

Implementation of Disaster Risk Reduction and Management Act (RA 10121) in Northern Samar

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Publication history: Received: June 2, 2026; Revised: June 18, 2026; Accepted: June 20, 2026

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Abstract

This study examined the implementation of Republic Act No. 10121, or the Philippine Disaster Risk Reduction and Management Act of 2010, in selected municipalities of Northern Samar. Anchored on General Systems Theory, Disaster Cycle Theory, and Stakeholder Theory, the study assessed the socio-demographic and professional profile of Municipal Disaster Risk Reduction and Management Office (MDRRMO) personnel, the level of implementation across the four disaster risk reduction and management priority areas, the challenges encountered, and the relationship between respondents' profile and RA 10121 implementation. A descriptive-correlational research design was employed using a structured survey questionnaire complemented by informal interviews. Complete enumeration was used among MDRRMO personnel from Catarman, Lope de Vega, Laoang, Pambujan, San Vicente, and Capul. Data were analyzed using frequency counts, percentages, weighted mean, Chi-square test, multiple-response analysis, and ranking. Findings revealed that RA 10121 was generally moderately implemented across prevention and mitigation, preparedness, response, and recovery and rehabilitation. Strengths were noted in personnel capacity, communication systems, emergency shelter management, coordination, and budget utilization, while major gaps included lack of heavy equipment, limited funding, insufficient manpower, low community participation, weak public cooperation, delayed rehabilitation, and limited recovery planning. Significant relationships were found between selected profile variables and specific DRRM areas, particularly sex, age, civil status, and current position. The study supports SDG 11, SDG 13, SDG 16, SDG 17, and SDG 4 by addressing disaster resilience, climate-related risk reduction, institutional capacity, partnerships, and personnel training. Its sustainability impact lies in strengthening local governance, community preparedness, institutional coordination, and resilient disaster management systems in Northern Samar.

Keywords: Climate Action, Community Preparedness, Disaster Risk Reduction and Management, Local Governance, MDRRMO Personnel, RA 10121, Recovery and Rehabilitation, Resilience

1. Introduction

Republic Act No. 10121, or the Philippine Disaster Risk Reduction and Management Act of 2010, established a proactive, systematic, participatory, and community-based approach to disaster risk reduction and management in the Philippines. In Northern Samar, where communities are highly exposed to typhoons, floods, storm surges, landslides, and other hazards, the effective implementation of RA 10121 is essential to strengthen local preparedness, response, recovery, and resilience. This study examines the implementation of RA 10121 in Northern Samar, focusing on the four DRRM priority areas, the profile of MDRRMO personnel, the challenges encountered, and the relationship between personnel profile and law implementation.

1.1 Disaster Vulnerability and RA 10121 Implementation in Northern Samar

Natural and man-made disasters expose communities to serious risks that require planned, organized, and coordinated responses. The Philippines is highly vulnerable because it is located along the Pacific Ring of Fire and the typhoon belt. Disaster response is guided by the National Disaster Risk Reduction and Management Council and the National Disaster Risk Reduction and Management Plan, which promote prevention, preparedness, risk reduction, recovery, and capacity building. Northern Samar is both environmentally rich and highly vulnerable due to its location along the Pacific Ocean, river systems, typhoon belt, and earthquake-prone areas. These conditions expose the province to repeated typhoons, floods, and landslides (Philippine Institute of Volcanology and Seismology). Republic Act No. 10121 shifted disaster governance from short-term crisis response to comprehensive and participatory resilience. The law supports readiness, prevention, rehabilitation, and community empowerment, especially among farmers, fisherfolk, local leaders, and vulnerable groups in Northern Samar (Local Government Unit of Northern Samar). RA 10121 redefines resilience as a shared responsibility involving scientific knowledge, community participation, and government action. It has encouraged grassroots involvement in hazard mapping, early warning systems, climate-adaptive livelihoods, disaster education, and storm-resilient community structures. Disaster education has also been integrated into schools, while barangay councils

have strengthened local preparedness. The law also recognizes vulnerability as both a natural and social concern, requiring stakeholders to address the unequal exposure of marginalized groups.

1.2 Socio-Demographic and Professional Profile of MDRRMO Personnel in RA 10121 Implementation

The implementation of RA 10121 depends strongly on the capacity, qualifications, and competencies of MDRRMO personnel. The Office of Civil Defense states that well-trained and competent MDRRMOs are necessary for timely decision-making, coordinated operations, and effective service delivery. Socio-demographic factors such as age, sex, civil status, and educational attainment, along with training, years in service, position, specialization, and skills, influence disaster governance performance. Age and experience affect response capacity, as younger personnel may contribute physical agility while older and long-serving personnel provide institutional memory and experience-based judgment. Sex and gender roles also influence disaster participation, making inclusive and gender-responsive planning necessary. Civil status may affect preparedness and participation because personal and family conditions can influence disaster-related responsibilities and vulnerabilities. Educational attainment improves understanding of risks, policies, early warning systems, and evacuation procedures. Training and years in service strengthen preparedness, coordination, and community engagement. Seminars and workshops update personnel on laws, technology, and best practices, while years of service reflect accumulated experience and institutional loyalty. Thus, educated, trained, and experienced personnel are more likely to implement RA 10121 effectively.

1.3 Implementation of RA 10121 Across DRRM Priority Areas in Northern Samar

RA 10121 institutionalizes a proactive and community-based approach aligned with international disaster risk reduction frameworks such as the Hyogo and Sendai Frameworks. It requires LGUs to strengthen Local Disaster Risk Reduction and Management Offices, including MDRRMOs, to build safer and more disaster-resilient communities. In Northern Samar, disaster risk is intensified by geographic isolation, poverty, and limited local revenue, which affect personnel hiring, resource procurement, and program sustainability. The province's Central, Island, and Pacific/Coastal clusters have different hazard exposures and resource limitations. These conditions make RA 10121 implementation dependent on personnel capacity, inter-agency coordination, equipment, communication systems, emergency shelters, and proper budget allocation and utilization. Prevention and mitigation require hazard mapping, risk assessment, infrastructure development, and policy formulation. Effective implementation depends on skilled personnel, adequate equipment, and sufficient budget. Hazard-resilient infrastructure, early warning systems, and risk assessment reduce disaster impacts, but rural municipalities often face obsolete equipment, limited expertise, and inconsistent fund utilization. Personnel with technical training, higher education, and longer service are better able to manage mitigation measures and funds. Preparedness involves contingency planning, drills, stockpiling, capacity building, and early warning systems. However, Northern Samar LGUs face outdated plans, weak warning systems, insufficient training, and limited communication tools. PHIVOLCS and PAGASA stress the need for functional communication systems, but some municipalities rely on improvised systems that delay information dissemination. Shelters may also fail to meet safety and accessibility standards, while budget release may be delayed by procurement processes. Trained and experienced personnel are more capable of maintaining preparedness systems. Response includes immediate actions to save lives, reduce suffering, and protect property. RA 10121 mandates the Incident Command System, rapid mobilization, and rescue equipment. Municipalities with trained responders and functional Incident Command Systems show faster and more coordinated operations. However, Northern Samar faces shortages of trained personnel, rescue tools, vehicles, and delays in Quick Response Fund access. Weak communication signals in island and coastal areas further affect coordination. Effective response therefore requires both physical readiness and command-level decision-making. Recovery and rehabilitation aim to restore normalcy, rebuild infrastructure, support livelihoods, and strengthen resilience. This is often the weakest phase because LGUs may lack long-term planning capacity, risk data, needs assessment, technical experts, and project management skills. Personnel with backgrounds in planning, social work, or project management are better equipped to design inclusive recovery programs, while those with limited training may struggle to sustain rehabilitation efforts.

1.4 Theoretical and Conceptual Framework for RA 10121 Implementation in Northern Samar

This study is anchored on General Systems Theory of Ludwig (Von Bertalanffy, 1968), which views organizations, institutions, and communities as interdependent systems composed of interconnected parts. Under this theory, no part of a system can be understood in isolation because changes in one part affect the whole. This theory applies to RA 10121 because disaster governance requires coordinated and systems-based action among LGUs, national agencies, civil society, barangays, and communities. In Northern Samar, it explains how municipal DRRM councils must collaborate across Central, Island, and Pacific/Coastal clusters to address typhoons, floods, storm surges, and landslides. The study is also guided by Disaster Cycle Theory, or the Emergency Management Cycle, which explains disasters through the phases of mitigation, preparedness, response, and recovery. Coppola states that these phases provide a systematic framework for reducing risks, strengthening capacities, and enabling communities to recover and build resilience. This theory is relevant because RA 10121 requires LGUs to implement mitigation, preparedness, response, and recovery programs. Stakeholder Theory by Freeman emphasizes that institutions must consider and involve all groups affected by or capable of influencing their actions. In disaster governance, this includes LGUs, communities, civil society organizations, national agencies, the

private sector, and vulnerable groups. This theory is relevant because RA 10121 mandates a multi-stakeholder and community-based approach to DRRM. Conceptually, RA 10121 implementation serves as the independent variable, while DRRM outcomes such as preparedness, response capacity, mitigation effectiveness, recovery mechanisms, and community resilience serve as dependent variables. Hazard exposure, geographical cluster, and resource availability serve as contextual factors influencing implementation.

1.5 Challenges, Gaps, and Rationale for Assessing RA 10121 Implementation

The literature shows persistent gaps in RA 10121 implementation, particularly in prevention and mitigation, preparedness, response, and recovery and rehabilitation. These include limited equipment, insufficient technical expertise, weak communication systems, inadequate training, shortage of trained responders, bureaucratic delays in fund release, poor coordination, and lack of technical experts. In recovery and rehabilitation, inadequate expertise and resources weaken program implementation. Previous studies also identify broader concerns such as lack of personnel, limited budget, insufficient education and information, and challenges in creating policies. In Northern Samar, these problems are aggravated by poverty, geographic isolation, limited revenue, and uneven resource distribution. These conditions justify the need to assess RA 10121 implementation from the perspective of MDRRMO personnel who directly perform DRRM functions. Thus, this study aims to determine the implementation of RA 10121 in Northern Samar, describe the personal and professional profile of MDRRMO personnel, assess the four DRRM priority areas, identify challenges and gaps, recommend improvements, and test the relationship between respondents' profiles and RA 10121 implementation.

1.6 Alignment of RA 10121 Implementation in Northern Samar with Relevant Sustainable Development Goals

This study aligns with SDG 11 – Sustainable Cities and Communities because it focuses on strengthening disaster preparedness, response, recovery, and resilience in hazard-prone municipalities. It also supports SDG 13 – Climate Action because disaster risk reduction, early warning systems, mitigation, preparedness, and climate-adaptive measures help reduce climate and hazard-related risks. The study also relates to SDG 16 – Peace, Justice, and Strong Institutions because RA 10121 implementation depends on effective local governance, institutional coordination, resource allocation, accountability, and functional disaster management offices. It supports SDG 17 – Partnerships for the Goals because DRRM requires collaboration among LGUs, barangays, national agencies, NGOs, the private sector, academe, and communities. It also connects with SDG 4 – Quality Education through personnel training, disaster education, and capacity-building.

1.7 Multidisciplinary Sustainability Significance of RA 10121 Implementation in Northern Samar

This study contributes to multidisciplinary sustainability by addressing disaster risk reduction as a concern of governance, community resilience, public safety, socio-economic stability, institutional capacity, and environmental risk management. It supports community sustainability by identifying how local disaster programs can better protect residents in hazard-prone areas and institutional sustainability by examining how MDRRMOs and LGUs implement RA 10121. The study also supports socio-economic sustainability because improved preparedness and response can help protect livelihoods, businesses, public resources, and community assets. It contributes to policy and governance sustainability by providing insights for policy makers, DILG, NDRRMC, OCD Region VIII, and LGUs in improving disaster governance, coordination, resource allocation, and program monitoring. Overall, the study may help strengthen disaster preparedness, improve response systems, and promote resilient and sustainable communities in Northern Samar.

2. Material and methods

2.1 Research Design

The study employed a descriptive-correlational research design to determine the implementation of the Disaster Risk Reduction and Management Act or RA 10121 in Northern Samar. The descriptive aspect was used to describe the socio-demographic and professional profile of MDRRMO personnel and their perceptions of RA 10121 implementation in terms of prevention and mitigation, preparedness, response, and recovery and rehabilitation. The correlational aspect was used to determine whether the respondents' profile variables were related to their perceptions of DRRM implementation. This design was appropriate because it allowed the collection of quantifiable data from respondents directly involved in disaster response operations. It also enabled the identification of possible relationships among variables without manipulating the study environment, thereby preserving the natural context of disaster response efforts. Creswell (2014). A structured survey questionnaire served as the primary data-gathering instrument, while the Chi-square test was used to determine the relationship between implementation level and selected respondent variables.

2.2 Locale of the Study

The study was conducted in Northern Samar, specifically in six municipalities selected to represent the province's geographic, socio-economic, and disaster risk conditions. These municipalities were grouped into three clusters: the Central Cluster composed of Catarman and Lope de Vega, the Coastal/Pacific Cluster composed of Laoang and Pambujan, and the Island Cluster composed of San Vicente and Capul. Catarman, as the provincial capital and most urbanized municipality,

represents the area with more developed DRRM infrastructure, funding, technical expertise, and coordination capacity. Lope de Vega represents inland-rural conditions where flooding and landslides are common but resources, training, and technical specialization are more limited. Laoang and Pambujan represent coastal municipalities exposed to typhoons, storm surges, and coastal flooding, where preparedness, communication, and early warning systems are critical. San Vicente and Capul represent island municipalities where geographic isolation, disrupted transport, and limited communication during disasters make local initiative, personnel skills, and pre-positioned resources essential. These municipalities were chosen because they reflect the variability in risk, geography, and institutional capacity in Northern Samar. Their inclusion allowed the study to assess whether RA 10121 implementation is consistent across different settings or influenced by location, resource availability, and the characteristics of MDRRMO personnel.

2.3 Respondents of the Study

The respondents of the study were MDRRMO personnel from the six selected municipalities of Northern Samar. These included personnel from Catarman and Lope de Vega in the Central Cluster, Capul and San Vicente in the Island Cluster, and Laoang and Pambujan in the Pacific/Coastal Cluster. The respondents were selected because they are directly involved in DRRM governance, planning, operations, administration, preparedness, response, and recovery activities. As mandated by RA 10121, each municipality is required to establish an MDRRMO initially composed of one DRRM Officer and three core staff assigned to administrative and training, research and planning, and operations and warning functions. Additional personnel may also be hired depending on local risk exposure, budget allocation, and operational needs.

2.4 Sample and Sampling Procedure

The study used complete enumeration, wherein all available and qualified MDRRMO personnel from the selected municipalities were included as respondents. This method was appropriate because the target population was relatively small, manageable, and legally defined under RA 10121. National Disaster Risk Reduction and Management Council (NDRRMC 2020). Through complete enumeration, the study gathered inclusive and comprehensive data from personnel directly involved in DRRM implementation. The sampling approach was anchored on Republic Act No. 10121, Implementing Rules and Regulations, Rule VIII, Section 12, which states that each LGU shall establish a Local Disaster Risk Reduction and Management Office initially composed of one DRRM Officer and three staff handling administrative and training, research and planning, and operations and warning functions. Republic Act No. 10121, Implementing Rules and Regulations, Rule VIII, Section 12. Although the minimum staffing pattern is four personnel per municipality, actual staffing varies based on municipal needs, hazard exposure, local ordinances, budget, and the presence of volunteer or emergency support staff. Complete enumeration minimized sampling error and ensured that the findings reflected the capacities and performance of the MDRRMOs in Northern Samar.

2.5 Research Instrument

The study used a structured survey questionnaire, complemented by informal interviews, to assess RA 10121 implementation in Northern Samar. The questionnaire was aligned with the study objectives and was divided into four parts. The first part gathered the socio-demographic and professional profile of respondents, including age, sex, civil status, educational attainment, years in service, seminars and training attended, current position, area of specialization, and relevant skills. The second part measured DRRM implementation across the four domains of prevention and mitigation, preparedness, response, and recovery and rehabilitation using a five-point Likert scale, ranging from Strongly Agree to Strongly Disagree. The third part identified challenges and gaps experienced by MDRRMO personnel in implementing DRRM programs. The fourth part gathered respondents' recommendations for improving RA 10121 implementation in Northern Samar. The respondents' profile variables were coded and interpreted according to categories such as age, sex, civil status, educational attainment, years in service, seminars and training attended, current position, area of specialization, and relevant skills. The implementation of RA 10121 was interpreted using weighted mean scores, where higher scores indicated stronger agreement and higher levels of implementation. Challenges, gaps, and recommendations were treated as multiple-response items. The instrument underwent expert validation before actual data collection. The draft questionnaire was reviewed by subject matter specialists, the Research Faculty, the Provincial DRRMO Head, and the University DRRMO Head to assess clarity, comprehensiveness, and alignment with the objectives of the study. A pilot test was then conducted among at least six MDRRMO personnel from Mondragon, Northern Samar, which was not included in the actual study. Feedback from the experts, pilot respondents, and statistician was used to revise and improve the instrument. The validation process confirmed that the final tool was clear, comprehensive, relevant, and appropriate for measuring the profile of personnel and the extent of RA 10121 implementation.

2.6 Data Gathering Procedure

Before data collection, the researcher secured the necessary permissions from the concerned authorities. Formal letters requesting approval were sent to the Municipal Disaster Risk Reduction and Management Offices in Northern Samar. After approval was granted, survey questionnaires were distributed to the MDRRMO personnel in the selected municipalities. The respondents were informed about the purpose of the study, their voluntary participation, and their right to withdraw at any time. Informed consent was obtained before they answered the questionnaire. Ethical procedures, including data

privacy, anonymity, confidentiality, and unbiased questioning, were observed throughout the process. The collected data were then organized, analyzed, and interpreted using appropriate statistical tools.

2.7 Data Analysis Techniques

The study used descriptive and inferential statistical techniques to analyze the data. Frequency counts were used to determine the distribution of responses, while percentages were used to describe the proportion of respondents in each category. Weighted mean was applied to determine the level of RA 10121 implementation based on the respondents' ratings. The Chi-square test was used to determine the relationship between the respondents' profile and the implementation of RA 10121. Multiple-response analysis and ranking methods were used to assess the challenges, gaps, and recommendations identified by the respondents. These statistical techniques provided a comprehensive basis for interpreting the implementation of RA 10121 in Northern Samar.

2.8 Ethical Considerations

The study observed ethical standards to ensure integrity, transparency, and respect for the respondents. Before data collection, respondents were informed of the study's purpose, their voluntary participation, and their right to withdraw at any time. Informed consent was obtained to ensure that they fully understood their participation and the use of the data collected. Confidentiality and anonymity were strictly maintained, and personal information was protected and used only for research purposes. The study also avoided bias, coercion, and harm to respondents. These ethical measures helped ensure the credibility of the research and supported responsible inquiry into disaster risk reduction initiatives in Northern Samar.

3. Results and Discussion

3.1 Socio-Demographic and Professional Profile of MDRRMO Personnel

3.1.1 Age

The results showed that most respondents were 26–35 years old, with 60 personnel or 44.1 percent, followed by those aged 36–46 years old and older, with 55 personnel or 40.4 percent. The smallest group was composed of respondents aged 25 years old and below, with 21 personnel or 15.4 percent. Overall, 84.5 percent of the respondents belonged to the 26–46 age range. This indicates that the MDRRMO workforce is largely young to middle-aged, combining physical agility with experience and maturity. Younger personnel contribute energy and availability for fieldwork, while mature personnel provide leadership, judgment, and institutional memory. This distribution aligns with Delizo, who noted that this age range is productive and effective in disaster governance.

3.1.2 Sex

The results revealed that the MDRRMO workforce was predominantly male, with 105 respondents or 77.2 percent, while female respondents accounted for 31 or 22.8 percent. This shows a strong male representation in the disaster risk reduction and management offices of Northern Samar. This gender distribution reflects the operational nature of DRRM work, where physically demanding and field-based tasks such as rescue, logistics, and emergency operations are often assigned to males. However, Delizo emphasized that female personnel also play important roles in planning, early warning dissemination, community organization, and social services. The imbalance suggests the need to strengthen gender mainstreaming in accordance with RA 10121.

3.1.3 Civil Status

The results showed that most respondents were single, with 79 personnel or 58.1 percent, followed by married respondents with 53 or 39.0 percent. Widowed respondents made up the smallest group, with 4 personnel or 2.9 percent. This finding suggests that the workforce is composed mainly of personnel who may have greater flexibility and mobility for deployment. Delizo stated that single individuals are often more adaptable to demanding work schedules, while married personnel contribute maturity and responsibility. The United Nations Office for Disaster Risk Reduction (2022) describes married individuals as responsible personnel who often prioritize family and community safety.

3.1.4 Educational Attainment

The results showed that Senior High School graduates formed the largest group, with 74 respondents or 54.4 percent. College graduates followed with 36 respondents or 26.5 percent, while college undergraduates accounted for 14 or 10.3 percent. Respondents with graduate-level education represented only a small portion of the workforce. This indicates that most personnel possess basic to intermediate educational preparation suitable for field operations and support tasks. The study of Ranke, U. (2016), states that college graduates and post-graduate holders contribute intellectual capacity, technical knowledge, and leadership skills. Delizo, R. (2018) also stated that personnel with lower educational attainment may be effective in field-level duties such as search and rescue, logistics, evacuation assistance, and technical support. Villanueva, A., & Cruz, J. (2021) noted that educational attainment is positively correlated with job performance and understanding complex policies like RA 10121.

3.1.5 Seminars and Training Attended

The results showed that 65 respondents or 47.8 percent had attended more than five trainings, while 42 or 30.9 percent had attended three to five trainings. Another 25 respondents or 18.4 percent attended one to two trainings, and 4 or 2.9 percent had no training. This indicates that more than half of the respondents had participated in several capacity-building activities. The findings show a positive level of exposure to DRRM-related training, although the presence of personnel with limited or no training indicates a need for more systematic capacity-building. Cruz (2019) and Regmi (2017) emphasized that regular training improves efficiency, safety, and effectiveness. The office of Civil Defense (2020) also recommended that training should focus not only on quantity but also on relevance, particularly in ICS, risk assessment, and planning.

3.1.6 Years in Service

The results showed that the largest group had served for 7 to 10 years, with 51 respondents or 37.5 percent. This was followed by those with 4 to 6 years of service, with 44 respondents or 32.4 percent. Respondents with 1 to 3 years of service accounted for 25 or 18.4 percent, while those with more than 10 years accounted for 16 or 11.8 percent. This profile indicates that the workforce is generally experienced, with nearly 82 percent having served for more than three years. Personnel with longer service have developed familiarity with procedures, hazards, resources, and local operations, while newer personnel contribute fresh energy and continuity. The balance between experienced and newer staff supports both institutional memory and workforce renewal.

3.1.7 Current Position

The results showed that the largest groups were Rescue/Emergency Response Personnel, with 37 respondents or 27.2 percent, and Operation and Warning Officers, with 25 respondents or 18.4 percent. Administrative/Support Staff accounted for 20 or 14.7 percent, Research and Planning personnel for 15 or 11.0 percent, Logistics Officers for 12 or 8.8 percent, Training Officers for 9 or 6.6 percent, ERT/Drivers for 7 or 5.1 percent, Assistant DRRM Officers for 6 or 4.4 percent, and Heads for 5 or 3.7 percent. This structure shows that the workforce is strongly oriented toward operational and response functions. While this supports frontline readiness, the smaller proportion of planning and leadership roles suggests a stronger focus on response than long-term risk reduction. This is consistent with Domingo & Manejar (2018), who noted that many local DRRM offices tend to prioritize operational response over planning and mitigation.

3.1.8 Area of Specialization

The results revealed that Emergency Response was the dominant specialization, with 75 respondents or 55.1 percent. Planning followed with 33 respondents or 24.3 percent, while Social Science, Public Administration, Engineering, Health, and Social Work were represented in smaller proportions. This indicates that the MDRRMO workforce is strongest in emergency response and planning but weaker in specialized technical fields. The limited representation of Engineering, Health, and Social Work suggests gaps in infrastructure safety, medical response, psychosocial support, and rehabilitation planning. These areas are important in building a multidisciplinary DRRM team, as emphasized in the NDRRMC (2020) competency standards.

3.1.9 Relevant Skills

The results showed that Search and Rescue was the most common skill, with 47 respondents or 34.6 percent, followed by First Aid with 30 or 22.1 percent. Disaster Assessment and Needs Analysis accounted for 21 or 15.4 percent, Emergency Communication for 19 or 14.0 percent, Incident Command System for 16 or 11.8 percent, and WASH Management for only 3 or 2.2 percent. The findings confirm that the workforce is strongest in response-related skills, particularly search and rescue and first aid. However, the low percentage of personnel skilled in WASH Management shows a major gap in health, sanitation, and recovery-related capacities. This suggests the need to expand training beyond immediate response toward planning, health protection, sanitation, assessment, and rehabilitation.

3.2 Implementation of RA 10121 Across DRRM Priority Areas

3.2.1 Prevention and Mitigation

The results showed that Prevention and Mitigation obtained a grand mean of 4.11, interpreted as Moderately Implemented. Among its components, Personnel obtained the highest area mean of 4.25, followed by Communication System with 4.24, Emergency Shelter with 4.17, Budget Allocation and Utilization with 4.03, and Equipment with 3.85. Equipment was the lowest-rated component, mainly due to the limited availability of heavy equipment for clearing and large-scale mitigation work. This indicates that the MDRRMOs have strong personnel capacity, functional communication systems, accessible emergency shelters, and generally proper fund use. However, gaps remain in heavy machinery, satellite connectivity, and funding for large-scale infrastructure such as flood control, seawalls, and drainage systems. These findings are consistent with Hernandez (2020), who noted that lack of heavy equipment reduces disaster response and mitigation capacity, and with Bankoff & Hilhorst (2009) and Delorino (2019), who observed that rural provinces often struggle with resource constraints despite strong human resource foundations.

3.2.2 Preparedness

The results showed that Preparedness obtained a grand mean of 4.16, interpreted as Moderately Implemented. Budget Allocation and Utilization obtained the highest area mean of 4.29, followed by Equipment and Emergency Shelter, both with 4.16, Communication System with 4.11, and Personnel with 4.07. The findings indicate that funds, equipment, supplies, shelters, and early warning systems are generally available, although the number of fully trained personnel remains limited. This means that the LGUs are generally prepared, but their preparedness capacity still requires strengthening. Burton (2018) emphasized that preparedness requires not only the availability of equipment but also regular replenishment and maintenance. Dimonte (2023) noted that frequent drills improve reaction time and teamwork, while PHIVOLCS (2015) stressed the importance of reliable communication. The findings also support Domingo & Manejar (2018), who observed that rural LGUs may have systems in place but still face constraints in expanding human resources and infrastructure.

3.2.3 Response

The results showed that Response obtained a grand mean of 4.20, interpreted as Moderately Implemented. Communication System and Emergency Shelter obtained the highest area means of 4.28 each, followed by Personnel and Community with 4.20, Equipment with 4.12, and Budget Allocation and Utilization with 4.10. The results indicate that coordination, evacuation center management, personnel readiness, and deployable equipment are generally functional, although fund release remains the weakest component. This suggests that emergency response systems in Northern Samar are established and operational. According to Dimonte, trained personnel are critical to effective response, while OCD (2020) emphasized that coordination and information flow are necessary to avoid confusion during emergencies. Sphere Association (2018) stated that evacuation facilities must meet minimum standards for safety and habitability, while COA (2021) noted that bureaucratic processes may slow the release of emergency funds during critical periods.

3.2.4 Recovery and Rehabilitation

The results showed that Recovery and Rehabilitation obtained a grand mean of 4.16, interpreted as Moderately Implemented. Budget Allocation and Utilization received the highest area mean of 4.28, followed by Communication System with 4.25, Emergency Shelter with 4.22, Personnel with 4.08, and Equipment with 3.97. The results show that recovery funds, communication of recovery information, and shelter support are generally in place, while equipment remains the weakest area. This indicates that recovery systems exist but require further improvement, especially in the availability of recovery equipment and technical capacity for large-scale rehabilitation. OCD (2020) noted that recovery resources may be delayed or insufficient, while World Bank (2022) reported that local governments often prioritize response equipment over long-term recovery tools. UNDRR emphasized the importance of personnel in post-disaster recovery, while NDRRMC recognized timely assessments as essential for securing national support. Sphere Association (2018) also noted that the pace of shelter repair depends on available resources.

3.3 Challenges and Gaps Encountered by MDRRMOs

The findings showed that the leading challenge in Prevention and Mitigation was lack of regular personnel for consistency, with 95 responses, followed by budget constraints with 71, lack of equipment with 55, insufficient trained personnel with 53, and weak hazard mapping with 15. In Preparedness, the leading challenge was low community participation with 102 responses, followed by lack of supplies with 41, inadequate drills with 31, and poor communication flow with 26. These findings show that prevention and preparedness are weakened by staffing instability, limited funds, equipment gaps, low participation, and weak technical systems. Delizo (2018) explained that many DRRM offices rely on job-order or contractual staff, resulting in high turnover and weak institutional continuity. Domingo & Manejar (2018) noted that local revenue limitations restrict large-scale prevention and mitigation projects. Hernandez (2020) explained that specialized equipment is costly, while Regmi (2017) emphasized the shortage of advanced skills in risk assessment and planning. Shaw et al. (2011) and Acosta (2017) also noted that low community participation may result from weak awareness and limited consultation, while PHIVOLCS & PAGASA (2015) identified communication gaps in remote and island areas. The findings also showed that the leading challenge in Response was weak community cooperation with 97 responses, followed by insufficient responders with 52, limited evacuation shelters with 36, weak coordination with 18, and delayed mobilization with 7. In Recovery and Rehabilitation, the leading challenge was insufficient funding with 90 responses, followed by limited manpower with 73, delayed rehabilitation with 63, and lack of recovery planning with 28. These results indicate that response and recovery are affected by community cooperation, personnel shortages, shelter limitations, funding gaps, and weak recovery planning. Bankoff & Hilhorst (2009) explained that emergency coordination may break down due to differing priorities, lack of trust, or confusion over roles, while Dela Cruz (2022) added that communities may resist evacuation without prior orientation. OCD (2020) reported that MDRRMOs often rely on small permanent staff and volunteers. Sphere Standards (UN OCHA, 2020) noted that evacuation centers are often overcrowded and lack adequate facilities. World Bank (2022) observed that recovery requires greater funding than response, while Marcial (2018), UNDRR (2021), and NDRRMC (2020) emphasized the need for technical manpower, faster assessment, and pre-disaster recovery frameworks.

3.4 Recommendations to Improve RA 10121 Implementation

The results showed that the highest-ranked recommendation was to strengthen the functionality and accreditation of Local DRRM Offices, with 117 responses. This was followed by strengthening partnerships with schools, NGOs, and local sectors with 107 responses; institutionalizing continuous capacity-building and competency-based training with 104; improving logistics, equipment, and emergency response assets with 103; establishing a provincial-level DRRM Monitoring and Evaluation system with 88; institutionalizing community-based DRRM programs with 87; improving early warning systems and alert mechanisms with 83; strengthening DRRM planning and risk-informed development with 75; intensifying hazard, exposure, and vulnerability mapping with 73; and enhancing financial management of the Local DRRM Fund with 54. These recommendations directly address the identified gaps in staffing, training, community participation, logistics, communication, planning, monitoring, and financial management. RA 10121 (2010) mandates functional DRRM structures, while the IRR of RA 10121 Rule VIII Section 12 requires plantilla positions for continuity. Delizo (2018), the office of Civil Defense (2020), and Domingo & Manejar (2018) emphasized that accredited, permanent, and standardized offices improve performance. UNDRR (2021), Shaw et al. (2011), Acosta (2017), and OCD (2020) support multi-stakeholder partnerships and education-based DRRM. Regmi (2017), Dimonte (2023), NDRRMC (2020), and Villanueva & Cruz (2021) emphasized the value of competency-based training, while Hernandez (2020), World Bank (2022), UN OCHA (2020), and COA (2021) stressed the need for functional equipment, logistics, supplies, procurement, and maintenance.

3.5 Relationship Between Respondents' Profile and RA 10121 Implementation

3.5.1 Personal Profile and RA 10121 Implementation

The Chi-square results showed that age had a significant relationship only with Prevention and Mitigation, with $\chi^2 = 12.722$ and $p = 0.048$. Sex had a significant relationship with all four areas: Prevention and Mitigation, Preparedness, Response, and Recovery and Rehabilitation. Civil status had a significant relationship only with Prevention and Mitigation, with $\chi^2 = 17.140$ and $p = 0.009$. These results suggest that age and civil status influence long-term risk reduction activities more than immediate operations. Delizo (2018) explained that older personnel contribute maturity and strategic thinking, while younger staff provide energy and adaptability. Domingo & Manejar (2018) noted that single personnel may have greater mobility, while married personnel may show stronger concern for long-term community safety. The significant relationship of sex across all pillars reflects the gendered distribution of DRRM roles, and UNDRR (2021) noted that gender mainstreaming improves the comprehensiveness of DRRM programs.

3.5.2 Professional Profile and RA 10121 Implementation

The results showed that educational attainment, seminars and training attended, years in service, area of specialization, and relevant skills had no significant relationship with the implementation of RA 10121 across the four DRRM areas. Current position had a significant relationship with Preparedness, with $\chi^2 = 45.284$ and $p = 0.005$, and Recovery and Rehabilitation, with $\chi^2 = 43.740$ and $p = 0.008$. These findings suggest that formal education, number of trainings, length of service, specialization, and skills do not automatically translate into higher implementation when resources, equipment, funding, and institutional support are limited. Villanueva & Cruz (2021) noted that higher education helps in complex policy work, but local DRRM operations can be performed effectively when personnel receive proper technical training. Regmi (2017) emphasized that training quality and application matter more than training quantity. Robles & Mendora (2021) noted that experience must be supported by continuous learning. OCD (2020) confirmed that position affects involvement in specific DRRM functions, while NDRRMC (2020) explained that personnel in small LGUs often perform multiple roles regardless of specialization. Hernandez (2020) added that skilled personnel cannot perform optimally without adequate tools and logistics.

3.6 Overall Discussion of Findings

Overall, the findings show that RA 10121 implementation in Northern Samar is moderately implemented across Prevention and Mitigation, Preparedness, Response, and Recovery and Rehabilitation. The strongest areas include personnel capacity, communication systems, emergency shelter management, and budget utilization, while weaker areas include equipment availability, heavy machinery, specialized technical skills, community participation, regular staffing, and recovery planning. The findings further show that sex is the only profile variable significantly related to all four DRRM pillars. Age and civil status are significant only in Prevention and Mitigation, while current position is significant in Preparedness and Recovery and Rehabilitation. Educational attainment, seminars and training attended, years in service, specialization, and relevant skills show no significant relationship with implementation. This indicates that personnel characteristics matter, but successful DRRM implementation depends more strongly on institutional support, resource availability, relevant capacity-building, functional systems, and sustained coordination.

4. Conclusion & Recommendations

The study concludes that the implementation of Republic Act No. 10121 in Northern Samar is generally moderately implemented across prevention and mitigation, preparedness, response, and recovery and rehabilitation. MDRRMO

personnel are mostly young to middle-aged, predominantly male, and generally experienced in emergency response and operational tasks; however, their capacity is limited by insufficient advanced training, few specialized personnel, and reliance on non-regular staff. Although the MDRRMOs demonstrate strengths in communication systems, shelter management, coordination, personnel competence, and financial handling, implementation remains constrained by lack of heavy equipment, limited funding for structural mitigation, insufficient manpower, delayed rehabilitation, low community participation, and weak public cooperation. The absence of a significant relationship between respondents' profile and RA 10121 implementation indicates that the major challenges are structural and institutional rather than individual.

It is recommended that LGUs strengthen the professional capacity of MDRRMO personnel through regular training, seminars, workshops, and certification programs, particularly in disaster risk assessment, emergency medical response, rescue operations, incident command systems, and climate adaptation planning. Provincial and municipal governments should provide sustainable funding for DRRM programs, heavy equipment, rescue vehicles, evacuation facilities, emergency supplies, and permanent plantilla positions for DRRM and technical personnel. MDRRMOs should also improve communication systems, update contingency and response plans, conduct regular drills, strengthen community-based preparedness programs, and build partnerships with barangays, schools, NGOs, youth organizations, and other stakeholders. Institutional reforms should focus on standardizing operational protocols, integrating risk reduction into development planning, improving monitoring and evaluation systems, and ensuring that the MDRRMO system is strong enough to support any qualified personnel in implementing the DRRM mandate effectively.

The study is limited to the implementation of RA 10121 in selected municipalities of Northern Samar and is based on the responses of MDRRMO personnel. Its findings reflect the conditions, experiences, and institutional realities of the respondents and may not fully represent the views of other stakeholders such as community members, barangay officials, NGOs, or national agencies. Since the study focused on personnel profile and implementation, other possible factors such as leadership style, organizational culture, technological integration, and community resilience were not examined in depth. Future researchers may conduct similar studies in other provinces or regions and include additional variables to generate broader insights into disaster risk reduction and management practices in the Philippines.

Compliance with ethical standards

The study observed ethical standards to ensure integrity, transparency, and respect for the respondents. Ethical procedures, including data privacy, anonymity, confidentiality, and unbiased questioning, were followed throughout the research process. The study also avoided bias, coercion, and harm to the respondents, and the collected information was used only for research purposes.

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