1.1.6 Determination of clinics, hospitals and RHUs to address any medical emergency	30	100	2	2
1.1.7 Identification of Standard based Evacuation Sites and/or Centers and Routes	30	100	1	1
1.1.8 Readiness to provide transportation for Evacuation	30	100	1	1
1.1.9 Establishment of Standard Evacuation Center(s)	30	100	2	2
OR				
1.2 With disaster response operations				
1.2.1 Presence of a real time/near real time, end to end reporting system	30	100	2	2
1.2.2 Conduct of Pre-disaster Risk Assessment	30	100	2	2
1.2.3 Activated functional Incident Command System (ICS) by the first responder	30	100	3	3
1.2.4 Issuance of public advisories in accordance with the protocols developed	30	100	3	3
1.2.5 Executive order/system on forced evacuation	30	100	4	4
1.2.6 Activation of relief distribution points/centers using the relief distribution mechanism	30	100	2	2
1.2.7 Coordination with appropriate agencies	30	100	2	2
1.2.8 Conduct of Rapid Damage Assessment and Needs Analysis (RDANA) within 72 hours after the occurrence of the disaster	30	100	2	2
Total Actual Score				20 (100%)
Legend: Excellent = 91%-100% ; Very Good = 81%-90%; Good = 71%-80%; Needs Improvement = 61%-70%				

The results indicate that the Response pillar achieved a preparedness score of 100% (20 points), resulting in an Excellent Rating, irrespective of disaster occurrence. All indicators within this pillar were met with complete (100%) compliance, demonstrating its high performance. This encompasses the existence of standard operating procedures, the availability of templates and advisories, the readiness of evacuation sites and routes, established relief distribution mechanisms, effective coordination with agencies, and the timely execution of Rapid Damage Assessment and Needs Analysis (RDANA). Achieving an Excellent Rating in this pillar signifies a highly responsive and operationally ready Disaster Risk Reduction and Management (DRRM) system,

capable of effectively managing emergencies. This suggests that robust preparedness and planning efforts directly translate into effective response capacity, thereby minimizing confusion, delays, and coordination challenges during actual disaster events.

Table 4 presents the assessed Level of Preparedness for Recovery and Rehabilitation, under both disaster-free and disaster-affected conditions.

Table 4. Level of Preparedness in Recovery and Rehabilitation

Indicators	YES		Max Point (15)	Score / Rating
	f, n=30	%		
1. Without Disaster (in the preceding year)				
1.1 Efforts that will mitigate the impact of future disaster (activity and policy consistent with risk assessment, etc)	30	100	5	5
1.2 Compliance with build-back better principle	30	100	5	5
1.3 Multi-stakeholder approach	30	100	5	5
OR				
2. With Disaster				
2.1 Conduct of Damage and Needs Assessment (DANA)	30	100	5	5
2.2 Recovery Plan	30	100	5	5
2.3 Restoration	30	100	5	5
Total Actual Score				15 (100%)
Legend: Excellent = 91%-100% ; Very Good = 81%-90%; Good = 71%-80%; Needs Improvement = 61%-70%				

Consistent with the Response pillar, the Recovery and Rehabilitation pillar achieved a total score of 15 (100%), earning an 'Excellent' rating and signifying the highest level of preparedness. All indicators within this pillar also received a 100% rating, both in disaster and non-disaster scenarios, further indicating that recovery and rehabilitation mechanisms are fully established and aligned with risk assessment and long-term resilience goals. Specifically, these mechanisms encompass efforts to mitigate future disaster impacts, adherence to the 'build back better' principle, the adoption of a multi-stakeholder approach, the conduct of damage and needs assessments, the formulation of recovery plans, and restoration activities. This implies that the MDRRMO is proficient not only in disaster response but also in ensuring sustainable recovery that reduces future vulnerabilities. Table 5 provides a summary of the level of preparedness across the four pillars of DRRM.

Table 5. Summary of the Level of Preparedness across the Four Pillars of DRRM.

DRRM Pillars	Max. Score	Actual Score
1. Prevention and Mitigation	35	**31.43 (89.8%)**
2. Preparedness	30	**26.69 (88.96%)**
3. Response	20	**20 (100%)**
4. Rehabilitation and Recovery	15	**15 (100%)**
TOTAL	100	**93.12 (93.12%)**

Legend: Excellent = 91%-100%; Very Good = 81%-90%; Good = 71%-80%; Needs Improvement = 61%-70%

The results indicate that the Municipal Disaster Risk Reduction and Management Offices (MDRRMOs) have demonstrated an overall excellent level of compliance and performance in implementing Disaster Risk Reduction and Management (DRRM) programs, achieving a total rating of 93.12%, categorized as 'Excellent'. However, the overall level of preparedness faces persistent challenges. Specifically, challenges are noted in the Prevention and Mitigation Pillar, which scored 31.43 out of a maximum of 35 (89.8%, 'Very Good'), and in the Preparedness Pillar, which scored 26.69 out of a maximum of 30 (88.96%, 'Very Good').

Within the Prevention and Mitigation Pillar, these findings are attributed to inadequate risk financing mechanisms and limited access to insurance and calamity loans. These elements are crucial for enhancing resilience and expediting post-disaster recovery. Additionally, a gap was identified in the implementation of early warning systems. These systems must be multi-hazard and people-centered, ensuring that warnings are timely, accessible, and clearly understood by communities to effectively reduce disaster impacts. Furthermore, findings within the Preparedness Pillar indicate significant deficiencies in technical and specialized response skills at both community and responder levels. This limitation hinders the effective management of high-risk and hazard-specific situations and compromises the safety of both rescuers and victims. Such inefficiencies can lead to preventable loss of life and property.

Both the Response Pillar and the Recovery and Rehabilitation Pillar achieved perfect scores (100%), earning an 'Excellent' rating. These results suggest a highly responsive and operationally ready DRRM system, capable of effective emergency management during disaster events. Post-disaster actions are guided by principles of risk assessment, inclusivity, and sustainability. Full compliance with 'build-back-better' multi-stakeholder approaches indicates a strong commitment to long-term resilience, moving beyond mere restoration of pre-disaster conditions. However, the long-term sustainability of these two pillars faces challenges from financial constraints and the ongoing need for stronger multi-stakeholder engagement.

The findings indicate that the Municipal Disaster Risk Reduction and Management Offices (MDRRMOs) demonstrate strong organizational, institutional, and planning preparedness. This is evidenced by high compliance in areas such as DRRMC functionality, planning, partnerships, and logistics. However, weaknesses in specialized search and rescue capabilities, particularly in collapsed structure and mountain rescue, were among the lowest-rated aspects. These operational deficiencies could compromise preparedness in complex disaster situations. This disparity suggests that while foundational systems and structures are in place, technical expertise and specialized skills require further strengthening to ensure effective preparedness across various hazard contexts. Disaster preparedness aims to enhance the capacity of institutions and communities to effectively anticipate, respond to, and recover

from disasters (Samson & Buot, 2023). The high level of compliance in DRRMC organization, formalized DRRM offices, and planning documents among MDRRMOs demonstrates robust governance and coordination mechanisms, which are crucial for disaster preparedness (Lacorte et al., 2025). Regular meetings, functional councils, and inclusive stakeholder participation enhance decision-making, accountability, and inter-sectoral coordination. High compliance in information, education, and communication (IEC), stockpiling, and operations centers supports existing literature emphasizing the importance of logistical readiness and continuous information flow in preparedness (San Jose, 2022). However, the lower ratings in specialized search and rescue training are consistent with studies indicating that many Local Government Units (LGUs) or MDRRMOs lack advanced technical capabilities because of resource constraints and limited access to specialized training (Canape et al., 2025). Indeed, complex disasters such as earthquakes and landslides require highly trained responders for collapsed structure and mountain rescue operations.

Challenges Encountered of MDRRMO Personnel During Emergencies

The MDRRMO plays a critical role in ensuring community safety before, during and after emergencies. However, MDRRMOs persistently faces challenges in the performance of their mandated functions in terms of manpower and logistics.

Manpower

The challenges encountered by MDRRMO personnel during emergencies in terms of manpower, citing major themes to group the statements of the participants.

High Exposure to Disaster Context and Escalating Operational Demand

This theme underscores the frequent exposure of responders to recurring disasters and the resulting increase in the complexity and scale of operations. This is supported by the six statements. Respondents consistently reported that disasters occurred almost annually, creating persistent operational demands and integrating emergency response into their routine duties. In addition to frequent typhoons, participants expressed concern regarding potential large-scale hazards, such as pandemics, earthquakes, and tsunamis, which they perceived as capable of overwhelming existing response capacities. Extended operations, specifically multi-day search, rescue, and retrieval missions, further exacerbate the physical, emotional, and organizational strain experienced by responders.

Addressing these technical capacity gaps is essential for ensuring a comprehensive and adaptive emergency response system. Silagan et al. (2025) emphasize that responder competence and specialized training are crucial determinants of effective emergency management. Gumarao and Balongoy (2025) further note that continuous capacity-building programs significantly enhance response efficiency and reduce disaster-related mortality. The study by Lacerna and Dalugdog (2025) also stresses the importance of skill-based training in strengthening local response capabilities.

Logistics

This theme highlights persistent difficulties related to equipment shortages, delayed resupply, infrastructure limitations, and complex administrative processes, as supported by 32 statements. Participants described relying on external organizations for specialized equipment, improvising due to supply gaps, and slow procurement systems that often compel responders to personally cover costs. Challenges with communication and transportation further complicate response, particularly during large-scale evacuations and severe weather. The statements illustrate how inefficiencies in logistics lead to operational risks and increased moral strain. While improvisation demonstrates resilience, it is not a sustainable substitute for adequate equipment and streamlined systems. Delayed maintenance and aging vehicles directly affect patient outcomes, as evidenced by reported fatalities linked to vehicle failure. Furthermore, weak connectivity and the reliance on personal data impede coordination and reporting. Collectively, these limitations reveal a gap between formal preparedness structures and the practical realities of response operations.

This approach changes early warning from being merely a technical system into a practical mechanism that saves lives. Luzon-German and Evangelista (2024) emphasize that effective early warning systems must be inclusive, understandable, and actionable. Lavadia et al. (2025) report that early warning systems focused on people can reduce deaths from disasters by up to 30%. Macose (2024) highlights that effective communication is as important as technology in ensuring the public's response.

CONCLUSION AND RECOMMENDATIONS

Based on the findings, the following conclusions and recommendations are framed:

An evaluation of disaster preparedness, encompassing the four core areas of Prevention and Mitigation, Preparedness, Response, and Recovery and Rehabilitation, indicates that local government units largely exhibit excellent compliance and institutional readiness. The existence of risk assessments, development plans, active disaster risk reduction and management councils (DRRMCs), standard operating procedures, and recovery frameworks strongly aligns with the requirements of Republic Act 10121. These challenges are most pronounced in areas such as risk financing, specialized technical capabilities, the extent of early warning system coverage, community-based readiness, and operational coordination, especially in complex and high-risk environments. While foundational policies, plans, and structures are in place, discrepancies in personnel skills, availability of financial resources, and community preparedness levels diminish the consistency and overall effectiveness of emergency operations. A closer look at the Preparedness pillar reveals that despite the establishment and operation of DRRM offices, limitations persist regarding staffing levels, capacity building, and specialized training, particularly for advanced search and rescue operations.

An evaluation of disaster preparedness across its four key pillars—prevention and mitigation, preparedness, response, and recovery and rehabilitation—indicates that local government units generally demonstrate excellent compliance and institutional readiness. The existence of risk assessments, development plans, functional disaster risk reduction and management council (DRRMC) structures, standard operating procedures, and recovery mechanisms reflects strong adherence to Republic Act 10121. These strengths suggest a well-established DRRM system, particularly in governance, planning, and institutional coordination. Assessments of the Response and Recovery pillars show robust procedural readiness, including functional incident command systems, efficient damage assessments, and comprehensive recovery planning. Nonetheless, the long-term viability of response and recovery initiatives is challenged by financial limitations and the need for increased collaboration among various stakeholders. More broadly, these findings have significant implications for the nursing profession and healthcare systems.

FURTHER STUDY

Future studies may explore comparative assessments across different municipalities and examine the effectiveness of disaster preparedness strategies, resource allocation, and inter-agency coordination in improving emergency response outcomes.

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