

Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121): Its relationship to the resiliency level of the barangay local government units of Aritao

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Abstract

The study aimed to measure the implementation of the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and its relationship to the resiliency level of the barangay Local Government Units (LGU) of Aritao. Quantitative research design employing a descriptive correlational was used. The respondents of the study included the Barangay Local Government Units (BLGU) of twenty-two (22) barangays of Aritao, Nueva Vizcaya who were selected using purposive sampling procedure particularly the total enumeration. The study found that the level of implementation of Republic Act 10121 among the barangay officials of Aritao is highly implemented. The overall mean comprises the Disaster Response and Early Recovery; Disaster Preparedness; Disaster Prevention and Mitigation; Disaster Recovery and Rehabilitation. The level of resilience in DRRM implementation among barangay officials of Aritao obtained an overall mean that is described as "high," indicating that resilience-related DRRM practices are often implemented. This overall rating comprises the dimensions of Governance, Monitoring, and Sustainability; Institutional and Community Readiness; Operational Resiliency during Disasters; Pre-Disaster Resiliency; and Post-Disaster Resiliency, all of which are also described as "high." These findings suggest that barangay officials often carry out activities that strengthen disaster preparedness, response, recovery, governance, and sustainability, reflecting a consistent commitment to enhancing community resilience. The level of implementation of Republic Act 10121 and the level of resiliency in DRRM implementation among barangay officials is significantly correlated. In as much that this study found that the level of implementation of Republic Act 10121 and the level of resiliency in DRRM implementation among barangay officials are significantly related, a management intervention particularly a training design on Disaster Risk Reduction and Management Act of 2010 was hereby proposed entitled, "Training-Workshop for BLGU DRRM Implementers".

Keywords: disaster risk reduction, resiliency level, barangay local government units

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1. Introduction

Having some knowledge on Disaster Risk Reduction and Management plays very important role on people's lives especially for Local Government Unit nowadays. Disaster Risk Reduction and Management, or DRRM, is essential since it assists communities in anticipating, preventing, and minimizing the detrimental effects of natural and man-made risks before they become full-blown catastrophes, DRRM decreases fatalities, safeguards livelihoods, and lowers the financial and social costs of disasters by methodically identifying hazards, bolstering early-warning systems, enhancing infrastructure, and increasing the capacity of local institutions and communities. Building resilient societies that can more successfully absorb, adapt to, and recover from shocks requires incorporating DRRM into planning and development in an era of growing climate-related extremes and recurrent catastrophes.

In line with this, resilience is very important which is the ability to adapt well to adversity, trauma, tragedy, or significant stress, allowing individuals to “bounce back” and often grow stronger from difficult experiences. It involves emotional, mental, and behavioral flexibility rather than just “toughing it out”. Resilience is a developable skill, not just an innate trait. Not all people are able to adapt this skill, which makes them more prone to disasters and less capable of returning to their normal way of life. This study is anchored on the Sustainable Development Goals (SDGs) that emphasize inclusive, safe, resilient, and sustainable communities, which directly align with the objectives of the Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act No. 10121).

Primarily, the study supports the SDG 11: Sustainable Cities and Communities, particularly Target 11.5, which aims to significantly reduce disaster-related deaths, the number of affected people, and economic losses caused by disasters. By examining how barangay local government units (BLGUs) in Aritao implement RA 10121 and how this implementation influences their resiliency level, the study contributes to strengthening local capacities for disaster prevention, mitigation, preparedness, response, rehabilitation, and recovery. This research is also aligned with SDG 13: Climate Action, which calls for urgent action to combat change and its impacts. RA 10121 institutionalizes a proactive and community-based disaster risk reduction and management (DRRM) approach that integrates climate change adaptation measures into local governance. Assessing the resiliency of barangays reflects how effectively climate-responsive and risk-informed strategies are operationalized at the grassroots level. Moreover, the study supports SDG 1: No poverty, as disasters disproportionately affect vulnerable populations and often push communities deeper into poverty. Strengthening barangay resiliency helps safeguard livelihoods, infrastructure, and essential services, thereby promoting long-term socio-economic stability. In essence, this study underscored that effective implementation of RA 10121 at the barangay level is not merely a statutory compliance requirement but a crucial mechanism for achieving sustainable development. By evaluating the relationship between the law and local resiliency levels in Aritao, the research contributes to the broader global agenda of building resilient, adaptive, and sustainable communities (United Nations, 2015; Ramos & Torres, 2024).

Also, this study is anchored on Philippine Development Plan 2023-2028 that emphasizes building safe, adaptive, and disaster-resilient communities as a foundation for sustainable and inclusive growth. The PDP 2023–2028 highlights the importance of strengthening disaster risk reduction and climate change adaptation mechanisms to protect lives, livelihoods, and infrastructure. It recognizes that disasters and climate-related hazards pose significant threats to economic gains and poverty reduction efforts (National Economic and Development Authority, 2023).

In this context, the implementation of the Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act No. 10121) becomes a critical policy instrument in advancing the PDP's resilience-building agenda.

The PDP underscores the need to enhance institutional capacity at the local level, particularly among local government units (LGUs), to effectively manage disaster risks. Since barangays serve as the frontline units of governance, assessing their level of resiliency and the extent of RA 10121 implementation directly supports the PDP's goal of strengthening local governance systems and ensuring community-based disaster preparedness, mitigation, response, and recovery. Furthermore, the PDP promotes risk-informed development planning, integration of climate change adaptation strategies, and improved emergency response systems (Republic Act No. 10121).

By examining the relationship between the provisions of RA 10121 and the resiliency level of barangay LGUs in Aritao, the study contributes to evaluating how national policies are translated into tangible outcomes at the grassroots level. In essence, this research aligns with the Philippine Development Plan's overarching objective of safeguarding development gains through resilient institutions and communities. It provides empirical insight into how disaster governance at the barangay level supports the country's broader development framework and long-term national resilience strategy.

In addition, the study is anchored on National Higher Education Research Agenda (NHERA) of the Philippines which emphasizes the critical role of higher education institutions (HEIs) in producing knowledge, skills, and research outputs that address national development challenges, including disaster risk reduction and climate change adaptation. By investigating the relationship between the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and the resiliency levels of barangay local government units (BLGUs) in Aritao, this study reflects the HEA's call for evidence-based, community-oriented research that contributes to societal well-being. Furthermore, the study aligns with the HEA's focus on enhancing research that strengthens local governance and community capacity. It demonstrates how academic inquiry can inform policy implementation, assess the effectiveness of national legislation at the grassroots level, and provide actionable insights for local leaders in disaster preparedness, mitigation, and recovery. This linkage underscores the responsibility of higher education institutions to serve as catalysts for community development and resilience-building. In essence, anchoring this study on the Higher Education Agenda highlights the symbiotic relationship between scholarly research and community empowerment. It positions higher education not only as a source of knowledge but also as a key partner in translating national laws like RA 10121 into practical outcomes that improve the resiliency and adaptive capacity of local communities (Republic of the Philippines, 2020).

Nueva Vizcaya State University's Research Agenda emphasizes the generation of knowledge that addresses real-life challenges faced by communities, particularly in areas such as disaster risk reduction, climate change adaptation, environmental management, and local governance. By exploring the relationship between the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and the resiliency levels of barangay local government units (BLGUs) in Aritao, this study aligns with NVSU's objective of producing applied research that supports evidence-based decision-making and strengthens local institutions. Furthermore, the study contributes to NVSU's agenda of community engagement and capacity-building by providing insights into how national disaster policies are operationalized at the grassroots level. It examines the effectiveness of barangay-level DRRM practices in fostering resilience, thereby offering practical recommendations for improving local governance, disaster preparedness, and sustainable development initiatives in Nueva Vizcaya. Anchoring the study on the NVSU College of Arts and Sciences Research Agenda reinforces the role of the university as a partner in local development. It highlights the importance of research that is not only academically rigorous but also socially relevant—capable of informing policy implementation, enhancing community resilience, and ultimately contributing to the sustainable growth and safety of the province.

Basically, the Philippines is located along the Pacific Ring of Fire which makes it prone to all natural hazards, including earthquakes, volcanic eruptions, typhoons, and landslides. According to the Philippine Institute on Volcanology and Seismology (PHIVOLCS), the Philippines, due to its geology, has 300 volcanoes, twenty-two (22) of which are active and has an average of five (5) earthquakes each day. The Philippines, located along the Pacific typhoon belt, is also prone to tropical cyclones and frequently affected by an average of twenty (20) tropical

cyclones, half of which are catastrophic (CFW-DMHA, 2018).

With this, the World Risk Index indicates the disaster risk from extreme natural events and negative climate change impacts of 193 countries in the world. It is calculated per country as the geometric mean of exposure and vulnerability. In 2025, the Philippines is once again at the top of the World Risk Index, characterized as a country with high geographic fragmentation and high exposure to weather related extremes such as flooding. Floods are among the most frequent and devastating extreme natural events. Between 2000 and 2019, they affected over 1.6 billion people and caused economic damaged of over 650 billion US-Dollars worldwide (CRED/ UNDRR, 2020). For the first time, the World Risk Report (2025) provides exemplary analysis of a region with regard to the focus topic. Flood risks in the Philippines vary significantly from region to region and are influenced by geography, infrastructure, and spatial planning. This spatially differentiated analysis shows that local risks assessments are crucial for developing effective flood prevention measures and prioritizing adaptation investments. The exposure analysis for flooding in the Philippines, tailored to the provincial level, shows pronounced flood hotspots in flat, densely populated lowland basins such as Cagayan or Pampanga. This development cannot solely be attributed to natural processes. Rather, the increasing vulnerability to floods results from a complex interplay of climatic, ecological, and socio-economic factors. While climate change intensifies hydrological extremes, human interventions in natural system increase the susceptibility of settlements and infrastructures. Marginalized groups are particularly affected, as they often lack fundamental proactive measures (Bündnis Entwicklung Hilft, & Ruhr University Bochum, 2025).

The National Disaster Risk Reduction and Management Council (NDRRMC) is part of the Department of National Defense and the country's main catastrophe coordinator. Disaster Risk Management is the systematic process of using administrative decisions, organization, operational skills, and capacities to lessen the impacts of natural hazards and related environmental and technological disasters. This includes structural and non-structural measures to avoid or mitigate the negative consequences of hazards (National Disaster Risk Reduction and Management Council, 2024).

Republic Act 10121 otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010 is described as "An act strengthening the Philippine Disaster Risk Reduction and Management system, providing for the National Disaster Risk Reduction and Management Plan, appropriating funds therefor and for other purposes". It shifted the focus from disaster response and recovery towards disaster risk reduction, preparedness, and mitigation. It also modified the use and appropriation of the Calamity Fund or what is now known to be the Local Disaster Risk Reduction and Management Fund. This allows the local government units the flexibility to increase funding even beyond five percent (5%) of the National Tax Allotment (NTA), for disaster reduction, preparedness, and mitigation measures. In view thereof, all Local Chief Executives are hereby enjoined to utilize their LDRRMF to ensure that basic "rescue and response equipment" are procured and to operationalize the provisions thereof (MC No. 2012-73, DILG).

Initially established in 2012 as an attached office and an additional function of a designated municipal office, the Municipality of Aritao has fully established the Municipal Disaster Risk Reduction and Management Office (MDRRMO) in 2015 and organized Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) in accordance with Joint Memorandum Circular (JMC) No. 2014-1. The municipality also formulated and implemented a Municipal Disaster Risk Reduction and Management Plan (MDRRMP), which contributes to the development of safe, disaster-resilient, and progressive communities by enhancing local capacities to protect lives, reduce vulnerabilities, and mitigate the adverse impacts of disasters (National Disaster Risk Reduction and Management Council, 2020–2030).

At present, the municipality of Aritao frequently experiences flooding and landslides associated with tropical cyclones. The frequency of disasters has greatly challenged the preparedness of highly vulnerable barangays in the municipality. The increasing complexity and severity of hazards necessitate proactive and knowledgeable leadership at the local government level. The recent Super Typhoons "Pepito" (2024) and "Uwan" (2025) have

significantly challenged the municipality of Aritao, bringing extensive damage to infrastructure, agriculture, and most critically to the lives and well-being of the affected population. The severity of the impacts brought by these tropical cyclones prompted the Local Government Unit (LGU) through the Sangguniang Bayan to declare the entire municipality under a state of calamity.

Under Republic Act 10121, local officials are mandated to safeguard the lives, properties, and overall welfare of their constituents through effective and proactive DRRM governance. Guided by this law, the LGU through the Municipal Disaster Risk Reduction and Management Council (MDRRMC) is tasked to formulate directives, guidelines, and policies that enhance the disaster preparedness, strengthen mitigation measures and secure timely and coordinated response operations. It also ensures that systems and protocols are in place for efficient recovery and rehabilitation efforts following disasters, whether they are caused by natural events or human-induced hazards. Through the implementation of RA 10121, local governance becomes a crucial mechanism in building resilient communities and reducing the adverse impacts of calamities.

Elected officials, as decision-makers, play a pivotal role in formulating DRRM plans, mobilizing resources, issuing advisories, and sustaining community preparedness measures. They help ensure the safety of everyone especially those who are at high risk to a particular hazard. All LGUs must act their part in securing the delivery of services for and by the people through the presence of their respective Local Disaster Risk Reduction and Management Councils. However, in many Barangay Local Government Units (BLGUs), disparities in DRRM knowledge may pose challenges in delivering timely and appropriate interventions. These gaps can affect emergency response operations, evacuation operations, information dissemination, and overall disaster readiness.

Research gaps of the study include limited localized assessments of RA 10121 implementation, connection between policy and actual resiliency outcomes, role of local leadership and community participation, integration of climate change adaptation, impact on socioeconomic and livelihood recovery, and evaluation of monitoring and reporting mechanisms. While the RA 10121 uses the Gawad Kalasag (GK) Seal to determine the level of implementation of the law, there is still no localized assessment focusing on barangay-level implementation. The GK Seal is being conducted yearly but only up to the municipal level and special awards. This study, therefore, investigates the disaster preparedness knowledge, adaptive capacity and resilience of the elected officials in the twenty-two (22) barangays in the municipality of Aritao. With evidence-based findings, the municipality can develop tailored training programs, improve policies, and build a more resilient community.

2. Related Literature

This study was rooted in established theories that underpin its theoretical framework and conceptual underpinnings. This study was anchored on Michael Rutter's Resilience Theory (2006), which defines resilience as the ability to adapt successfully adverse circumstances through appropriate resources rather than solely relying on inherent psychological traits. Rutter's framework emphasizes the capacity to rebound from challenges, such as adversity, failure, conflict, and misfortune, assisting both individuals and organizations in their recovery processes.

Further, a helpful lens for comprehending the degree of resilience of Barangay Local Government Units in Aritao with respect to Republic Act No. 10121 is Michael Rutter's Resilience Theory (2006). Rather than seeing resilience as an intrinsic and fixed characteristic, Rutter saw it as a dynamic process of relative resistance to environmental risk and the ability to adapt or recover in the face of adversity (Rutter, 2006). The capacity of local government entities to predict, prepare for, respond to, and recover from catastrophes through efficient disaster risk reduction and management techniques is referred to in this research as barangay resilience. By increasing local planning, institutionalizing community-based DRRM systems, and mandating barangays to create institutions and initiatives that improve disaster preparedness and response, Republic Act No. 10121 facilitates this process. This process is aided by Republic Act No. 10121, which requires barangays to create programs and structures that improve disaster preparedness and response, strengthens local planning, and institutionalizes community-based DRRM procedures (Republic Act No. 10121, 2010).

Accordingly, the more successfully RA 10121 is applied at the barangay level, the more likely it is that the barangay will become more resilient through community involvement, coordinated leadership, and protective systems (Rutter, 2006; Republic Act No. 10121, 2010). The paradigm change brought about by Republic Act No. 10121, generally referred to as the Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010, serves as the foundation for this study's conceptual framework. A proactive, all-encompassing, and community-based framework replaced the traditional, response-oriented Philippine disaster management system thanks to this law. The National Disaster Risk Reduction and Management Framework (NDRRMF), which prioritizes disaster prevention, mitigation, preparedness, response, recovery, and rehabilitation at all levels of government, is institutionalized by the legislation. The understanding that local government entities, especially barangays, are the first responders and the main units for implementing disaster risk reduction is at the core of RA 10121. In order to provide decentralized and community-driven disaster management, the legislation requires each barangay to create a Barangay Disaster Risk Reduction and Management Committee (BDRRMC). Barangays are positioned as key players in enhancing community resilience to disasters because of this structural necessity (Ani et al., (2020).

The study used the Input-Process-Output (IPO) paradigm to show how RA 10121 functions as the institutional and legal input that influences barangay-level disaster risk mitigation procedures. The input consists of institutional mandates for LGUs, financing sources including the Calamity Fund, and the stipulations of the legislation. Risk assessments, capacity building, contingency planning, and mainstreaming DRRM into local development plans are all included in the process (Policy Analysis, 2025). According to the study, this resilience level is directly impacted by how well RA 10121 is implemented. By ensuring that DRRM is viewed as an essential part of broader local development planning rather than as a stand-alone endeavor, this mainstreaming improves long-term resilience. Such involvement strengthens local knowledge, expands the barangay's resource base, and promotes a culture of safety and independence. These difficulties show that in order to fully achieve the goals of the law, greater grassroots involvement, better finance management, and increased capacity-building are required.

The law's all-encompassing, multi-sectoral, community-based strategy offers the institutional, financial, and legal framework required to create resilient communities that can successfully manage catastrophe risks. Further, this study is also anchored on the Disaster Risk Reduction and Management (DRRM) Framework and the Capacity Development Theory. The DRRM Framework outlines four thematic areas Disaster Prevention and Mitigation, Disaster Preparedness, Disaster Response, and Disaster Recovery and Rehabilitation emphasizing that disaster risk governance requires a proactive, holistic, and community-based approach. It positions barangay officials as primary implementers of DRRM programs, making their knowledge and preparedness crucial in reducing vulnerabilities and enhancing community resilience.

Instead of only responding to catastrophes after they happen, these four pillars offer the structural basis for comprehending how communities might manage hazards proactively. The paradigm acknowledges that institutional capability, societal vulnerability, and development choices all play a significant role in catastrophe risk, which is not only a natural occurrence (Tumlos-Castillo, 2016). The United Nations Development Program (UNDP) defines capacity development as a locally driven, societal transformation that acknowledges competent individuals, organizations, and societies as crucial for successful catastrophe risk reduction. According to this idea, capacity is dynamic and changes as a result of learning, institutional development, and ongoing system and process improvement (United Nations Office for Disaster Risk Reduction, 2015). Together, they provide a comprehensive knowledge of community resilience by addressing both the what (DRRM theme areas) and the how (capacity-building procedures) of disaster risk reduction.

Along with leadership, knowledge, and accountability, the UNDP Capacity Assessment Framework lists institutional arrangements as one of four fundamental capacity challenges. Strong organizational capability guarantees that DRRM policies are converted into workable plans, resources are distributed properly, and stakeholder coordination is upheld throughout the whole disaster management process (United Nations Development Program, 2020). At this level, capacity building emphasizes awareness-raising, education, training, and the creation of a preparation and safety culture within communities. People are better able to make educated

judgments and actively engage in DRRM procedures when they have sufficient knowledge regarding risks, vulnerabilities, and preventative actions. Risk assessment, early warning systems, emergency response procedures, resource management, and post-disaster rehabilitation planning are all included in this. The ability to carry out particular activities and functions successfully is a measure of functional capacity, which guarantees that DRRM interventions are competently and efficiently planned and carried out.

Three aspects are identified by the UNDP Capacity Assessment Framework: functional capacities, four fundamental capacity challenges, and organizational as a point of entry. From individual awareness to institutional policy execution, this multi-level strategy guarantees that capacity building interventions are thorough and address deficiencies at every level of the DRRM system. Capacity building helps this by ensuring that communities establish permanent capabilities rather than transient solutions. This link is further strengthened by the Sendai Framework for Disaster Risk Reduction 2015–2030, which establishes four goals and seven targets that include DRR into global sustainable development agendas. Because it assists in identifying the causes of insufficient capacity and offers practical solutions, the framework confirms that local capacity development evaluation is essential to creating disaster-resilient communities. The study advances knowledge of how capacity building may significantly improve DRRM procedures and results by using this integrated strategy.

Complementarily, the Capacity Development Theory posits that organizational performance depends on the competence, awareness, and readiness of its members. Applied to DRRM, this theory implies that barangay officials equipped with skills, training, and knowledge are better able to implement policies, coordinate response, and facilitate resilience-building interventions. Thus, by linking preparedness and resilience theories with DRRM and capacity development principles, the framework establishes a logical foundation for the study. It assumes that higher knowledge and preparedness among barangay officials contribute to stronger disaster resilience at the community level. This theoretical integration therefore guides the exploration of how preparedness implementation translates into resilience outcomes.

3. Methodology

Research Design. This study utilized quantitative research design employing a descriptive correlational approach to examine the extent of implementation on the disaster risk reduction and management system and the resiliency of the barangay Local Government Units of Aritao. Quantitative research design was used to assess Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and its relationship to the resiliency level of the barangay Local Government Units of Aritao. A quantitative research approach was utilized through a structured survey questionnaire. This method is suitable for obtaining measurable responses, enabling numerical representation of disaster preparedness knowledge. Quantitative data allows objective comparison, pattern identification, and statistical testing to analyze relationships between variables. This design is appropriate for determining the current level of implementation on the disaster risk reduction and management system using statistical analysis (Creswell & Creswell, 2018).

Research Environment. The study was conducted in the Municipality of Aritao, located in the Province of Nueva Vizcaya. It consists of twenty-two (22) barangays composed of lowland populated areas and upland communities prone to hazards such as floods, landslides, and tropical cyclones. The municipality maintains an active Municipal Disaster Risk Reduction and Management Office (MDRRMO) and each barangay has a Barangay DRRM Committee (BDRRMC) tasked to implement DRRM policies and facilitate preparedness programs within their communities.

Respondents of the Study. The respondents of the study included elected officials in twenty-two (22) barangays of Aritao, Nueva Vizcaya. The respondents were the Barangay Captains, Barangay Kagawad (especially those handling peace and order, health, and DRRM), SK Chairpersons (if applicable) and Indigenous People Mandatory Representative (IPMR) who were also members of the Barangay Disaster Risk Reduction and Management Committees (BDRRMC).

Sampling Procedure. Purposive sampling procedure particularly the total enumeration sampling was applied, meaning all barangay officials of the twenty-two (22) barangays in Aritao were included in the study as the respondents, as the entire population is both accessible and relevant. Barangay officials were chosen as respondents to assess their level of their knowledge and awareness regarding Republic Act 10121, the Philippine DRRM Act of 2010, and to evaluate its effectiveness when fully implemented. This approach aligns with the principle that disaster risk reduction is more effective when bottom-up and participatory strategies are prioritized over top-down, centralized disaster management. Through this study, the collected data will highlight areas within the local DRRM system that require further reinforcement, thereby supporting this research.

Research Instruments. The instruments used in the study are structured survey questionnaires that served as the primary data collection tool.

- **RA 10121 Questionnaire.** This is researcher-made questionnaire based from RA 10121 was used to measure the level of implementation of Republic Act 10121 multi-sectoral indicators across the four (4) areas of Disaster Risk Reduction and Management namely: disaster prevention and mitigation, disaster preparedness, disaster response and early recovery and disaster recovery and rehabilitation. The questionnaire consists of forty (40) items. This was validated by the experts and had undergone reliability testing with Cronbach's Alpha .97 which was described as excellent reliability and consistency.
- **BLGU Resiliency Level Survey Instrument.** This is a 25-item questionnaire used to assess the level of resiliency in DRRM implementation with five components such as pre-disaster resiliency, institutional and community readiness, operational resiliency during disaster, post disaster resiliency, and governance, monitoring and sustainability. This was a research-made questionnaire which was based on Gawad Kalasag assessments indicators. This was validated by the experts and had undergone reliability testing with Cronbach's Alpha .95 which was described as excellent reliability and consistency.

Statistical Treatment of Data. To analyze the gathered data, appropriate statistical tools were utilized to interpret both descriptive and inferential results. In determining the level of Philippine Disaster Risk Reduction and management Act of 2010 (RA 10121) and the resiliency level of the respondents, the study employed the following statistical tools.

- **Mean.** This was used to identify the level of Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and the resiliency level of the respondents.
- **Spearman Rank Correlation.** This was employed to further explore the relationship of Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and the resiliency level among barangay officials and their level of resiliency. This inferential statistical tool assessed the strength and direction of the linear relationship between the two variables. A positive correlation would indicate that a higher degree of implementation of RA 10121 is associated with increased resiliency among barangay officials, while a negative correlation would suggest otherwise. The significance value (p-value) was considered to determine whether the observed correlation is statistically meaningful. Pearson-r was deemed appropriate for this study as both variables are quantified using interval or ratio-scaled data through Likert-type responses, making it suitable in measuring the degree of association between implementation practices and resiliency level.

4. Results and Discussion

The study aimed to measure the implementation of the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and its relationship to the resiliency level of the barangay Local Government Units (LGU) of Aritao. It aimed to determine the level of implementation of Republic Act 10121 among the Barangay Local

Government Units of Aritao in terms of disaster prevention and mitigation, disaster preparedness, disaster response and early recovery, and recovery and rehabilitation as assessed by the respondents; to assess the level of resilience of the Barangay Local Government Units of Aritao as assessed by the respondents; to determine if significant relationship between the level of implementation of Republic Act 10121 and level of resiliency of the Barangay Local Government Units; and to develop management intervention to strengthen the local Disaster Risk Reduction and Management System in Aritao based on the findings of the study.

The study involved 220 respondents from the Barangay Local Government Units of Aritao, Nueva Vizcaya who assessed the implementation of the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121) and its relationship to the resiliency level of the barangay Local Government Units (LGU) of Aritao.

Guided by the Input–Process–Output (IPO) model and anchored on the theoretical foundations of the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121), this study conceptualizes the implementation of disaster risk reduction and management (DRRM) practices in relation to the resiliency level of the Barangay Local Government Units of Aritao. The input component includes the existing DRRM implementation practices, policies, and level of resiliency across the barangays. The process component involves the assessment and analysis of the relationship between DRRM implementation and resiliency level using appropriate statistical tools. RA 10121 provides the legal and institutional framework that emphasizes proactive disaster preparedness, risk reduction, and community resilience. The findings of this study served as the basis for proposing an intervention program aimed at strengthening the implementation of Republic Act No. 10121 (Philippine Disaster Risk Reduction and Management Act of 2010) and enhancing the resiliency level of Barangay Local Government Units in Aritao. The proposed intervention focuses on improving disaster preparedness, response, recovery, and mitigation practices to ensure more effective and sustainable DRRM implementation at the barangay level. This study utilized quantitative research design employing a descriptive correlational approach.

The significant findings of the study are the following:

- The implementation of Republic Act No. 10121 (Philippine Disaster Risk Reduction and Management Act of 2010) among the barangay officials of Aritao was found to be highly implemented, with an overall mean of 3.93. Among its four thematic areas, Disaster Response and Early Recovery obtained the highest mean ($M = 3.99$), followed by Disaster Preparedness ($M = 3.94$), Disaster Prevention and Mitigation ($M = 3.92$), and Disaster Recovery and Rehabilitation ($M = 3.86$). These findings indicate that the barangay local government units have consistently implemented the provisions of Republic Act No. 10121 across the major components of disaster risk reduction and management.
- The level of resilience in Disaster Risk Reduction and Management (DRRM) implementation among the barangay officials of Aritao was likewise assessed as highly implemented, with an overall mean of 4.00. The highest-rated dimension was Governance, Monitoring, and Sustainability ($M = 4.11$), followed by Institutional and Community Readiness ($M = 4.06$), Operational Resiliency during Disasters ($M = 4.05$), Pre-Disaster Resiliency ($M = 3.97$), and Post-Disaster Resiliency ($M = 3.83$). These results suggest that the barangays have established strong governance structures and operational mechanisms that contribute to sustaining resilience before, during, and after disaster events.
- A very strong positive and statistically significant relationship was found between the level of implementation of Republic Act No. 10121 and the level of resilience in DRRM implementation among the barangay officials ($\rho = .870$, $p < .001$). This finding demonstrates that enhanced implementation of the provisions of Republic Act No. 10121 is strongly associated with higher levels of disaster resilience, highlighting the critical role of effective policy implementation in strengthening local disaster preparedness and response capacities.
- Based on the significant relationship established between the implementation of Republic Act No. 10121 and DRRM resilience, a management intervention is proposed in the form of a Training-Workshop for

Barangay Local Government Unit (BLGU) DRRM Implementers. The proposed training program is designed to further strengthen the knowledge, competencies, and operational capabilities of barangay officials, thereby promoting the continuous improvement of disaster risk reduction and management practices and enhancing community resilience against natural and human-induced hazards.

5. Conclusions

Based on the significant findings of the study, the following conclusions were drawn:

1. The level of implementation of Republic Act 10121 among the barangay officials of Aritao is highly implemented along Disaster Response and Early Recovery, Disaster Preparedness, Disaster Prevention and Mitigation, and Disaster Recovery and Rehabilitation. The findings indicate that barangay officials are actively and successfully doing their duties linked to disasters.

2. The findings indicate that the level of resilience in DRRM implementation among barangay officials of Aritao is often evident across all key areas, including governance, monitoring and sustainability, institutional and community readiness, as well as pre-, during, and post-disaster resiliency. This suggests that barangay officials often demonstrate strong commitment, preparedness, and capability in effectively managing disaster risks and ensuring community safety, although the consistency of implementation may still vary across specific functions.

3. The statistical analysis reveals a strong positive correlation between barangay officials' implementation of Republic Act 10121 and their DRRM resiliency levels which indicates that higher adherence to the law's provisions significantly enhances community disaster preparedness and response capabilities.

4. The findings indicate that stronger implementation of Republic Act 10121 is associated with higher levels of resiliency among barangay officials. This suggests that enhancing knowledge and skills in DRRM can directly improve local disaster preparedness and response. Therefore, the proposed training design for BLGU DRRM implementers is a relevant and timely intervention to strengthen both implementation and resiliency at the community level.

Recommendations - Given the significant findings and conclusions of the study, the following are highly recommended:

- In improving the overall efficacy of RA 10121 implementation among barangay officials, strengthen support in minor areas by offering focused training, extra resources, and ongoing monitoring.
- For the Barangay Local Government Units of Aritao to maintain high levels of readiness and responsiveness, Barangay authorities may continue and improve their DRRM practices by holding frequent capacity-building exercises and community drills.
- In enhancing the community preparedness and resilience for disasters, strengthen barangay authorities' consistent application of Republic Act 10121 via frequent training and oversight.
- The BLGUs may implement the proposed training design for BLGU DRRM implementers to strengthen both implementation and resiliency at the community level.
- Similar studies can be conducted by the future researchers related to the present study particularly on areas which are included in this study such as improved risk finance, evacuation plans, early warning systems, Climate and Disaster Risk Assessments (CDRA), and semi-annual simulations to address government challenges and capacities. The community can also be included in the study as respondents.

6. References

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