ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

Analyzing Barangay Governance and Basic Service Delivery in Disaster Response at Barangay San Rafael, Rodriguez, Rizal: Basis for Barangay Disaster Response Plan

Rygin Joy R. Matias
College of Political Science and Public Administration, Polytechnic University of the Philippines, Sta. Mesa, Manila, Philippines
ryginmatias@gmail.com

Date Submitted:
March 14, 2026

Date Accepted:
June 20, 2026

Date Published:
August 12, 2026

DOI:
10.5281/zenodo.21899247

ABSTRACT

This study analyzed barangay governance and basic service delivery in disaster response in Barangay San Rafael, Rodriguez, Rizal, as the basis for a Barangay Disaster Response Plan. A convergent parallel mixed-methods design was employed. The quantitative component used a descriptive-correlational design involving 103 barangay officials and workers selected purposively from a population of 138 personnel using the sample size derived through Slovin's formula, while the qualitative component used a phenomenological approach with 10 barangay officials and 25 residents selected for their direct disaster-response experience. Data were gathered using researcher-made survey questionnaires and semi-structured interview guides. Frequency, percentage, weighted mean, Mann–Whitney U, Kruskal–Wallis, Dunn post hoc procedures, and thematic analysis were used. Barangay governance was generally assessed as fully implemented, with resource mobilization receiving the highest domain mean (M = 3.41) and coordination and communication the lowest (M = 3.20). Basic service delivery was generally well provided; health and medical services obtained the highest mean (M = 3.48), whereas evacuation and shelter management received the lowest (M = 3.16). Significant differences emerged in selected governance and service-delivery dimensions according to position, length of service, and sex, while qualitative findings emphasized competency, complementary roles, adaptive governance, coordination, bayanihan, service inequities, resource constraints, and fairness. The findings support an evidence-based response plan centered on delegated emergency authority, organized community participation, resource pooling, rapid logistics, and sustained preparedness training.

Keywords: *barangay governance, disaster response, basic service delivery, disaster risk reduction and management, community resilience, mixed methods*

INTRODUCTION

Disasters increasingly test the capacity of local institutions to protect lives, sustain essential services, and organize recovery. Climate-related hazards have intensified the operational demands placed on communities, particularly in countries exposed to recurring floods, typhoons, earthquakes, and other emergencies (Islam & Wang, 2024). International disaster-risk frameworks emphasize that resilience depends not only on physical infrastructure but also on capable institutions, coordinated decision-making, inclusive participation, and continuity of essential services (United Nations Office for Disaster Risk Reduction [UNDRR], 2015).

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

In the Philippines, Republic Act No. 10121 institutionalized disaster risk reduction and management (DRRM) and positioned local governments and barangays as frontline actors in preparedness, response, rehabilitation, and recovery (Disaster Risk Reduction Network Philippines [DRRNetPhils], 2010). Evidence from Philippine local governments indicates, however, that implementation quality varies according to local capacity, planning, coordination, training, and resource availability (Dariagan et al., 2020; Ner et al., 2022). These concerns are particularly important for rapidly urbanizing and hazard-exposed communities where relief distribution, evacuation, medical support, security, and infrastructure restoration must be delivered under severe time and resource constraints.

Barangay San Rafael, Rodriguez, Rizal, is exposed to recurrent flooding and other hazards associated with its proximity to river systems and the Sierra Madre foothills. The barangay contains formal subdivisions, commercial areas, informal settlements, and vulnerable households with differing capacities to prepare for and recover from disasters. Although the barangay maintains DRRM structures and participates in local preparedness activities, the thesis identified continuing concerns involving coordination, communication, resource mobilization, equitable relief distribution, and the adequacy of selected evacuation and restoration services. These local concerns mirror broader findings that disaster-response performance is strengthened by collaborative governance, adaptive coordination, community participation, and sustained capability development (Dai & Azhar, 2024; McNaught, 2024).

Accordingly, this study examined the implementation of barangay governance in terms of leadership and decision-making, coordination and communication, policy implementation, resource mobilization, and community participation, together with the provision of relief goods, health and medical services, evacuation and shelter management, security and safety, and infrastructure and utilities restoration. It also examined whether assessments differed across respondent profile variables and integrated the lived experiences of barangay officials and residents. The combined evidence was used to formulate a Barangay Disaster Response Plan designed to strengthen responsiveness, equity, participation, and operational adaptability.

Literature Review

Barangay Governance and Local Disaster-Response Capacity

Local disaster governance requires institutions that can translate policy mandates into rapid and coordinated action. Albris et al. (2020) emphasized that disaster prevention and risk management depend on governance capabilities that connect institutional responsibility, risk information, and implementation. In the Philippine setting, Dariagan et al. (2020) found that the preparedness of local governments varies and is strongly affected by planning and institutional capacity. Ner et al. (2022) likewise identified strengths and gaps in the integration of resilience attributes into local disaster-management plans in Metro Manila, underscoring that formal plans alone do not guarantee operational readiness.

Governance is also increasingly understood as collaborative rather than purely hierarchical. Dai and Azhar (2024) described collaborative governance as an important mechanism for linking disaster management and sustainable development, while McNaught (2024) highlighted the role of local partnerships in climate- and disaster-resilient development. These perspectives are consistent with the study's emphasis on barangay leadership, coordination, resource mobilization, and community participation as mutually reinforcing components of disaster response.

Leadership, Coordination, and Adaptive Governance

Disaster response unfolds under uncertainty, requiring leaders to make time-sensitive decisions while coordinating people, information, and resources. Boin et al. (2022) explained that crisis management depends on sense-making, decision-making, coordination, and public communication. Communication failures can create delays and fragmented response, and emergency professionals continue to identify information flow and coordination inefficiencies as critical operational concerns (Abbas & Miller, 2025). In post-disaster supply chains, Botchie et al. (2022) similarly showed that coordination is central to operational effectiveness from preparedness through response.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

Adaptive governance is especially important when formal plans encounter rapidly changing conditions. Ayuningtyas et al. (2021) described disaster preparedness and mitigation in Indonesia as requiring decentralized capacity and context-responsive implementation, while Chaladdee et al. (2022) showed the importance of integrating flood-risk reduction into planning. The value of preparedness training is reinforced by Fazeli et al. (2024), whose review linked behavioral training and individual preparedness to stronger hazard response. Philippine evidence also points to the importance of sustained capacity development among barangay councils and local officials (Lumabi et al., 2025; Tabanao et al., 2025).

Basic Service Delivery During Disasters

Effective disaster governance becomes visible to residents through the continuity and fairness of basic services. Relief distribution is not simply a logistics function; it also involves timeliness, targeting, transparency, and perceived fairness. Chen (2021) demonstrated that relief-goods distribution decisions are shaped by fairness and intervention strategies, while Ledesma et al. (2024) documented the operational importance of barangay-level calamity response. These concerns are directly relevant to the present study's assessment of relief goods, evacuation, medical assistance, security, and infrastructure restoration.

Health systems and infrastructure are likewise central to community resilience. Ferguson et al. (2024) reviewed how resilient healthcare systems respond to natural disasters and emphasized continuity, preparedness, and organizational resilience. Mfon and Olurotimi (2023) discussed post-disaster reconstruction as a process that should restore communities while reducing future vulnerability. Blackman et al. (2023) further argued that recovery can stall when systems fail to align around community well-being, illustrating why service delivery must be assessed together with institutional coordination and community experience.

Service delivery also depends on logistics, coordination, and the ability to restore critical functions under pressure. Botchie et al. (2022) emphasized the importance of preparedness-to-coordination links in post-disaster supply chains, while Chen (2021) showed that distribution systems must consider fairness as well as efficiency. Ledesma et al. (2024) likewise underscored the operational importance of barangay-level calamity response. Together, these studies support evaluating disaster services not only by availability but also by timeliness, coverage, continuity, and equity.

Community Participation, Resilience, and Preparedness

Community participation broadens local response capacity beyond formal government personnel. Ma et al. (2023) emphasized the importance of community-level resilience in addressing natural hazards and public-health challenges, while Kangana et al. (2024) linked community engagement with technological and organizational innovation in resilient cities. In the Philippine context, Garingan (2021) highlighted the value of standardized community-based disaster-preparedness training. These studies support the present study's attention to volunteerism, resident feedback, awareness activities, and the cultural practice of bayanihan.

Experience from disaster-prone countries also shows that preparedness systems become more effective when communities repeatedly practice response roles. Edgington (2021) drew lessons from Japan's earthquake and tsunami preparedness, where institutionalized drills and local readiness are integral to response. In Barangay San Rafael, the conceptual framework therefore links respondent characteristics to governance implementation and basic service delivery, with both streams informing the proposed disaster-response plan. The framework is consistent with the thesis's New Public Service orientation toward citizen participation and its Contingency Theory lens emphasizing adaptive organizational responses to changing disaster conditions.

Preparedness also requires institutionalized learning rather than isolated activities. Fazeli et al. (2024) emphasized training and preparedness as behavioral foundations of hazard response, while Lumabi et al. (2025) identified factors that strengthen preparedness among barangay councils. These findings support sustained drills, volunteer training, and community resource mapping as mechanisms for converting willingness to participate into organized response capacity and for reinforcing continuity when formal response resources are constrained.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

Conceptual Framework

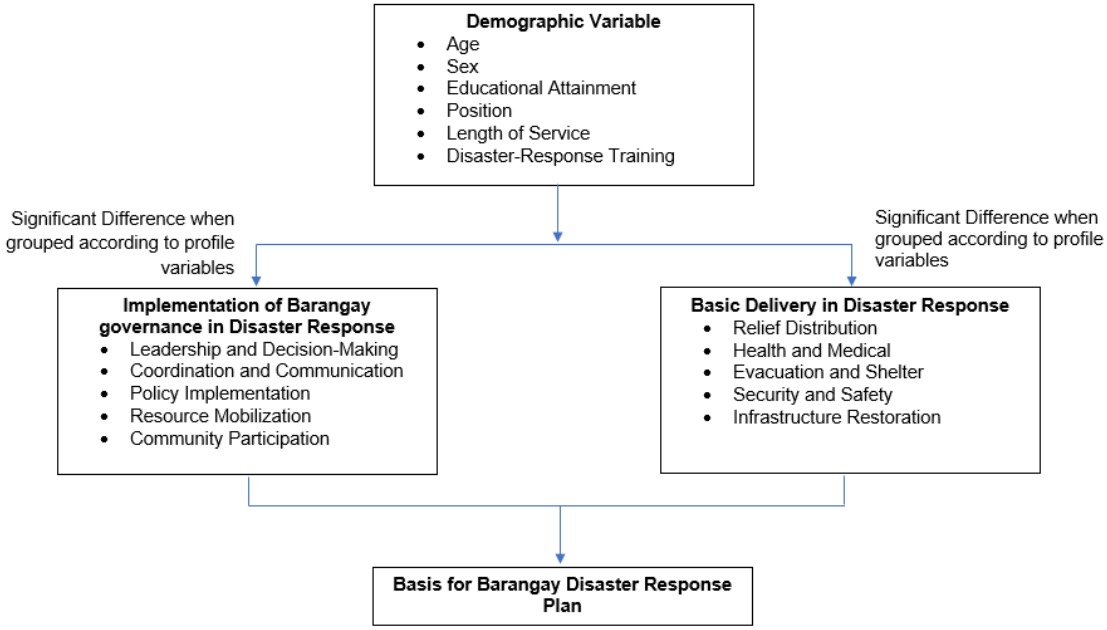

Figure 1. *Conceptual Framework of the Study*

METHODS

Research Design

The study employed a convergent parallel mixed-methods design in which quantitative and qualitative evidence was collected and interpreted as complementary strands. The quantitative component used a descriptive-correlational design to describe the implementation of barangay governance and the provision of basic services and to examine differences across respondent profile groups. The qualitative component used a phenomenological approach to capture the lived experiences, perceptions, and insights of barangay officials and residents regarding disaster-response effectiveness, strengths, barriers, and improvement needs.

Research Locale

The study was conducted in Barangay San Rafael, Rodriguez, Rizal, a densely populated barangay with urban, residential, and upland characteristics and exposure to flooding, landslides, strong typhoons, and related hazards. The thesis reported an estimated population of 33,312 residents distributed across 19 puroks and sitios. The barangay maintains DRRM structures and coordinates with the municipal DRRM office, civic organizations, and volunteer groups, making it an appropriate setting for examining the interaction of local governance and disaster-related service delivery.

Participants and Sampling Technique

Purposive sampling was used. For the quantitative strand, the population consisted of 138 barangay officials and workers directly involved in governance and disaster response. Application of Slovin's formula yielded a sample of 103 respondents. The represented positions included the Punong Barangay, Barangay Kagawad, SK officials, Barangay Secretary and Treasurer, Barangay Health Workers, Barangay Peacekeeping and Security Officers/Tanods, and BDRRMO personnel. For the qualitative strand, 10 barangay officials and 25 residents were purposively selected because of their direct experience in disaster governance or receipt of disaster-response services.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

Research Instrument

The researcher-made instrument contained three parts: respondent profile; barangay governance in disaster response; and basic service delivery in disaster response. Governance was measured across leadership and decision-making, coordination and communication, policy implementation, resource mobilization, and community participation. Service delivery covered relief goods distribution, health and medical services, evacuation and shelter management, security and safety services, and infrastructure and utilities restoration. Both substantive scales used four-point response formats. Semi-structured interview guides were also used with officials and residents to obtain contextual accounts of disaster-response experience.

Content validity was established through expert review in public administration and disaster risk reduction and management. The revised questionnaire was pilot-tested among respondents outside the actual sample. The thesis reported a Cronbach's alpha of .861, indicating acceptable internal consistency for the instrument.

Data Gathering Procedure

Formal permission was secured from the Barangay Captain and Sangguniang Barangay of San Rafael. Eligible participants received information about the study and provided informed consent. Survey questionnaires were administered in printed and online formats; 66 respondents completed the survey face-to-face and 37 responded online. After survey collection, semi-structured interviews were conducted with selected officials and residents. Survey responses were checked, encoded, and tabulated, while interview responses were documented and organized for qualitative analysis.

Data Analysis

Frequency counts and percentages summarized respondent characteristics, while weighted means described governance implementation and basic service delivery. Governance means of 3.26–4.00 were interpreted as Fully Implemented, and service-delivery means of 3.26–4.00 as Well Provided. Shapiro–Wilk tests indicated non-normal distributions for governance scores ($W = .92$, $p < .001$) and service-delivery scores ($W = .94$, $p < .001$); therefore, non-parametric tests were used. Mann–Whitney U tests examined dichotomous profile variables, Kruskal–Wallis tests examined multi-category variables, and significant Kruskal–Wallis results were followed by Dunn post hoc procedures. Qualitative responses were analyzed through a six-phase thematic-analysis process involving familiarization, coding, theme development, review, naming, and narrative synthesis.

Ethical Consideration

The study observed informed consent, voluntary participation, confidentiality, anonymity, non-maleficence, beneficence, honesty, transparency, and responsible data handling. Participants could withdraw without penalty, and identifying information was protected through coding and secure data storage. Data were reported without fabrication, falsification, or selective omission, and the research process was designed to minimize social, professional, and psychological risks to participants.

RESULTS AND DISCUSSION

Profile of Barangay Disaster-Response Personnel

The 103 quantitative respondents represented a broad range of ages, positions, educational backgrounds, and lengths of service. The largest age group was 18–27 years (19.4%), followed by 38–47 years (18.4%); men comprised 56.0% and women 44.0%. High school graduates accounted for 43.7%, while vocational/technical graduates represented 27.1%. Barangay Tanod/BPSO personnel comprised 43.7% of the respondents, Barangay Health Workers 26.2%, and BDRRMO personnel 12.6%. Most respondents had received relevant disaster-response training (73.8%). This composition reflects the role specialization required in local disaster operations and reinforces the importance of continuing competency development documented in Philippine barangay contexts (Lumabi et al., 2025; Tabanao et al., 2025).

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

Extent of Barangay Governance and Basic Service Delivery

Table 1. *Summary of Governance Implementation and Basic Service Delivery*

Domain	M	SD	Interpretation
Governance: Leadership and decision-making	3.29	0.29	Fully Implemented
Governance: Coordination and communication	3.20	0.31	Implemented
Governance: Policy implementation	3.40	0.28	Fully Implemented
Governance: Resource mobilization	3.41	0.32	Fully Implemented
Governance: Community participation	3.26	0.29	Fully Implemented
Service: Relief goods distribution	3.31	0.69	Well Provided
Service: Health and medical services	3.48	0.25	Well Provided
Service: Evacuation and shelter management	3.16	0.38	Provided
Service: Security and safety services	3.30	0.36	Well Provided
Service: Infrastructure and utilities restoration	3.34	0.31	Well Provided

Resource mobilization was the strongest governance domain (M = 3.41, SD = 0.32), closely followed by policy implementation (M = 3.40, SD = 0.28). Coordination and communication obtained the lowest governance mean (M = 3.20, SD = 0.31), placing it in the Implemented rather than Fully Implemented category. This pattern suggests that the barangay has functioning structures and can mobilize resources, but operational communication remains a priority for strengthening. The result is consistent with literature emphasizing that crisis performance depends on communication reliability and coordination across actors rather than leadership authority alone (Abbas & Miller, 2025; Boin et al., 2022).

Health and medical services received the highest service-delivery assessment (M = 3.48, SD = 0.25), followed by infrastructure and utilities restoration (M = 3.34, SD = 0.31) and relief-goods distribution (M = 3.31, SD = 0.69). Evacuation and shelter management was comparatively lower (M = 3.16, SD = 0.38) and interpreted as Provided. The findings indicate a generally responsive service system but also identify shelter adequacy and selected aspects of relief coverage and restoration as areas needing attention. This is consistent with evidence that resilient disaster systems must sustain healthcare, logistics, and infrastructure while also addressing service equity and continuity (Chen, 2021; Ferguson et al., 2024; Mfon & Olurotimi, 2023).

Differences Across Respondent Profile Groups

Table 2. *Statistically Significant Group Differences*

Outcome	Grouping variable	Test statistic	p	Decision
Governance: Coordination & communication	Position	Kruskal–Wallis H = 19.069	p = .014	Significant
Governance: Community participation	Length of service	Kruskal–Wallis H = 11.243	p = .024	Significant
Service: Relief goods distribution	Sex	Mann–Whitney U = 876.5	p = .047	Significant
Service: Health & medical services	Sex	Mann–Whitney U = 880.0	p = .045	Significant
Service: Security & safety services	Sex	Mann–Whitney U = 836.0	p = .022	Significant
Service: Infrastructure & utilities restoration	Sex	Mann–Whitney U = 806.0	p = .012	Significant
Service: Security & safety services	Length of service	Kruskal–Wallis H = 12.991	p = .011	Significant

Most governance dimensions did not significantly differ by sex, age, educational attainment, or disaster-response training. Position was associated with differences in coordination and communication, while length of service was associated with community participation. These findings suggest that organizational role and tenure may shape selected aspects of how governance processes are experienced, even when the overall pattern of implementation is broadly consistent. The result aligns with the view that role specialization and experience influence local operational coordination and preparedness (Lumabi et al., 2025; Tabanao et al., 2025).

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

For basic service delivery, age, educational attainment, position, and training did not produce significant differences across the reported service domains. Sex was associated with differences in relief goods distribution, health and medical services, security and safety services, and infrastructure and utilities restoration, while length of service was associated with security and safety services. Importantly, the overall provision score did not differ significantly by sex. The results indicate that selected operational experiences vary across groups even when the overall service system is perceived similarly, reinforcing the need for inclusive and clearly assigned response roles.

Qualitative Themes on Disaster-Response Effectiveness

Table 3. *Integrated Qualitative Themes*

Theme	Source-based interpretation
Competency-based effectiveness	Training, experience, and preparedness were viewed as stronger foundations of response competence than demographic characteristics.
Complementary roles in disaster response	Officials and residents described role specialization across age, sex, and formal responsibilities as important to coordinated action.
Structured but adaptive governance	Plans and RA 10121 protocols guided response, but decisions were adjusted according to urgency and hazard conditions.
Strong coordination and communication	Inter-agency coordination, radios, hotlines, group chats, and social media supported information flow and resource alignment.
Community participation and bayanihan	Volunteerism, mutual aid, drills, and resident participation strengthened local response capacity and shared responsibility.
Organized but uneven service delivery	Formal distribution and core services existed, but respondents reported uneven access and inconsistencies in assistance.
Resource and capacity constraints	Limited funds, equipment, and continuing training needs restricted operational reach and responsiveness.
Equity and consistency issues	Fairness, avoidance of favoritism, and equal access to assistance were central to public trust and perceived effectiveness.

The eight themes show that disaster-response effectiveness is produced by the interaction of institutional systems and community capacity. Competency-based effectiveness and complementary roles highlight the practical value of training, experience, and task specialization. Structured but adaptive governance reflects the need to retain standard procedures while allowing decisions to respond to changing hazard conditions. These findings resonate with work emphasizing adaptive, collaborative, and preparedness-oriented disaster governance (Albris et al., 2020; Fazeli et al., 2024; McNaught, 2024).

At the same time, the themes reveal a gap between organized procedures and residents' actual experiences of services. Community participation and bayanihan add operational capacity, yet resource constraints and concerns about fairness can weaken trust when assistance is perceived as uneven. Community resilience literature similarly emphasizes that effective disaster response depends on both institutional capacity and the active involvement of residents (Garingan, 2021; Kangana et al., 2024; Ma et al., 2023).

Proposed Barangay Disaster Response Plan

Table 4. *Core Components of the Proposed Barangay Disaster Response Plan*

Identified need	Proposed strategy	Expected outcome
Coordination and communication gaps	Flexible Emergency Response Structure with delegated authority	Faster decisions and improved inter-agency coordination
Limited institutionalized community participation	Community Bayanihan Disaster Network	Organized volunteerism and stronger community resilience
Resource dependence and acquisition delays	Resource Pooling Partnerships with private, civic, and homeowners' organizations	Additional disaster resources available when needed
Delays and inequities in relief distribution	Rapid Response Logistics Team with pre-positioned supplies and updated beneficiary records	Faster, transparent, and more equitable relief operations

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 8 (August 2026)

Preparedness activities need institutionalization	Regular barangay-wide drills and volunteer training	Sustained readiness among officials and residents

The proposed plan translates the quantitative and qualitative findings into practical interventions. Delegated emergency authority responds to communication and decision delays; the Community Bayanihan Disaster Network formalizes resident participation; resource-pooling partnerships address local resource constraints; and the Rapid Response Logistics Team strengthens timeliness, beneficiary validation, and equity. Regular drills and volunteer training provide a continuing preparedness mechanism. The approach is consistent with evidence that local disaster systems become more resilient through collaborative governance, community involvement, preparedness practice, and coordinated resource networks (Dai & Azhar, 2024; Edgington, 2021; McNaught, 2024).

CONCLUSION

The study demonstrates that Barangay San Rafael possesses functioning governance and basic service-delivery systems for disaster response. Governance practices were generally implemented at a high level, particularly in resource mobilization and policy implementation, while coordination and communication remained comparatively weaker. Basic services were likewise generally well provided, with health and medical services receiving the strongest assessment and evacuation and shelter management emerging as the principal area requiring further improvement. Most assessments were consistent across demographic groups, although selected differences according to position, length of service, and sex indicate that organizational roles and lived operational experiences shape particular aspects of disaster response. The qualitative evidence further shows that effective response depends on competency, complementary roles, adaptive governance, inter-agency communication, community participation, sufficient resources, and equitable service delivery. These combined findings provide a clear basis for a localized Barangay Disaster Response Plan that strengthens delegated coordination, organized volunteerism, resource partnerships, rapid logistics, fairness, and continuing preparedness.

Recommendation

Barangay officials and the BDRRMC should implement the proposed Barangay Disaster Response Plan, with priority given to emergency communication protocols, delegated authority, regular simulation exercises, volunteer organization, and continuous monitoring of service delivery. Annual post-disaster assessments should be institutionalized to identify operational gaps and update procedures, beneficiary records, resource inventories, and community risk information.

The Municipality of Rodriguez and the concerned local government units should provide continuing technical assistance, communication equipment, emergency resources, and support for evacuation-center improvement, medical-response systems, and infrastructure-restoration mechanisms. The Department of the Interior and Local Government may strengthen governance-focused DRRM training and adaptive operating procedures, while the Department of Health may expand Basic Life Support, first-aid, and rapid medical-response capacity. The Department of Social Welfare and Development should support updated beneficiary profiling and transparent, inclusive, and sex-responsive relief-distribution systems. Future studies may replicate the research in other barangays and examine additional outcomes such as citizen satisfaction, organizational capacity, community resilience, recovery effectiveness, and resource adequacy.

References

Abbas, R., & Miller, T. (2025). Exploring communication inefficiencies in disaster response: Perspectives of emergency managers and health professionals. *International Journal of Disaster Risk Reduction, 120*. https://doi.org/10.1016/j.ijdrr.2025.105393

Albris, K., Lauta, K. C., & Raju, E. (2020). Strengthening governance for disaster prevention: The Enhancing Risk Management Capabilities guidelines. *International Journal of Disaster Risk Reduction, 47*, 101647. https://doi.org/10.1016/j.ijdrr.2020.101647

Ayuningtyas, D., Windiarti, S., Hadi, M. S., Fasrini, U. U., & Barinda, S. (2021). Disaster preparedness and mitigation in Indonesia: A narrative review. *Iranian Journal of Public Health, 50(8)*. https://doi.org/10.18502/ijph.v50i8.6799

Blackman, D., Prayag, G., Nakanishi, H., Chaffer, J., & Freyens, B. (2023). Wellbeing in disaster recovery: Understanding where systems get stuck. *International Journal of Disaster Risk Reduction, 95*, 103839. https://doi.org/10.1016/j.ijdrr.2023.103839

Boin, A., Hart, P., Stern, E., & Sundelius, B. (2022). *The politics of crisis management*. Cambridge University Press. https://doi.org/10.1017/9781316339756

Botchie, D., Damoah, I. S., & Tingbani, I. (2022). From preparedness to coordination: Operational excellence in post-disaster supply chain management in Africa. *Production Planning & Control, 32(1)*, 1–18. https://doi.org/10.1080/09537287.2019.1680862

Chaladdee, A., Kim, S. M., Nitivattananon, V., Pal, I., Roy, J., & Roachanakanan, T. (2022). Trend analysis of mainstreaming flood risk reduction into spatial planning in Thailand. *Sustainability, 14(3)*, 1119. https://doi.org/10.3390/su14031119

Chen, Y. (2021). Relief goods distribution problem: Considering donation strategies, fairness, and interventions. *Progress in Disaster Science, 12*, 100198. https://doi.org/10.1016/j.pdisas.2021.100198

Dai, J., & Azhar, A. (2024). Collaborative governance in disaster management and sustainable development. *Public Administration and Development, 44(4)*, 358–380. https://doi.org/10.1002/pad.2071

Dariagan, J. D., Atando, R. B., & Asis, J. L. B. (2020). Disaster preparedness of local governments in Panay Island, Philippines. *Natural Hazards, 105(2)*, 1923–1944. https://doi.org/10.1007/s11069-020-04383-0

Disaster Risk Reduction Network Philippines. (2010). *Primer on the Disaster Risk Reduction and Management (DRRM) Act of 2010: Republic Act 10121*.

Edgington, D. W. (2021). Planning for earthquakes and tsunamis: Lessons from Japan for British Columbia, Canada. *Progress in Planning, 163*, 100626. https://doi.org/10.1016/j.progress.2021.100626

Fazeli, S., Haghani, M., Mojtahedi, M., & Rashidi, T. H. (2024). The role of individual preparedness and behavioural training in natural hazards: A scoping review. *International Journal of Disaster Risk Reduction, 105*, 104379. https://doi.org/10.1016/j.ijdrr.2024.104379

Ferguson, A., Ward, K., & Parke, R. (2024). What is known about resilient healthcare systems in the context of natural disasters? A scoping review. *Collegian*. https://doi.org/10.1016/j.colegn.2024.05.007

Garingan, E. G. (2021). Community based disaster preparedness: Need for a standardized training module. *International Journal of Disaster Management, 4(1)*, 11–22. https://doi.org/10.24815/ijdm.v4i1.20544

Islam, M. Z., & Wang, C. (2024). Cost of high-level flooding as a consequence of the climate change driver? A case study of China's flood-prone regions. *Ecological Indicators, 160*, 111944. https://doi.org/10.1016/j.ecolind.2024.111944

Kangana, N., Kankanamge, N., Silva, C. D., Goonetilleke, A., Mahamood, R., & Ranasinghe, D. (2024). Bridging community engagement and technological innovation for creating smart and resilient cities: A systematic literature review. *Smart Cities, 7(6)*, 3823–3852. https://doi.org/10.3390/smartcities7060147

Ledesma, A. R. C., Pepito, R., Tamsi, R. M. G., Ompad, J., Rizon, M., Jr., & Carmelotes, L. (2024). The effectiveness of BDRRMO's response to calamities in Barangay Jagobiao, Mandaue City, Philippines. *International Journal of Recent Advances in Multidisciplinary Research, 11*, 9470–9476.

Lumabi, J. C., Bayed, E., Co, N., Balbin, M. J., Keener, A., & Bayangan, B. (2025). Key factors strengthening disaster preparedness of Barangay Councils in Rizal, Kalinga. *International Journal of Language and Literary Studies, 7(4)*, 139–165. https://doi.org/10.36892/ijlls.v7i4.2235

Ma, C., Qirui, C., & Lv, Y. (2023). "One community at a time": Promoting community resilience in the face of natural hazards and public health challenges. *BMC Public Health, 23(1)*. https://doi.org/10.1186/s12889-023-17458-x

McNaught, R. (2024). The application of collaborative governance in local level climate and disaster resilient development—A global review. *Environmental Science & Policy, 151*, 103627. https://doi.org/10.1016/j.envsci.2023.103627

Mfon, I. E., & Olurotimi, O. J. (2023). Post-disaster reconstruction: Discussing strategies and approaches for rebuilding and designing resilient communities after natural or human-made disasters. *International Journal of Research Publication and Reviews, 4*, 945–952.

Ner, N. T., Okyere, S. A., Abunyewah, M., & Kita, M. (2022). Integrating resilience attributes into local disaster management plans in Metro Manila: Strengths, weaknesses, and gaps. *Progress in Disaster Science, 16*, 100249. https://doi.org/10.1016/j.pdisas.2022.100249

Tabanao, E. G., Pelletero, V. B., Salindo, P., Ubat, J., & Mahalay, R. (2025). Leadership and resilience: Evaluating rural development training for barangay officials. *Journal of Interdisciplinary Perspectives, 3(3)*. https://doi.org/10.69569/jip.2024.0690

United Nations Office for Disaster Risk Reduction. (2015). *Sendai framework for disaster risk reduction 2015–2030*. https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030