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Flood Preparedness Governance in Disruptive Times: Evidence-Based Basis For A Resiliency Framework in Quezon City

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Abstract

Urban flooding remains a persistent governance challenge in highly urbanized areas such as Quezon City, Philippines. This study examined flood preparedness governance during disruptive times and its influence on resiliency outcomes. Anchored on Adaptive Governance Theory, the study utilized a descriptive-quantitative design involving Disaster Risk Reduction and Management Office (DRRMO) personnel and barangay responders. Key governance variables included institutional coordination, policy implementation, capacity building, risk communication, and community participation. Statistical tools such as weighted mean, t-test, ANOVA, and regression analysis were employed. Results revealed that governance practices were moderately implemented, with institutional coordination and risk communication emerging as the strongest predictors of resiliency. Significant differences were observed across respondent profiles, indicating uneven governance implementation. The study proposes a governance-oriented resiliency framework emphasizing adaptive, participatory, and coordinated approaches to flood preparedness.

Keywords: *Flood Preparedness, Disaster Governance, Adaptive Governance, Urban Flooding, Resiliency Framework, Risk Communication, Institutional Coordination, Community Participation, Capacity Building, Quezon City*

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1. Introduction

Urban flooding has emerged as one of the most disruptive and recurrent hazards affecting metropolitan areas in developing countries, particularly in rapidly urbanizing cities such as Quezon City, Philippines. The intensification of extreme rainfall events associated with climate change, combined with rapid population growth, inadequate drainage infrastructure, and unregulated land-use practices, has significantly increased flood exposure and vulnerability (Cutter et al., 2020; UNDRR, 2022). In densely populated urban centers, flooding not only damages physical infrastructure but also disrupts livelihoods, displaces communities, and places considerable strain on governance systems.

Quezon City, one of the largest and most populous cities in Metro Manila, is highly susceptible to flooding due to its geographic and hydrological characteristics. The presence of major river systems such as the Tullahan River and its tributaries exposes several barangays to recurrent inundation during heavy rainfall events (Quezon City Government, 2021). Despite ongoing flood mitigation efforts and preparedness programs, flooding remains a persistent challenge, particularly during typhoons and periods of intensified monsoon rains. These recurring events highlight critical concerns regarding the effectiveness of existing flood preparedness governance mechanisms.

In response to increasing disaster risks, the Philippine government has institutionalized Disaster Risk Reduction and Management (DRRM) through the enactment of Republic Act No. 10121, which emphasizes preparedness, prevention, and resilience. At the international level, the Sendai Framework for Disaster Risk Reduction 2015–2030 underscores the importance of strengthening disaster risk governance as a foundation for resilience (UNDRR, 2022). These frameworks promote early warning systems, contingency planning, capacity building, and inter-agency coordination. However, the effectiveness of these initiatives largely depends on how governance structures function at the local level.

Literature Review Integration

Recent scholarship emphasizes that flood risk is no longer viewed solely as a physical or environmental phenomenon but as a governance-dependent outcome shaped by institutional arrangements, policy decisions, and socio-economic conditions (Tierney, 2020). Urban flood vulnerability is significantly influenced by governance factors such as coordination among agencies, clarity of roles, enforcement of land-use regulations, and the extent of community participation (Mehran et al., 2021).

Studies further highlight that fragmented governance structures often result in inefficiencies, duplication of efforts, and gaps in preparedness implementation (Djalante et al., 2020). In many urban settings, disaster management agencies, local governments, and planning institutions operate in silos, limiting the effectiveness of early warning systems and response strategies. Weak institutional coordination and limited accountability mechanisms contribute to delayed responses and increased vulnerability.

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Moreover, community participation has been identified as a critical component of effective flood preparedness. When communities are actively engaged in planning and decision-making processes, preparedness measures become more relevant, inclusive, and sustainable (Cadiz et al., 2021). Conversely, top-down approaches that exclude local stakeholders often fail to address the specific needs of vulnerable populations.

Another critical dimension of flood preparedness governance is risk communication. Effective early warning systems depend not only on technological capabilities but also on the clarity, credibility, and accessibility of information disseminated to communities (UNDRR, 2021). Poor communication systems can lead to delayed evacuation and increased disaster impacts.

In addition, the concept of adaptive governance has gained prominence in disaster risk reduction literature. Adaptive governance refers to the ability of institutions to respond flexibly and learn from evolving risks, particularly during disruptive times characterized by overlapping crises such as natural disasters, public health emergencies, and economic instability (Folke et al., 2005; Chaffin et al., 2016). In such contexts, rigid governance systems often fail, while adaptive and collaborative approaches enhance resilience.

Despite the growing body of literature, gaps remain in understanding how governance variables interact to influence flood preparedness and resiliency, particularly in highly urbanized and flood-prone settings such as Quezon City. There is a need for empirical studies that examine governance practices at the local level and translate findings into context-specific resiliency frameworks.

Statement of the Problem

This study seeks to examine the flood preparedness governance in Quezon City during disruptive times and its implications for developing a resiliency framework.

Specifically, it aims to answer the following research questions:

1. What is the level of flood preparedness governance in terms of:
    - Institutional coordination
    - Policy implementation
    - Capacity building
    - Risk communication
    - Community participation
2. Are there significant differences in the level of flood preparedness governance when respondents are grouped according to:
    - Position/designation
    - Years of service

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- Assigned barangay or district

3. Which governance variables significantly predict flood preparedness and resiliency during disruptive times?
4. What governance-based resiliency framework can be proposed to enhance flood preparedness and resilience in Quezon City?

2. Methods

Research Design

This study employed a descriptive-quantitative research design to systematically examine the level of flood preparedness governance and its influence on resiliency outcomes in selected flood-prone communities in Quezon City. The descriptive approach was appropriate as it allowed the study to assess existing governance practices without manipulating variables, while the quantitative component enabled the measurement of relationships among governance factors using statistical techniques.

A quantitative design is particularly suitable for governance studies in disaster risk reduction as it provides objective, measurable, and generalizable findings regarding institutional performance and preparedness outcomes. By utilizing structured instruments and statistical analysis, the study was able to identify patterns, differences, and predictive relationships among governance variables, which are essential in developing evidence-based policy recommendations.

Research Locale and Respondents

The study was conducted in selected flood-prone barangays in Quezon City, Philippines, identified based on their historical exposure to flooding and proximity to major waterways such as the Tullahan River. These areas were chosen due to their vulnerability to recurring flood events and their active involvement in disaster preparedness initiatives.

The respondents of the study included:

- Disaster Risk Reduction and Management Office (DRRMO) personnel, who are responsible for planning, coordination, and implementation of disaster preparedness programs at the city level
- Barangay disaster responders and officials, who operationalize preparedness measures at the community level

These groups were selected because they serve as frontline actors in flood preparedness governance, providing relevant insights into institutional coordination, policy implementation, and community engagement.

A purposive sampling technique was utilized to ensure that respondents possessed direct involvement and experience in disaster risk reduction and flood preparedness activities. This

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approach enhanced the reliability and relevance of the data collected, as participants were knowledgeable about governance processes and operational challenges.

Variables of the Study

This study examined the relationship between flood preparedness governance variables and resiliency outcomes, guided by Adaptive Governance Theory.

Independent Variables (Flood Preparedness Governance)

The study focused on five key governance dimensions:

1. Institutional Coordination – Refers to the extent of collaboration and alignment among government agencies, departments, and stakeholders involved in disaster preparedness.
2. Policy Implementation – Measures the degree to which DRRM policies, plans, and guidelines are effectively executed at the local level.
3. Capacity Building – Assesses the availability and effectiveness of training, skills development, and preparedness programs for DRR personnel and responders.
4. Risk Communication – Evaluates the effectiveness of early warning systems, information dissemination, and communication strategies used to inform communities.
5. Community Participation – Examines the involvement of local communities in planning, preparedness activities, and decision-making processes.

These variables represent core components of governance that influence disaster preparedness outcomes.

Moderating Variables (Respondent Profile)

The study also considered respondent characteristics as moderating variables, which may influence perceptions and implementation of governance practices:

- Position or designation within the DRRM system
- Years of service or experience in disaster management
- Assigned barangay or district

These variables were included to determine whether differences exist in governance practices across different levels of experience, roles, and geographic contexts.

Dependent Variable

The dependent variable of the study is Flood Preparedness and Resiliency during Disruptive Times, defined as the capacity of institutions and communities to:

- Anticipate flood risks
- Respond effectively to flood events

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- Maintain essential services
- Adapt and recover from disruptions

Resiliency was operationalized through indicators such as preparedness effectiveness, responsiveness, coordination efficiency, and adaptive learning.

Research Instrument

A structured survey questionnaire was used as the primary data collection instrument. The questionnaire was developed based on existing DRRM policies, governance frameworks, and related literature on disaster preparedness.

The instrument consisted of multiple sections corresponding to the study variables:

- Governance indicators (independent variables)
- Resiliency indicators (dependent variable)
- Respondent profile

Responses were measured using a Likert scale (e.g., 1–5) to quantify perceptions of governance effectiveness and preparedness levels.

To ensure the quality of the instrument:

- Content validity was established through expert review
- Reliability testing (e.g., Cronbach's alpha) may be conducted to ensure internal consistency

Data Collection Procedure

Data collection was conducted in a systematic and structured manner to ensure accuracy, reliability, and adherence to ethical standards. Prior to the administration of the survey instrument, the researcher secured the necessary permissions and approvals from relevant local government units (LGUs), including the Quezon City Disaster Risk Reduction and Management Office (QCDRRMO) and selected barangay offices. This coordination was essential to facilitate access to respondents and ensure that the study aligned with institutional protocols.

Following approval, the researcher identified qualified respondents using a purposive sampling approach, focusing on DRRMO personnel and barangay disaster responders who are directly involved in flood preparedness and disaster risk reduction activities. These participants were deemed appropriate due to their firsthand experience and operational knowledge of governance practices.

The primary data collection instrument, a structured questionnaire, was then distributed to the selected respondents. Depending on accessibility and logistical considerations, the questionnaires

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were administered either through face-to-face distribution or electronic means (e.g., email or online forms). Clear instructions were provided to guide respondents in answering the questionnaire accurately and completely.

Before answering the questionnaire, respondents were provided with an informed consent statement, which explained the purpose of the study, its significance, and the expected duration of participation. They were also informed of their rights, including voluntary participation, the option to withdraw at any time, and the assurance that their responses would be treated with strict confidentiality and anonymity. No personally identifiable information was required, ensuring that responses could not be traced back to individual participants.

Data collection was conducted within a specified timeframe to ensure consistency and minimize external influences on responses. The researcher maintained regular coordination with participating offices to monitor response rates and ensure timely retrieval of completed questionnaires.

Upon completion of data gathering, all responses were carefully checked, encoded, and organized using appropriate data management procedures. Data cleaning was performed to identify and address incomplete or inconsistent responses. The finalized dataset was then prepared for statistical analysis using appropriate software tools.

Statistical Treatment of Data

The study employed the following statistical tools:

1. Weighted Mean and Standard Deviation

Used to determine the level of flood preparedness governance and resiliency indicators. The mean provided the average level of agreement, while the standard deviation measured the variability of responses.

2. Independent t-test

Used to determine significant differences in governance perceptions when respondents were grouped into two categories (e.g., position levels).

3. One-Way Analysis of Variance (ANOVA)

Used to examine differences in governance practices across multiple groups (e.g., years of service, assigned areas). This allowed the study to identify variations in governance implementation across different respondent profiles.

4. Multiple Regression Analysis

Used to determine the significant predictors of flood preparedness and resiliency. This statistical technique identified which governance variables have the strongest influence on resiliency outcomes.

Regression analysis is particularly valuable in governance studies as it allows for:

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- Measuring the strength of relationships
- Identifying key drivers of preparedness
- Supporting evidence-based decision-making

Ethical Considerations

The study strictly adhered to established ethical standards in social science research to ensure the protection, dignity, and rights of all participants throughout the research process. Ethical compliance was prioritized not only to meet academic requirements but also to uphold the integrity and credibility of the study.

First, voluntary participation was ensured. All respondents were invited to participate without any form of coercion or undue influence. Prior to data collection, participants were provided with a clear explanation of the study's purpose, scope, and procedures through an informed consent process. They were explicitly informed that their participation was entirely voluntary and that they had the right to withdraw from the study at any point without any negative consequences. This aligns with ethical principles emphasizing respect for autonomy and informed decision-making.

Second, the study guaranteed confidentiality and anonymity of responses. Respondents were not required to disclose personally identifiable information such as names or specific identifiers that could link responses to individuals. Data collected were coded and aggregated to prevent identification of participants, particularly given the sensitivity of governance-related assessments within government institutions. All collected data were securely stored, and access was limited solely to the researcher. This ensured that individual responses could not be traced back to participants, thereby protecting them from potential professional or social risks.

Third, the researcher ensured the proper and responsible use of data solely for academic purposes. The information gathered was used exclusively for the objectives of this study and was not shared with unauthorized individuals or institutions. Data were reported in summary form to maintain objectivity and avoid misrepresentation. The study also adhered to principles of academic honesty, ensuring that findings were presented accurately without fabrication, falsification, or manipulation.

In addition, the study observed ethical considerations related to minimizing harm. Questions included in the survey were carefully designed to avoid causing psychological discomfort, distress, or reputational risk to respondents. Given that the study involved evaluating governance practices, care was taken to frame items in a neutral and professional manner to avoid placing respondents in compromising situations.

Furthermore, institutional permission and coordination were secured prior to data collection. Approval from relevant local government offices and disaster management units was obtained to ensure that the research was conducted in accordance with organizational protocols and policies.

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Lastly, the study upheld the principle of respect for persons and professional integrity by ensuring transparency in all stages of the research process, from data collection to reporting of findings. The researcher maintained objectivity and impartiality, ensuring that personal biases did not influence the interpretation of results.

3. Results

3.1 Level of Flood Preparedness Governance

Table 1. Level of Flood Preparedness Governance

Indicator	Mean	SD	Interpretation
Institutional Coordination	4.12	0.68	High
Policy Implementation	4.05	0.72	High
Capacity Building	3.98	0.75	Moderate
Risk Communication	4.18	0.66	High
Community Participation	3.85	0.80	Moderate
Overall	4.04	0.72	High

Table 1 presents the level of flood preparedness governance across five key dimensions. The overall mean score of 4.04 (SD = 0.72) indicates a high level of governance implementation, suggesting that flood preparedness mechanisms in Quezon City are generally well-established and functional.

Among the indicators, risk communication (M = 4.18) obtained the highest mean, reflecting the effectiveness of early warning systems and information dissemination strategies. This finding highlights the critical role of communication in disaster preparedness, as timely and accurate information enables communities to respond appropriately to impending flood risks. This result is consistent with the findings of UNDRR (2021), which emphasize that effective communication systems significantly enhance disaster responsiveness and reduce vulnerability.

Similarly, institutional coordination (M = 4.12) and policy implementation (M = 4.05) were rated highly, indicating that governance structures and DRRM policies are generally well-aligned and operationalized. These findings suggest that inter-agency collaboration and adherence to established disaster management frameworks contribute positively to preparedness outcomes. Strong coordination mechanisms reduce duplication of efforts and improve resource allocation, which are essential for effective disaster risk management.

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However, capacity building (M = 3.98) and community participation (M = 3.85) were rated at a moderate level, indicating areas that require improvement. The relatively lower rating for community participation suggests that while governance systems are structurally sound, they may not be sufficiently inclusive or participatory. This gap implies limited engagement of local communities in planning and decision-making processes, which may affect the sustainability and effectiveness of preparedness initiatives.

Overall, the findings support the argument that while institutional and technical aspects of governance are strong, the social dimension of governance—particularly community engagement—remains a critical area for enhancement. This aligns with existing literature emphasizing that inclusive governance is essential for achieving long-term disaster resilience (Cadiz et al., 2021).

3.2 Differences in Governance by Respondent Profile

Table 2. Differences in Governance by Years of Service

Variable	F-value	p-value	Interpretation
Governance Level	3.45	0.018	Significant

Table 2 presents the results of the one-way ANOVA test examining differences in flood preparedness governance based on respondents' years of service. The computed F-value of 3.45 with a p-value of 0.018 indicates a statistically significant difference, suggesting that perceptions of governance effectiveness vary depending on respondents' experience levels.

This finding implies that individuals with longer service in disaster risk management tend to perceive governance practices as more effective compared to those with less experience. This may be attributed to their greater familiarity with institutional processes, policies, and coordination mechanisms. Experienced personnel are likely to have developed a deeper understanding of disaster preparedness systems and may have participated in multiple disaster response scenarios, thereby enhancing their confidence in governance structures.

Conversely, less experienced respondents may perceive governance systems as less effective due to limited exposure to training, coordination activities, and operational procedures. This variation highlights the importance of continuous capacity building and knowledge transfer within disaster management institutions.

The result supports the findings of Djalante et al. (2020), which emphasize that institutional knowledge and experience significantly influence the effectiveness of disaster governance systems. It also underscores the need for strengthening training programs and mentorship mechanisms to ensure that newer personnel are adequately equipped with the necessary skills and competencies.

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Overall, the significant difference across years of service indicates that governance effectiveness is not uniformly experienced across all personnel, suggesting potential inconsistencies in implementation at different levels of the disaster management system.

3.3 Predictors of Flood Resiliency

Table 3. Regression Analysis on Governance Predictors

Predictor	Beta	t-value	p-value	Interpretation
Institutional Coordination	0.35	4.21	0.000	Significant
Policy Implementation	0.22	2.89	0.004	Significant
Capacity Building	0.18	2.41	0.017	Significant
Risk Communication	0.38	4.65	0.000	Strongest Predictor
Community Participation	0.20	2.73	0.007	Significant

Table 3 presents the results of the multiple regression analysis examining the influence of governance variables on flood preparedness and resiliency. All five predictors were found to be statistically significant, indicating that each governance dimension contributes meaningfully to resiliency outcomes.

Among the variables, risk communication ($\beta = 0.38$, $p < 0.001$) emerged as the strongest predictor of flood resiliency. This finding underscores the critical importance of effective communication systems in disaster preparedness. Clear, timely, and actionable information enables communities to make informed decisions, thereby reducing exposure and enhancing response efficiency. This supports global findings that risk communication is a central component of disaster resilience (UNDRR, 2021).

Institutional coordination ($\beta = 0.35$, $p < 0.001$) was identified as the second strongest predictor, highlighting the importance of collaborative governance. Effective coordination among agencies ensures alignment of efforts, efficient resource utilization, and improved response outcomes. This finding reinforces the concept that disaster preparedness is inherently multi-sectoral and requires integrated governance systems.

Policy implementation ($\beta = 0.22$) and community participation ($\beta = 0.20$) also demonstrated significant influence on resiliency. These results indicate that the successful execution of policies and active involvement of communities are essential in translating governance frameworks into practical preparedness outcomes. Community participation, in particular, enhances local ownership and strengthens adaptive capacity at the grassroots level.

Meanwhile, capacity building ($\beta = 0.18$), although the least among the predictors, remains significant. This suggests that training and skills development contribute to resiliency, but their

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impact may depend on how effectively they are integrated with other governance components such as coordination and communication.

Overall, the regression results confirm that flood resiliency is a multi-dimensional outcome shaped by interconnected governance variables. The findings strongly support Adaptive Governance Theory, which emphasizes the importance of coordination, communication, learning, and participation in managing complex and dynamic risks.

4. Discussion

4.1 Governance as a Determinant of Preparedness

The findings of this study strongly affirm that flood preparedness is fundamentally governance-dependent, rather than solely reliant on technical or infrastructural interventions. The high overall level of governance observed in Table 1, particularly in institutional coordination, policy implementation, and risk communication, indicates that the presence of structured governance systems contributes significantly to preparedness outcomes.

Effective governance facilitates coordinated planning, efficient allocation of resources, and timely disaster response, which are essential in minimizing the impacts of flooding. The significant predictive influence of institutional coordination identified in the regression analysis further reinforces its central role in achieving resiliency. This suggests that preparedness is not merely a function of available resources, but of how these resources are managed and aligned through governance structures.

These findings are consistent with Tierney (2020), who argues that disaster outcomes are largely shaped by governance quality, including institutional arrangements, policy coherence, and accountability mechanisms. In the context of Quezon City, the results indicate that while governance systems are generally functional, variations in implementation—particularly across respondent profiles—highlight the need for more consistent and standardized practices.

Moreover, the study underscores that governance effectiveness must extend beyond formal structures to include operational efficiency and contextual responsiveness, particularly in urban environments characterized by complex socio-economic and environmental dynamics.

4.2 Role of Adaptive Governance

The study provides strong empirical support for the relevance of Adaptive Governance Theory in flood preparedness. The significant influence of governance variables such as risk communication, institutional coordination, and capacity building on resiliency outcomes reflects the importance of flexibility, learning, and collaboration in managing disaster risks.

Adaptive governance emphasizes the ability of institutions to adjust strategies, reallocate resources, and respond dynamically to changing risk conditions, which is particularly critical during disruptive times. In urban contexts like Quezon City, where flooding may coincide with

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other crises such as public health emergencies or infrastructure failures, rigid and linear governance approaches are insufficient.

The prominence of risk communication as the strongest predictor of resiliency suggests that adaptive governance is operationalized through real-time information sharing and responsive decision-making. Institutions that can effectively communicate risks and mobilize stakeholders are better equipped to manage uncertainty and reduce disaster impacts.

This aligns with the work of Folke et al. (2005) and Chaffin et al. (2016), who emphasize that adaptive governance systems are characterized by continuous learning, multi-level coordination, and stakeholder engagement. The findings of this study demonstrate that such adaptive capacities are already present to some extent in Quezon City's governance system, but require further strengthening to address emerging and compound risks.

Ultimately, the study highlights that resilience is not a static outcome but a dynamic process shaped by the adaptability of governance systems, reinforcing the need for policies and practices that support flexibility and innovation.

4.3 Community Participation

Despite the generally high level of governance, the study revealed that community participation remains at a moderate level, indicating a critical gap in the inclusiveness of flood preparedness governance. This finding suggests that while institutional mechanisms are in place, the engagement of local communities in planning and decision-making processes is not yet fully optimized.

Community participation is a vital component of effective disaster governance, as it enhances risk awareness, trust in institutions, and compliance with preparedness measures. When communities are actively involved, they contribute local knowledge, identify context-specific risks, and support the implementation of preparedness strategies.

The moderate rating for community participation may be attributed to several factors, including:

- Limited opportunities for community involvement in planning processes
- Insufficient communication between authorities and residents
- Lack of sustained engagement mechanisms at the barangay level

These findings are consistent with Cadiz et al. (2021), who emphasize that participatory approaches lead to more sustainable and effective disaster preparedness outcomes. Conversely, top-down governance approaches often fail to address the specific needs of vulnerable populations, resulting in lower levels of preparedness and resilience.

Furthermore, the regression results indicate that community participation, although significant, has a relatively lower predictive value compared to risk communication and institutional coordination. This suggests that participation mechanisms may not yet be fully integrated into the governance system or effectively leveraged.

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Strengthening community participation therefore requires a shift toward inclusive and collaborative governance, where communities are not merely recipients of information but active partners in disaster preparedness.

4.4 Policy Implications

The findings of this study provide important insights for policy development and institutional strengthening in flood preparedness governance. Based on the results, several key policy implications emerge:

1. Strengthened Inter-Agency Coordination

The significant role of institutional coordination highlights the need for clearer mandates, defined roles, and integrated planning mechanisms among agencies involved in disaster risk reduction. Establishing formal coordination platforms and standard operating procedures can enhance efficiency and reduce fragmentation.

2. Enhanced Risk Communication Systems

Given that risk communication is the strongest predictor of resiliency, there is a need to invest in multi-channel communication systems that are timely, accessible, and understandable. Policies should prioritize community-centered communication strategies, including the use of local languages, digital platforms, and community-based messengers.

3. Increased Investment in Capacity Building

Although capacity building was found to be significant, its moderate rating suggests the need for continuous training, skills development, and knowledge-sharing programs. Strengthening the competencies of DRRMO personnel and barangay responders will ensure more consistent and effective implementation of preparedness measures.

4. Institutionalization of Participatory Governance

The moderate level of community participation underscores the need to institutionalize mechanisms for sustained community engagement, such as participatory planning, regular drills, and feedback systems. Policies should promote inclusivity by involving communities in decision-making processes and recognizing their role in resilience building.

5. Promotion of Adaptive Governance Approaches

Finally, the study highlights the importance of adopting adaptive governance frameworks that emphasize flexibility, learning, and collaboration. Policymakers should integrate adaptive strategies into DRRM plans, enabling institutions to respond effectively to evolving and compound risks.

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Building an Adaptive and Participatory Flood Preparedness Governance Framework for Quezon City

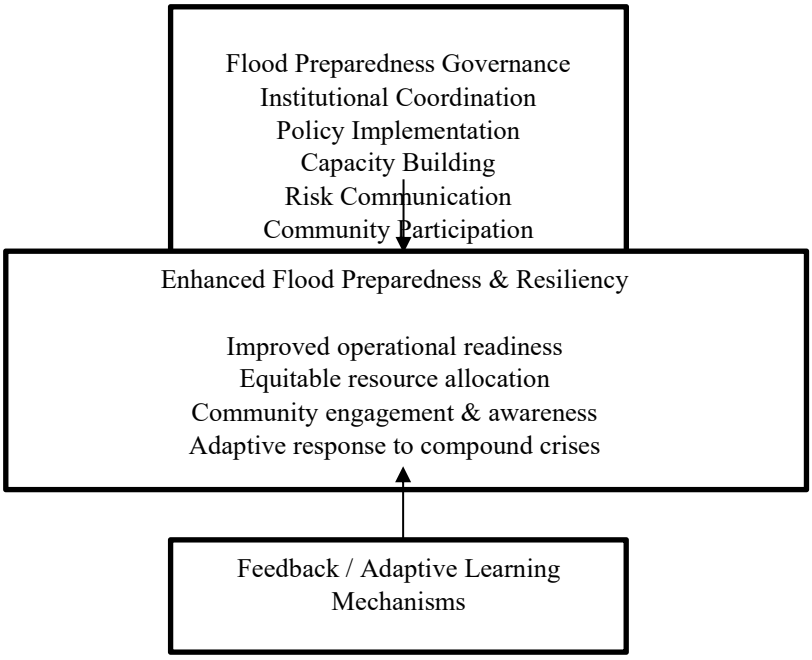

Figure 2. Building an Adaptive and Participatory Flood Preparedness Governance Framework for Quezon City

5. Conclusion

This study examined flood preparedness governance in Quezon City during disruptive times and its influence on resiliency outcomes. The findings provide important insights into the role of governance systems in shaping disaster preparedness and response.

First, the study concludes that flood preparedness governance in Quezon City is generally at a high level, particularly in areas of institutional coordination, policy implementation, and risk communication. These findings indicate that formal governance structures and mechanisms are in place and functioning effectively. However, the results also reveal that governance is unevenly implemented, particularly in terms of community participation and capacity building, suggesting disparities in preparedness across different levels of the disaster management system.

Second, the study establishes that governance variables significantly influence flood resiliency outcomes. The regression analysis confirms that preparedness and resilience are not merely dependent on physical infrastructure but are largely shaped by governance processes, including coordination, communication, and participation. This reinforces the view that disaster resilience is a governance-driven outcome.

Third, among the governance dimensions, risk communication and institutional coordination emerged as the strongest predictors of resiliency. This highlights the critical importance of timely, accurate, and accessible information, as well as the need for integrated and collaborative

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governance systems. These factors enable effective decision-making, reduce response time, and enhance the overall capacity of communities and institutions to manage flood risks.

Fourth, the study demonstrates that disruptive times expose underlying weaknesses in governance systems, particularly in contexts characterized by overlapping crises and resource constraints. While governance mechanisms may function effectively under normal conditions, their limitations become more evident during periods of heightened uncertainty and complexity. This underscores the need for more flexible and resilient governance approaches.

Finally, the study concludes that adaptive governance is essential for achieving sustainable flood resilience. Governance systems must be capable of learning, adjusting, and responding dynamically to evolving risks. The integration of adaptive, inclusive, and coordinated governance strategies is therefore critical in strengthening long-term disaster preparedness and resilience in urban settings such as Quezon City.

6. Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed to enhance flood preparedness governance and resiliency:

1. Strengthen Inter-Agency Coordination Mechanisms. Local government units should establish more integrated and institutionalized coordination platforms among agencies involved in disaster risk reduction. Clear delineation of roles, standardized operating procedures, and regular inter-agency exercises are necessary to improve efficiency and reduce fragmentation in preparedness and response efforts.
2. Improve Risk Communication Systems. Given the significant role of risk communication, there is a need to enhance multi-channel communication strategies that are timely, accurate, and accessible to all sectors of the community. This includes the use of digital platforms, localized messaging, and community-based communication networks to ensure that warnings are clearly understood and acted upon.
3. Expand Capacity-Building Programs. Continuous and targeted training programs for DRRMO personnel and barangay responders should be implemented to strengthen technical competencies, leadership skills, and adaptive capacities. Capacity-building initiatives should also include simulation exercises, knowledge-sharing activities, and professional development opportunities.
4. Promote Community Participation. Efforts should be made to institutionalize participatory governance approaches by actively involving communities in planning, decision-making, and implementation of flood preparedness initiatives. Mechanisms such as community consultations, participatory risk assessments, and regular drills can enhance local ownership and improve preparedness outcomes.
5. Implement the Proposed Resiliency Framework. The proposed Flood Preparedness Governance and Resiliency Framework developed in this study should be adopted and integrated into local DRRM plans. The framework emphasizes adaptive governance, coordination, communication, and community engagement as key pillars of resilience. Its

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implementation can guide policymakers and practitioners in strengthening disaster preparedness in a systematic and sustainable manner.

6. Enhance Adaptive Governance Practices. Policymakers should promote flexible and learning-oriented governance systems that can respond effectively to evolving and compound risks. This includes incorporating feedback mechanisms, scenario-based planning, and real-time data utilization into disaster preparedness strategies.

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