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Article

Local Government Readiness, Coordination Mechanisms, and Disaster Response Effectiveness in Flood-Prone Barangays of Cabanatuan City

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ABSTRACT

This study explored the disaster preparedness and response efficacy in flood-prone barangays of Cabanatuan City. It assessed local government units' preparedness, coordination mechanisms, and operational issues in disaster risk reduction and management (DRRM). The study used a quantitative descriptive-evaluative approach to measure readiness in four aspects and to assess the perceived success of disaster response activities. Findings showed strong readiness across all four aspects: Planning and Policies (M = 3.64, Highly Prepared), Resources (M = 3.53, Highly Prepared), Early Warning and Evacuation (M = 3.54, Highly Prepared), and Coordination (M = 3.54, Highly Prepared). Overall perceived success of DRRM execution was graded Very Effective (M= 3.56), reflecting good hazard dissemination, training, rescue operations, and relief provision. However, problems remained in managing evacuation centers, delivering relief supplies, and providing post-disaster support, exposing logistical deficiencies. The survey reveals that respondents regarded barangays as highly prepared and effective in DRRM implementation; however, systemic deficiencies in logistics and coordination remain. To strengthen DRRM, the study recommends policy review, resource optimization, resilient communication technologies, a unified command system, improved evacuation logistics, and institutionalized community engagement. These steps will strengthen governance capacity and promote inclusive disaster resilience.

KEYWORDS

Disaster risk reduction; flood governance; inter-agency coordination; barangay preparedness; governance effectiveness.

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1. Introduction

Urban flood governance is a hot topic in disaster management studies; however, most studies focus on technical mitigation methods or broad national policy frameworks. A more critical issue is how municipal preparedness and inter-agency collaboration shape disaster outcomes in flood-prone communities, particularly within rapidly urbanizing regions. Researchers have studied governance challenges in large metropolitan areas such as Metro Manila, but not in smaller yet strategically important cities. This gap matters because local government entities are the first responders, and their capacity to collaborate across agencies directly affects the effectiveness of flood risk reduction measures.

Although mid-sized cities in the Philippines are objectively exposed to periodic flood hazards, this exposure remains under-researched. Cabanatuan City exemplifies this susceptibility, ranking sixth in hazard exposure in the 2015 Natural Hazards Risk Atlas. Cabanatuan City's flat topography, large population, and dependence on interconnected river systems create a hazardous situation. Debate continues over whether the biggest obstacle to efficient coordination is fragmented government or resource constraints. This paper examines Cabanatuan City to address the empirical gap of scarce evidence from secondary cities and the theoretical gap of unclear sources of coordination issues.

This research contributes to the global conversation on flood governance by providing locally grounded evidence on how preparedness and coordination mechanisms operate in a mid-sized metropolitan context. It underscores the urgency of strengthening governance mechanisms beyond urban areas to operationalize resilience plans at the local level, not simply at the national level. The following objectives guided the study:

1. To assess the level of readiness of selected barangays in Cabanatuan City for typhoon and flood response in terms of:
    a. disaster preparedness planning and policies
    b. availability and adequacy of resources (personnel, equipment, budget)
    c. early warning systems and evacuation readiness
    d. inter-agency and barangay coordination mechanisms
2. To evaluate the perceived effectiveness of disaster response operations during recent typhoon and flood events as rated by LGU officials, barangay leaders, and frontline responders.

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1.1. Literature Review

Growing evidence shows that good governance, institutional coordination, early warning systems, and stakeholder participation are key to effective disaster preparedness. According to Sukhwani et al. (2019), effective flood early warning systems depend on institutional coordination, communication, stakeholder participation, and information dissemination, stressing that technological systems are not enough without coordinated institutional support. Similarly, Fujita and Shaw (2019) showed that tailoring flood hazard maps to local circumstances boosted community awareness of flood hazards and strengthened disaster preparedness through cooperation among technical experts, local authorities, and communities. Effective disaster communication is a critical strategy for enhancing community preparedness and lowering disaster risk. Continuous information sharing, community education, and stakeholder coordination support timely, informed emergency responses (Hayat et al., 2025). Recent research in flood-prone communities in Pampanga, Philippines, identified weak internet connectivity as a major barrier to digital readiness and highlighted the need for accessible warning communication and stronger local support systems (Santos, 2026). Capano and D'Angelo (2026) found that effective crisis management relies on leadership-driven coordination among multiple stakeholders, and Salam et al. (2026) found that coordination capacity positively affects flood governance effectiveness through communication, leadership, data sharing, trust, and joint mechanisms. De Boer et al. (2025) highlighted the cross-cutting character of flood control, which requires good coordination among many municipal departments with interdependent tasks. Sintha

et al. (2020) stressed that disaster-awareness activities should not be restricted to lectures and must include simulation-based preparedness training. Jose Moises et al. (2024) further stressed that institutional coordination and communication are crucial in both disaster resilience and the successful implementation of disaster risk reduction methods. Institutional collaboration and governance also play important roles in disaster resilience, as Rico (2019) found that partnerships among schools, local governments, and communities enhanced disaster awareness and preparedness through collaborative planning and capacity-building activities, and Goyal (2019) stressed that effective disaster governance requires clearly defined institutional responsibilities, coordinated planning, efficient utilization of resources, and active stakeholder participation. Gooding et al. (2022) further stress that inclusive coordination frameworks and well-defined institutional roles facilitate strong emergency management outcomes. Disaster response demands not just leadership but also coordinated logistics systems. Cross-regional coordination and multi-entity partnership can greatly increase the availability and delivery of relief resources during calamities (Yao et al., 2025). Local leadership also shapes disaster response outcomes: leaders who trust scientific warnings and act proactively are more likely to take preventive steps and coordinate stakeholders (Capano & D'Angelo, 2026). Sintha, Suryadi, and Syafari (2020) pointed out that disaster preparedness activities include hazard mapping, disaster planning, education, training, and the implementation of early warning systems, while Kanedy (2026) argued that collaborative governance provides a framework for government agencies, communities, volunteers, media organizations, and other stakeholders to work together in reducing disaster risk and in sustainable flood management. Community resilience is essential for disaster preparedness, and awareness programs, practical training, and community engagement make people more informed, improve their response capacity, and change their behavior to be more adaptive to flood threats (Weerakoon & Dharmapriya, 2021). A survey-based study in Serbia further showed that demographic and socioeconomic characteristics were associated with different dimensions of community social resilience, underscoring the importance of context-sensitive resilience-building measures (Cvetković & Šišović, 2024). Disaster resilience necessitates good coordination among government agencies, private organizations, and other stakeholders. Collaborative emergency management solutions enhance resource allocation, response efficiency, and overall resilience (Wang et al., 2022). Hao et al. (2024) also highlighted the need for coordinated action across four components of urban flood disaster management: prevention and preparedness, monitoring and early warning, response and rescue, and recovery and reconstruction. Interaction among these components plays a major role in governance and resilience-building efforts. Perić and Cvetković (2019) showed that demographic, socio-economic, and psychological factors influence flood risk perception and preparedness and that raising public knowledge and risk communication can lead to preventive actions and increased community preparedness. Hayat et al. (2025) also noted that volunteer formation, disaster training programs, simulation exercises, and public awareness campaigns enable communities to respond more effectively to flood-related disasters. These studies collectively suggest that effective disaster preparedness and response require integrated governance, coordinated institutions, stakeholder collaboration, and informed communities, and provide a relevant basis for the present study of local government preparedness and perceived disaster response effectiveness.

1.2. Theoretical Framework

The current study is grounded in Institutional Theory, created by Meyer and Rowan (1977) and further refined by DiMaggio and Powell (1983). The idea argues that institutional legitimacy and performance are achieved through formal structures, policies, resource allocation, and coordinating mechanisms that influence organizational effectiveness.

Institutional theory within the framework of disaster risk reduction and management (DRRM) is grounded on the assumption that local government disaster management effectiveness relies on institutional arrangements that facilitate planning, resource allocation, early warning, and inter-agency coordination. This study uses this theory to examine disaster preparedness planning and policies, resources, early warning systems and evacuation readiness, and coordination mechanisms as institutional capacities that contribute to respondents' perceived disaster response effectiveness in

Cabanatuan City. As a cross-sectional poll, the results reflect respondents' impressions rather than objectively verifiable organizational performance. The results confirm that local government readiness depends on institutional characteristics such as preparedness, budgetary capacity, communication systems, and inter-agency relationships (Cvetković et al., 2021). (Figure 1)

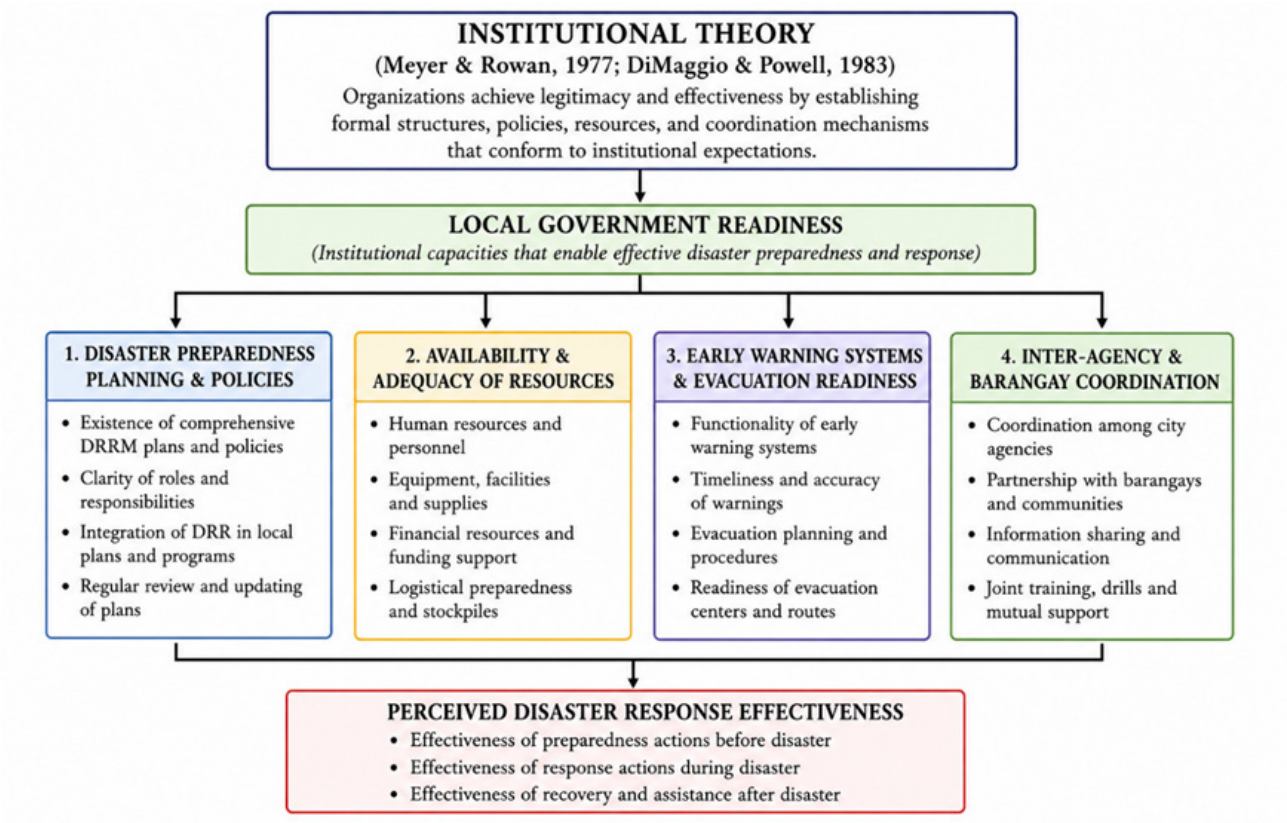


Figure 1. Conceptual Framework of the Study Based on Institutional Theory.

The study's theoretical framework is illustrated using Institutional Theory. The theory posits that local government preparedness for disasters comprises four institutional dimensions: disaster preparedness planning and policies, availability and adequacy of resources, early warning systems and evacuation readiness, and inter-agency and barangay coordination. These dimensions are the basic elements used to assess the effectiveness of disaster response as perceived by government officials and frontline responders. The results align with earlier studies suggesting that infrastructure resilience (transportation, communication systems, water supply, and access to health services) is important for the successful implementation of flood resilience efforts (Weerakoon & Dharmapriya, 2021). This research also outlines four key elements of an effective Early Warning System: risk awareness, monitoring and warning services, dissemination and communication, and response capacity, which can serve as benchmarks for assessing preparedness for flood catastrophes (Tedjaprasadja, 2025). Moreover, the collaborative governance framework identifies four main dimensions required for effective flood disaster management: initial conditions, institutional design, facilitative leadership, and collaborative processes that influence stakeholder collaboration, resource sharing, decision-making, and flood disaster management outcomes (Kanedy, 2026). In addition, flood disaster emergency management can be analyzed in four aspects: prevention and preparedness, monitoring and early warning, response and rescue, and recovery and reconstruction, which together constitute a complete emergency management system (Hao et al., 2024).

1.3. Significance of the Study

The preparedness level of selected barangays in Cabanatuan City for typhoon and flood response is an important factor in enhancing disaster risk reduction and management (DRRM). The study as-

sesses respondents' views on disaster preparedness planning and policies, availability of resources, early warning systems, coordination mechanisms, sms and disaster response effectiveness to identify institutional strengths and areas of improvement.

The findings provide evidence-based information that could help local government units and other DRRM stakeholders improve preparedness, enhance disaster response operations, and increase institutional capability. The report also offers practical recommendations for developing a more resilient, adaptable, and sustainable DRRM system in Cabanatuan City.

2. Methods

2.1. Study Design

This study employed a quantitative descriptive- evaluative design to assess respondents' self-reported perceptions of local government readiness for typhoon and flood response across planning, resources, early warning systems, and coordination mechanisms, as well as their perceived effectiveness of disaster response operations. The study measured respondents' assessments and did not objectively verify actual preparedness levels or operational performance.

2.2. Population and Locale of the Study

The study was conducted in Cabanatuan City, Nueva Ecija, Philippines, focusing on five flood-prone barangays: Aduas Sur, Aduas Norte, Bagong Sikat, Barlis, and Barrera. The researchers selected 40 respondents through purposive sampling because of their direct involvement in disaster risk reduction and management (DRRM) planning, coordination, and emergency response. The respondents included 10 personnel from the City Government of Cabanatuan, primarily from the City Disaster Risk Reduction and Management Office (CDRRMO), and six (6) respondents each from Barangays Aduas Sur, Aduas Norte, Bagong Sikat, Barlis, and Barrera, for a total of 40 participants.

Respondents were included in the study if they: (1) held an official position in the City Government or the selected barangays with responsibilities related to disaster risk reduction and management; (2) had direct involvement in disaster preparedness, response, or coordination activities; and (3) voluntarily agreed to participate by providing informed consent. The study excluded individuals without DRRM-related responsibilities or those who declined participation.

All 40 questionnaires were retrieved, resulting in a 100% response rate. The sample size of 40 was considered adequate because the study employed purposive sampling targeting key informants with direct responsibilities in disaster risk reduction and management. The objective was to obtain informed assessments from officials possessing specialized knowledge and operational experience rather than to estimate population parameters or generalize findings to all residents of Cabanatuan City.

2.3. Data Gathering Tools

The primary instrument was a structured survey questionnaire titled "Local Government Readiness, Coordination Mechanisms, and Disaster Response Effectiveness in Flood-Prone Barangays of Cabanatuan City." It was adapted from established disaster preparedness frameworks, particularly the Local Government Unit Disaster Preparedness Manual for City and Municipal LGUs developed by the Local Government Academy (2018). Pacific Disaster Center Baseline Assessment (2018) contextualized to the Cabanatuan setting. The questionnaire was designed to obtain respondents' self-reported assessments of local government readiness and perceived effectiveness of disaster response operations based on their professional knowledge and operational experience.

For the disaster response effectiveness section, respondents were instructed to base their assessments on recent typhoon and flood events that affected Cabanatuan City. These included Severe Tropical Storm Kristine (October 2024), which caused widespread flooding and affected numerous barangays in the city, prompting evacuation, relief, and emergency response operations, as well as subsequent typhoon events such as Typhoon Nika (November 2024), Typhoon Pepito (November 2024), Super Typhoon Nando (2025), and Typhoon Uwan (2025), which required the activation of local disaster preparedness and response mechanisms. These events served as the common reference period for respondents' assessments of disaster response effectiveness.

A four-point Likert scale was employed to encourage decisive local government evaluation and eliminate neutral midpoint bias. For preparedness domains, responses range from 1 (Not Prepared) to 4 (Highly Prepared). For effectiveness indicators, responses range from 1 (Not Effective) to 4 (Very Effective).

The instruments were validated using a layered approach to ensure both reliability and validity. A subject matter expert validated the questionnaire by evaluating each item for clarity, relevance, and appropriateness. The researchers incorporated the expert's recommendations to improve the instrument before pilot testing. To establish the instrument's reliability, the researchers conducted a pilot test among 35 respondents with characteristics similar to the target population but who were not included in the actual study. The pilot-test participants consisted of ten (10) barangay officials from Barangay Caanawan, ten (10) barangay officials from Barangay Malasin, and fifteen (15) personnel from the City Disaster Risk Reduction and Management Office (CDRRMO) of San Jose City. The researchers analyzed the pilot-test data using Cronbach's alpha to determine the internal consistency reliability of each domain. The results indicated excellent internal consistency across all domains: Disaster Preparedness Planning and Policies (α = 0.927), Availability and Adequacy of Resources (α = 0.919), Early Warning Systems and Evacuation Readiness (α = 0.940), Inter-Agency and Barangay Coordination Mechanisms (α = 0.903), and Effectiveness of DRRM Efforts (α = 0.967). The researchers further strengthened construct validity by mapping each questionnaire item to the study's conceptual framework based on Institutional Theory, ensuring consistency with the study objectives and variables.

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2.4. Data Gathering Procedures

Before data collection, the researchers obtained formal approval from the Cabanatuan City LGU and five selected barangays to ensure compliance with local regulations and facilitate access to participants. The researchers secured informed consent from all respondents and clearly explained the study's purpose, procedures, benefits, and rights, including the option to withdraw at any time without consequence.

The researchers distributed the survey questionnaires in person during scheduled visits. Respondents were given up to two weeks to complete and return the forms, after which the researchers retrieved them to ensure full participation.

2.5. Treatment of Data

Local government preparedness and disaster response effectiveness were conceptualized as measurable constructs derived from established DRRM frameworks. Preparedness was measured through four dimensions: planning and policies, resources, early warning and evacuation readiness, and coordination mechanisms. Disaster response effectiveness was measured using respondents' Likert-scale ratings of perceived disaster response operations during recent typhoon and flood events.

Quantitative data were analyzed using descriptive statistics, including weighted means and standard deviations, to summarize respondents' self-reported assessments of local government readiness and perceived disaster response effectiveness. The composite mean for each domain was obtained

by averaging the weighted mean scores of all items within the respective domain. In contrast, the composite standard deviation summarized variability in respondents' ratings across items. The weighted mean scores were interpreted using equal class intervals derived from the four-point Likert scale: 3.26–4.00 (Highly Prepared/Very Effective), 2.51–3.25 (Prepared/Effective), 1.76–2.50 (Least Prepared/Slightly Effective), and 1.00–1.75 (Not Prepared/Not Effective).

2.6. Ethical Considerations

Before data collection, the researchers obtained permission from the City Government of Cabanatuan City to conduct the study. All respondents received an informed consent form explaining the study's purpose, the voluntary nature of participation, and their right to withdraw at any time without penalty. The researchers maintained confidentiality and anonymity in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173), and used all information solely for academic and research purposes. To minimize response bias, respondents were encouraged to provide honest, objective responses based on their professional knowledge and experience.

3. Results

3.1. Level of Readiness of the Selected Barangays in Cabanatuan City for Typhoon and Flood Response

3.1.1. Disaster Preparedness Planning and Policies

Table 1 presents respondents' perceived level of readiness in disaster preparedness planning and policies. The composite mean was 3.64 (SD = 0.54), interpreted as Highly Prepared. Respondents rated integrating DRRM into local development and land use plans (M = 3.68) and regularly convening the Local Disaster Risk Reduction and Management Council (M = 3.65) highest. The lowest-rated indicator was establishing clear policies on pre-emptive evacuation (M = 3.60), although it remained in the same descriptive category (Table 1).

Table 1. Disaster Preparedness Planning and Policies

Statements	Mean	SD	Interpretation
1. An updated Local Disaster Risk Reduction and Management Plan (LDRRMP) is maintained	3.63	0.67	Highly Prepared
2. The Local Disaster Risk Reduction and Management Council (LDRRMC) is regularly convened.	3.65	0.58	Highly Prepared
3. Roles and responsibilities in disaster response are clearly defined and documented.	3.65	0.66	Highly Prepared
4. DRRM is integrated into the local development and land use plans.	3.68	0.47	Highly Prepared
5. Flood-prone and high-risk areas within the LGU are properly identified and mapped.	3.65	0.62	Highly Prepared
6. Clear policies on pre-emptive evacuation have been established.	3.60	0.59	Highly Prepared

Statements	Mean	SD	Interpretation
7. Disaster preparedness drills are regularly conducted.	3.63	0.59	Highly Prepared
8. A documented contingency plan specific to typhoons and flooding is being maintained.	3.63	0.59	Highly Prepared
Composite Mean	**3.64**	**0.54**	**Highly Prepared**

3.1.2. Availability and Adequacy of Resources (Personnel, Equipment, Budget)

Table 2 shows the respondents' perceived readiness regarding the availability and adequacy of resources. The composite mean was 3.53 (SD = 0.58), interpreted as Highly Prepared. Trained search and rescue personnel (M = 3.60) and the availability of functional rescue equipment (M = 3.58) received the highest ratings. Meanwhile, the accessibility of the Quick Response Fund (M = 3.43) and budget allocation (M = 3.48) obtained the lowest ratings (Table 2).

Table 2. Availability and Adequacy of Resources (Personnel, Equipment, Budget)

Statements	Mean	SD	Interpretation
1. There are trained search and rescue (SAR) personnel available for deployment.	3.60	0.78	Highly Prepared
2. Disaster response personnel receive regular training and capacity-building programs.	3.55	0.78	Highly Prepared
3. LGU has an adequate workforce for evacuation center management.	3.50	0.82	Highly Prepared
4. Barangay DRRM officers are properly designated and trained.	3.50	0.68	Highly Prepared
5. LGU maintains functional rescue and emergency equipment (boats, communication devices).	3.58	0.71	Highly Prepared
6. LGU maintains adequate stockpiles of emergency supplies (food, water, medicine).	3.58	0.59	Highly Prepared
7. Evacuation centers are properly equipped and maintained.	3.58	0.59	Highly Prepared
8. LGU allocates at least 5% of its annual budget to the Local DRRM Fund.	3.48	0.60	Highly Prepared
9. The Quick Response Fund is readily accessible during emergencies.	3.43	0.78	Highly Prepared
Composite Mean	**3.53**	**0.58**	**Highly Prepared**

3.1.3. Early Warning Systems and Evacuation Readiness

Table 3 presents the respondents' perceived readiness in terms of early warning systems and evacuation readiness. The composite mean was 3.54 (SD = 0.58), interpreted as Highly Prepared. The highest-rated indicator was the inspection of evacuation centers before typhoon season (M = 3.63), while flood markers and evacuation route identification both received the lowest mean of 3.50 (Table 3).

Table 3. Early Warning Systems and Evacuation Readiness

Statement	Mean	SD	Interpretation
1. LGU coordinates with PAGASA for timely weather advisories.	3.53	0.64	Highly Prepared
2. Early warning advisories are disseminated promptly to all barangays.	3.55	0.85	Highly Prepared
3. LGU uses multiple communication channels for disaster alerts.	3.58	0.64	Highly Prepared
4. Flood markers and warning signs are installed in high-risk areas.	3.50	0.72	Highly Prepared
5. LGU has clear evacuation triggers and protocols.	3.53	0.68	Highly Prepared
6. Evacuation routes are identified and marked.	3.50	0.68	Highly Prepared
7. Transportation is available for vulnerable populations during evacuation.	3.55	0.68	Highly Prepared
8. Evacuation centers are pre-identified and inspected before typhoon season.	3.63	0.59	Highly Prepared
Composite Mean	**3.54**	**0.58**	**Highly Prepared**

3.1.4. Inter-Agency and Barangay Coordination Mechanisms

Table 4 presents the respondents' perceived readiness regarding coordination mechanisms. The composite mean was 3.54 (SD = 0.60), interpreted as Highly Prepared. Coordination with the NDRRMC and post-disaster evaluation meetings received the highest ratings (M = 3.65), while partnerships with hospitals and the private sector received the lowest ratings (M = 3.40) (Table 4).

Table 4. Inter-Agency and Barangay Coordination Mechanisms

Statements	Mean	SD	Interpretation
1. LGU maintains coordination protocols with NDRRMC.	3.65	0.58	Highly Prepared
2. LGU coordinates with PNP for security and crowd control during disasters.	3.60	0.67	Highly Prepared
3. LGU coordinates with AFP or other agencies when additional support is needed.	3.40	0.81	Highly Prepared
4. Barangay officials actively participate in disaster planning and response.	3.48	0.82	Highly Prepared
5. LGU has agreements or partnerships with hospitals and private sector partners	3.40	0.74	Highly Prepared
6. There is a reporting system between barangays and the LGU during disaster events.	3.60	0.67	Highly Prepared

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Statements	Mean	SD	Interpretation
7. Post-disaster evaluation and coordination meetings are conducted.	3.65	0.58	Highly Prepared
Composite Mean	3.54	0.60	Highly Prepared

3.2. Perceived Effectiveness of Disaster Response Operations During Recent Typhoon and Flood Events

Table 5 presents respondents' perceptions of the effectiveness of disaster response activities during recent typhoon and flood events. The total mean was 3.56 (SD = 0.61). This was seen as Very Effective. Risk reduction programs (M = 3.68) and metrics related to hazard information, disaster training, inter-agency collaboration, and DRRM implementation (M = 3.63) received the highest scores. However, evacuation center management (M = 3.40), post-disaster support (M = 3.45), and relief operations (M = 3.48) obtained relatively lower scores, but all indicators are under the "Very Effective" category (Table 5).

Table 5. Perceived Effectiveness of Disaster Response Operations During Recent Typhoon and Flood Events

Statements	**Mean**	**SD**	**Interpretation**
1. The city implements effective flood prevention measures.	3.55	0.78	Very Effective
2. Hazard information is properly shared with barangays.	3.63	0.63	Very Effective
3. Risk reduction programs help minimize disaster impact.	3.68	0.57	Very Effective
4. Early warning systems provide timely alerts to residents.	3.55	0.75	Very Effective
5. Barangays conduct preparedness meetings and awareness activities.	3.50	0.72	Very Effective
6. Evacuation plans are clearly communicated to the community.	3.58	0.75	Very Effective
7. Disaster training improves readiness among responders.	3.63	0.67	Very Effective
8. Rescue teams respond quickly during typhoons and floods.	3.58	0.78	Very Effective
9. Evacuation centers are organized and well-managed.	3.40	0.74	Very Effective
10. Communication between city officials and barangays is efficient.	3.63	0.63	Very Effective
11. Relief operations are systematic and timely.	3.48	0.75	Very Effective
12. Post-disaster assistance reaches affected residents promptly.	3.45	0.78	Very Effective
13. Recovery programs help communities return to normal conditions.	3.53	0.72	Very Effective
14. Coordination between agencies strengthens rehabilitation efforts.	3.63	0.54	Very Effective
15. Overall DRRM implementation reduces risks during disasters.	3.63	0.67	Very Effective
16. The recovery programs are effective in ensuring their long-term sustainability and alignment with global standards for peace, justice, and sustainable cities.	3.58	0.71	Very Effective
Mean	3.56	0.61	Very Effective

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4. Discussion

4.1. Level of Readiness of the Selected Barangays in Cabanatuan City for Typhoon and Flood Response

The results show that respondents perceived the selected barangays in Cabanatuan City as highly prepared across the four dimensions of disaster preparedness: disaster preparedness planning and policies, availability and adequacy of resources, early warning systems and evacuation readiness, and inter-agency and barangay coordination. Among these dimensions, disaster preparedness planning and policies recorded the highest composite mean, reflecting the perception that institutional planning and policy mechanisms are well established. This aligns with Sari & Wibawani (2025), who emphasized that effective mitigation depends on formal planning mechanisms, risk assessment, and the integration of disaster concerns into local governance processes. Similarly, De Boer et al. (2025) highlighted the importance of comprehensive planning instruments in strengthening municipal flood preparedness and resilience. Salam et al. (2026) further showed that policy integration plays an important mediating role between coordination capacity and flood governance effectiveness. Local governments play an important role in mitigating flood disasters through preparedness, early warning, education, infrastructure development, and disaster risk reduction policies. These initiatives lower community vulnerability and enhance disaster preparedness (Ishaq & Chowdhury, 2024).

Additionally, disaster preparedness includes preventive, mitigation, readiness, response, recovery, and rehabilitation actions supported by well-defined policies and operational plans. Institutions that have continuously implemented these actions have shown higher levels of readiness (Balanggoy, 2024). Together, these results highlight the significance of policy integration, institutional coordination, and consistent execution of disaster risk reduction strategies to improve the effectiveness of flood governance and community resilience. Although respondents rated resources as well prepared, the lower scores in funding, accessibility of the Quick Response Fund, and partnerships with hospitals and the private sector reflect findings by Valentina et al. (2024), who found that financial and logistical limitations remain prevalent among local disaster management agencies, and De Boer et al. (2025), who found institutional fragmentation and resource constraints to be barriers to effective flood management, with Rosmadi et al. (2023) highlighting the main challenges in flood risk management as coordination, manpower, assets, public awareness, and organizational authority. This positive review of early warning systems aligns with Valentina et al. (20,24), who found that timely warning dissemination and evacuation mechanisms enhance preparedness, and Tedjaprasadja (20,25), who emphasized that effectiveness depends on community participation, localized implementation, and cross-sectoral coordination. Hao et al. (2024) noted that monitoring and early warning systems enable timely communication and coordinated responses. Capano & D'Angelo (2026) mentioned that leaders should trust forecasts and act proactively. Jose Moises et al. (2024) emphasized the value of forecasting, communication, and stakeholder collaboration. This high level of perceived coordination is consistent with Sari & Wibawani (2025), who argued that inter-organizational collaboration enhances mitigation; Sintha et al. (2020), who highlighted partnership and mutual support; and Rosmadi et al. (2023), who found that insufficient coordination hinders flood management. Sukhwani et al. (2019) and Fujita & Shaw (2019) underlined the need for institutional structures, stakeholder participation, and effective communication, while Kanedy (2026) noted the importance of community leaders for resource mobilization and risk communication. Wang et al. (2022) further stressed resource mobilization and emergency response coordination to support governance and institutional collaboration; Rico (2019) highlighted collaboration among schools, government, and communities; and Goyal (2019) emphasized clear responsibilities and efficient resource use. Hayat et al. (2025) highlighted multi-stakeholder collaboration in preparedness and recovery. Hao et al. (2024) identified recovery and reconstruction as significant variables shaping disaster management synergy. The findings imply that, from an Institutional Theory perspective, readiness is linked to existing policies, organizational structures, and coordinated governance mechanisms that shape disaster preparedness operations. However, the somewhat lower ratings on resource availability and external collaborations suggest that while institutional frameworks exist, ongoing efforts to boost resource assistance and multi-sectoral collaboration may further improve local disaster preparedness.

4.2. Perceived Effectiveness of Disaster Response Operations During Recent Typhoon and Flood Events

The study results showed that respondents viewed Cabanatuan City's disaster response operations as very effective, particularly in hazard information dissemination, disaster risk reduction initiatives, responder training, rescue operations, and inter-agency coordination. However, the relatively lower scores in the management of evacuation centers, relief operations, and post-disaster assistance imply that while the disaster response was generally perceived well, operational components, including the continuation of logistical support and resource management, may need to be further improved. While these indicators fall within the same descriptive category, the difference in mean scores suggests opportunity for continuing development in disaster response operations." Effective management of evacuation centers includes consideration of flood exposure, landslide hazards, storm surges, liquefaction risk, access to health care, communication facilities, water supply, and transportation (Aniñon & Oreta, 2026). The results are consistent with those of Yao et al. (2025), who found that mechanisms for coordinated resource sharing have a positive impact on response capacity and disaster relief distribution in large-scale emergencies, and Salam et al. (2026), who argued that sustainable flood management depends on integrated financing mechanisms, ongoing operations and maintenance funding, and coordinated resource allocation across agencies and jurisdictions. The respondents' positive view of disaster response efficacy aligns with Valentina et al. (2024), who showed that training, readiness programs, and coordinated rescue efforts are essential to good disaster management outcomes. This study's findings support Santos (2020), who found that community-based disaster management in Cabanatuan City was perceived as effective in early warning dissemination, disaster prevention activities, rescue operations, and relief assistance, but recommended continued capacity building for responders. The relatively lower ratings for evacuation center management, relief operations, and post-disaster assistance align with findings by Dariagan et al. (2021), who observed that evacuation and relief were among the least developed components of local government disaster preparedness because of limited facilities, equipment, personnel, and institutional support. This demonstrates that effectiveness depends not only on emergency operations but also on adequate logistical resources and community readiness. Similarly, Sagun (2025) found that disaster mitigation response across local governments was usually effective in communication, preparedness, and coordination, but performance was affected by inequalities in equipment, evacuation facilities, funding, and operational resources. Amriampa et al. (2024) observed that disaster response efforts may be beneficial during emergencies, but limited resources, reactive coordination systems, and poor institutional capacity hamper long-term effectiveness. This finding corresponds to the fact that coordination among emergency response agencies is a key factor in the effectiveness of disaster response, as strong inter-agency cooperation enhances resource mobilization, emergency operations, rescue activities, and overall efficiency in disaster management (Pimentel & Azuelo, 2026).

Furthermore, Mokhele (2024) observed that institutional capacity, decision-making power, and resource availability are important determinants of the efficacy of disaster management at the municipal level. Likewise, Febriyanti et al. (2025) highlighted that an effective catastrophe response requires proactive coordination among government agencies, communities, and stakeholders. The study found that planning, communication, coordination, early warning systems, training, and community participation contributed to increased readiness. Persistent obstacles include inadequate equipment, restricted finances, and insufficient human resources.

Together, these studies highlight the need to strengthen institutional capacity, improve inter-agency coordination, promote stakeholder collaboration, and ensure adequate resource allocation to enhance the effectiveness and sustainability of disaster response and management efforts.

Tedjaprasadja (2025) also stated that towns with emergency protocols, trained volunteers, regular exercises, and evacuation infrastructure are more responsive to flood disasters. When analyzed through the lens of Institutional Theory, the results indicate that respondents interpreted disaster response efficacy as a manifestation of established institutional arrangements, standardized procedures, and coordinated governance systems. Yet the relatively low scores for management of evacuation centers, relief operations, and post-disaster assistance suggest that institutional reform should go beyond emergency response to include increased logistical support, resource allocation,

and recovery-related services. Since the results are based on respondents' impressions, they should be understood as perceived efficacy rather than scientifically verified performance. Effective disaster response relies on well-coordinated resource-allocation systems that ensure timely delivery of emergency supplies to affected areas, and coordination mechanisms that enhance responsiveness, fairness, and operational efficiency in disaster response operations (Wang et al., 2022).

4.3. Limitations of the Study

The following limitations should be kept in mind when interpreting this study's findings.

First, the results were based on self-reported assessments of government officials and frontline responders and thus represent perceived local government readiness and disaster response efficacy rather than objectively validated operational performance. Because respondents rated their own institutions' readiness, social desirability and common-method bias may have contributed to the consistently high evaluations. Second, the study used purposive sampling and reported the findings in aggregate. As such, the results represent an overall assessment of the participating institutions and should not be generalized to the wider population or interpreted as differences among individual barangays or stakeholder groups. Third, the study did not include objective performance metrics such as reaction time, warning distribution, evacuation effectiveness, resource use, or post-disaster recovery results. Finally, the cross-sectional approach limits the findings to respondents' impressions at one time point. It does not allow inferences about disaster response efficacy across the many phases of disaster management. Future studies should include objective performance indicators, more stakeholders, subgroup analyses, and longitudinal or mixed-methods designs for a more comprehensive assessment of the effectiveness of disaster preparedness and response.

5. Conclusions

The study results revealed that respondents perceived the selected barangays in Cabanatuan City as highly prepared in disaster preparedness planning and policies, availability and adequacy of resources, early warning systems and evacuation readiness, and inter-agency and barangay coordination for typhoon and flood response. Respondents also viewed the city's disaster response efforts as very successful in hazard information dissemination, disaster risk reduction programs, responder training, and inter-agency coordination.

However, despite these positive views, relatively lower scores for evacuation center administration, relief operations, and post-disaster support point to areas that should be further addressed in disaster response operations. In summary, the findings provide evidence of respondents' positive evaluations of the local government's preparedness and responsiveness to disasters and highlight operational areas for improvement. The findings could serve as a reference for increasing disaster risk reduction and management planning, coordination, and resource allocation in Cabanatuan City.

Author Contributions: Marivic Posadas served as the primary author and was responsible for the conceptualization, methodology, conduct of the majority of the research activities, survey administration, data gathering, and preparation of the original manuscript. Lailanie Baldovino assisted in conducting the actual surveys and contributed to the interpretation and discussion of the research findings. Michael S. Guina-at contributed to pilot testing, gathering related literature, and providing inputs on the interpretation of the results. Blessie Joy A. Menzi assisted in revising and improving the manuscript by addressing comments and recommendations. Warren G. Moyao provided academic guidance, research direction, and valuable inputs that contributed to strengthening the content and overall quality of the study. Caroline C. Chelnag, Immanuel Jesus A. Fernandez, and Jose B. Omingle provided supplementary assistance through suggestions and feedback during the research process.

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Informed Consent Statement: We obtained informed consent from all survey participants.

Data Availability Statement: The data supporting the findings of this study are available from the corresponding author upon reasonable request. However, access to the raw survey responses may be restricted to protect the confidentiality and privacy of the respondents.

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