Risk-Informed or Merely Compliant? A Qualitative Review of Barangay DRRM Plans in Naga City, Philippines

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DOI: https://doi.org/10.47772/IJRISS.2026.10200197

Received: 08 February 2026; Accepted: 16 February 2026; Published: 01 March 2026

ABSTRACT

Barangays play a critical role in disaster risk reduction and management (DRRM) in the Philippines, serving as the frontline institutions for preparedness, response, and recovery. While national policies provide standardized templates for Barangay DRRM (BDRRM) Plans, questions remain as to whether these plans are substantively risk-informed or primarily compliance-driven. This study qualitatively reviews the BDRRM Plans of 27 barangays in Naga City to examine the extent to which plan content reflects localized risk conditions rather than mere adherence to prescribed formats.

The study employed a qualitative document review and thematic analysis of approved BDRRM Plans, supported by triangulation with multiple secondary data sources, including the Naga City Integrated Risk Analysis, Climate and Disaster Risk Assessment, climate risk projections, a barangay-level Social Vulnerability Index, and documented impacts of a recent major tropical cyclone. A researcher-designed assessment scorecard was used as a supplementary qualitative aid to document patterns of full, partial, or absent articulation across key plan components. Analysis focused on internal plan coherence, risk articulation, integration of social vulnerability, and responsiveness to observed disaster experience.

Findings indicate that while most barangay plans demonstrate formal compliance with mandated templates, substantial variation exists in their degree of risk-informedness. Many plans exhibit generic narratives, limited differentiation despite contrasting risk profiles, and a strong emphasis on response-oriented measures, with comparatively weaker attention to prevention, mitigation, and socially differentiated preparedness. High-risk and high-vulnerability barangays do not consistently demonstrate correspondingly robust planning provisions.

The study concludes that compliance with planning templates does not necessarily translate into risk-informed DRRM practice. Strengthening barangay-level analytical capacity, improving the use of localized risk evidence, and embedding people-centered vulnerability considerations are essential to enhance the substantive quality of BDRRM planning.

Keywords: Disaster Risk Reduction and Management; Barangay DRRM Plans; Risk-Informed Planning; Qualitative Document Review; Local Governance

INTRODUCTION

Disaster Risk Reduction and Management (DRRM) in the Philippines is founded on a decentralized governance framework, positioning local government units—and particularly barangays—as the primary agents of disaster preparedness, response, and recovery. Republic Act No. 10121 institutionalized this approach by mandating all levels of local government to develop Disaster Risk Reduction and Management Plans that are anchored on risk assessment, prevention, mitigation, preparedness, response, and recovery (Republic Act No. 10121, 2010). At the barangay level, this mandate is operationalized through the formulation of Barangay DRRM (BDRRM) Plans, which are typically guided by nationally prescribed templates and planning instruments.

Standardized planning templates play an important role in promoting consistency and minimum compliance across local governments. However, disaster governance scholarship has long cautioned that procedural compliance does not necessarily translate into substantive risk reduction (Cutter et al., 2003; Van Aalst et al., 2008). When planning becomes overly template-driven, risk analysis may be treated as a documentary requirement rather than a decision-making foundation. As a result, local plans may appear complete on paper while remaining weakly responsive to localized hazard conditions, differentiated social vulnerability, and actual disaster experience.

This concern is particularly salient in urban and peri-urban contexts where disaster risk is unevenly distributed across communities. Variations in exposure, settlement patterns, housing quality, livelihood dependence, and access to basic services shape how hazards translate into impacts (Cutter et al., 2003). Risk-informed planning therefore requires more than the presence of plan components; it requires internal coherence between identified risks, vulnerability conditions, and proposed actions across the entire plan.

Naga City, located in the Bicol Region of the Philippines, provides a critical context for examining this issue. The city is recurrently exposed to typhoons and flooding, with risks amplified by riverine geography, rapid urbanization, and socio-economic disparities among barangays. City-level risk assessments, including integrated risk analysis and climate and disaster risk assessments, have consistently identified differentiated hazard profiles and varying levels of social vulnerability across the city's barangays (Manila Observatory, 2019). These assessments underscore that while hazards affect the city as a whole, their impacts are neither spatially nor socially uniform.

The relevance of risk-informed barangay planning was starkly reinforced by the impacts of Tropical Cyclone Kristine, which affected Naga City and the wider Bicol Region in recent years. The event brought prolonged and intense rainfall, resulting in widespread flooding, disruption of basic services, and the displacement of households across multiple barangays. Although Kristine was not unprecedented in terms of hazard type, its impacts revealed persistent vulnerabilities related to settlement in low-lying areas, drainage congestion, housing safety, and the limited anticipatory capacity of some communities. The incident exposed gaps between documented risk knowledge and actual preparedness and mitigation measures at the barangay level, raising questions about whether existing BDRRM Plans were effectively risk-informed or primarily compliance oriented.

Despite the availability of city-level risk evidence and repeated disaster experience, assessments of BDRRM Plans in practice often focus on checklist-based compliance with prescribed formats. Such assessments provide limited insight into whether plans meaningfully integrate localized risk conditions, social vulnerability, and lessons from recent disasters such as Tropical Cyclone Kristine. There remains a gap in qualitative research that critically examines the internal coherence of BDRRM Plans as planning instruments—specifically, whether risk analysis, vulnerability considerations, and disaster experience are substantively reflected across plan components rather than confined to narrative sections.

This study addresses this gap by conducting a qualitative review of the BDRRM Plans of 27 barangays in Naga City. Using qualitative document analysis and triangulation with multiple sources of risk evidence—including integrated risk analysis outputs, social vulnerability data, and documented disaster impacts—the study examines whether barangay plans can be characterized as risk-informed or merely compliant. By situating plan content against both scientific risk assessments and lived disaster experience, the study seeks to contribute to the discourse on local DRRM planning quality and governance. Ultimately, it aims to inform efforts to strengthen people-centered, risk-informed barangay planning that moves beyond procedural compliance toward meaningful risk reduction.

METHODS

Research Design

This study employed a qualitative document review and thematic analysis to examine the extent to which Barangay Disaster Risk Reduction and Management (BDRRM) Plans are substantively risk-informed rather than primarily compliance-driven. A qualitative approach was appropriate given the study's focus on plan content,

internal coherence, and interpretive assessment of how risk, vulnerability, and disaster experience are articulated across planning components, rather than on quantitative measurement or performance ranking (Creswell & Poth, 2018).

The analytical frame centered on a guiding question: Do barangay DRRM plans meaningfully integrate localized risk evidence and vulnerability conditions, or do they primarily reflect procedural adherence to prescribed templates?

Study Area and Units of Analysis

The study covered 27 barangays in Naga City, an urban center in the Bicol Region of the Philippines that is recurrently exposed to typhoons, flooding, and climate-related hazards. Barangays served as the units of analysis, with each approved BDRRM Plan treated as a discrete planning case. Naga City was selected due to the availability of city-level risk assessments, differentiated barangay risk profiles, and recent disaster experience that allowed for contextualized plan review.

Data Sources

Multiple data sources were used to support qualitative triangulation and strengthen analytical rigor (Patton, 2015):

1. **Barangay DRRM Plans**

Approved BDRRM Plans from all 27 barangays constituted the primary data source. The review covered the entire plan, including situational and risk analysis, institutional arrangements, preparedness measures, response mechanisms, recovery strategies, and PPAs.

2. **Integrated Risk Analysis and Climate–Disaster Assessments**

City-level Integrated Risk Analysis outputs and Climate and Disaster Risk Assessment reports were used to establish authoritative reference points for dominant hazards, exposure patterns, and vulnerability conditions at the barangay level (Manila Observatory, 2019).

3. **Social Vulnerability Index (SVI)**

A barangay-level Social Vulnerability Index derived from principal component analysis of CommunityBased Monitoring System data was used as a supplementary qualitative reference. Transformed SVI categories (very low to very high vulnerability) informed interpretation of whether plans addressed underlying social and structural vulnerabilities.

4. **Documented Disaster Impacts**

Observed impacts from a recent major tropical cyclone that affected Naga City were used as an empirical reference to assess whether plans reflected lessons from lived disaster experience, particularly in relation to flooding, displacement, and service disruption.

5. **Researcher-Designed Assessment Scorecard**

A qualitative assessment scorecard developed by the researcher was used to document whether key plan elements were fully articulated, partially articulated, or absent. The scorecard was used strictly as a descriptive aid to identify patterns and was not treated as a quantitative scoring or ranking tool.

Data Analysis

Data were analyzed using thematic analysis, following an iterative and interpretive process (Braun & Clarke, 2006). Initial familiarization involved close reading of all BDRRM Plans, followed by coding of recurring

patterns related to:

- Risk articulation and use of hazard evidence
- Integration of social vulnerability considerations
- Internal coherence across plan components
- Balance between prevention, preparedness, response, and recovery
- Responsiveness to documented disaster experience

Codes were then clustered into broader analytical themes reflecting risk-informed planning versus compliance oriented planning. Cross-barangay comparison was conducted to identify common patterns, divergences, and illustrative cases, without ranking or numerical aggregation.

Analytical Framework

The analysis was guided by a risk–plan coherence framework, which examined whether there was logical continuity between:

(a) identified hazards and vulnerabilities,

(b) stated objectives and strategies, and

(c) proposed actions across the BDRRM Plan.

Rather than evaluating effectiveness, the framework assessed planning relevance and coherence, emphasizing interpretation over measurement.

Ethical Considerations

All documents reviewed were official public records. Barangay identifiers were anonymized in the presentation of findings to minimize reputational risk and maintain an ethical, non-punitive orientation. The study did not involve direct human participation and therefore did not require individual informed consent.

Methodological Rigor

Credibility was enhanced through data triangulation across multiple sources of risk evidence and disaster experience. Dependability was supported by the use of a consistent review framework across all barangays, while reflexivity was maintained by explicitly positioning the scorecard as an interpretive aid rather than an evaluative metric.

RESULTS

The qualitative review of the 27 Barangay Disaster Risk Reduction and Management (BDRRM) Plans revealed recurring patterns that extend beyond issues of risk alignment. In addition to variation in planning depth and coherence, the analysis identified systemic issues related to data quality, conceptual understanding, and operationalization of proposed actions.

Theme 1: Formal Completeness Does Not Guarantee Risk-Informed Planning

Most BDRRM Plans exhibit structural completeness, following prescribed formats and required sections. However, this formal completeness often masks substantive weaknesses. Risk narratives are frequently generic and insufficiently localized, suggesting that compliance with templates takes precedence over contextual risk

interpretation. Hazard descriptions are commonly replicated across barangays despite clear differences in exposure and vulnerability.

Theme 2: Weak Internal Coherence Between Risk Analysis and Plan Components

A persistent disconnect exists between situational and risk analysis sections and subsequent planning elements. Identified hazards and vulnerabilities are rarely translated into differentiated objectives, strategies, or actions. In many plans, risk analysis appears isolated from decision-making sections, indicating limited use of risk evidence as a planning driver.

Theme 3: Data Inconsistencies and Limited Disaggregation

A notable finding across multiple plans is the presence of data discrepancies and inconsistencies. Population figures, counts of vulnerable groups, and references to hazard exposure often vary across sections within the same plan. In several cases, aggregate data are presented without clear sourcing or temporal reference, making it difficult to assess accuracy or relevance.

Furthermore, data are rarely disaggregated by age, sex, disability, or other vulnerability markers, despite the stated recognition of vulnerable groups. This limits the ability of plans to support targeted preparedness and protection measures and undermines claims of inclusive and people-centered planning.

Theme 4: Lack of Shared Understanding of DRRM Concepts and Terminology

The review revealed inconsistent and sometimes incorrect use of DRRM terminology and concepts across barangay plans. Key terms such as *hazard*, *risk*, *vulnerability*, *capacity*, *mitigation*, and *preparedness* are often used interchangeably or without clear definition. In some plans, response activities are labeled as preparedness measures, while mitigation actions are conflated with post-disaster recovery.

This lack of conceptual consistency suggests uneven technical understanding of DRRM frameworks at the barangay level and contributes to fragmented planning logic. As a result, plans may meet formal requirements while lacking analytical clarity.

Theme 5: Dominance of Generic and Poorly Operationalized PPAs

Across the reviewed plans, Programs, Projects, and Activities (PPAs) are predominantly generic in nature and show limited differentiation despite contrasting risk profiles. Commonly listed PPAs—such as information campaigns, trainings, and coordination meetings—are repeated across barangays with minimal contextual adaptation.

In addition, most PPAs lack clear implementation guidelines. Details regarding responsible units, timelines, resource requirements, and monitoring mechanisms are often absent or weakly articulated. This limits the practical utility of PPAs as operational tools and reinforces a perception of PPAs as compliance artifacts rather than actionable interventions.

Theme 6: Limited Integration of Social Vulnerability in Planning Decisions

Although vulnerable groups are frequently listed, explicit linkages between social vulnerability conditions and planning measures are inconsistent. Barangays identified as having higher social vulnerability do not consistently demonstrate more robust or differentiated PPAs. Vulnerability is thus acknowledged descriptively but rarely operationalized within planning decisions.

Theme 7: Weak Institutionalization of Disaster Learning

Recent disaster experience, including major tropical cyclone impacts that affected Naga City, is not systematically reflected in plan revisions. Lessons related to prolonged flooding, evacuation challenges, and

service disruptions are rarely translated into strengthened mitigation or preparedness strategies. This indicates limited institutional learning at the barangay planning level.

Theme 8: Isolated Practices of Risk-Informed Planning

Despite these systemic challenges, a small number of barangays demonstrate stronger planning coherence. These plans show clearer use of localized data, more consistent terminology, and better alignment between identified risks and proposed actions. Such cases illustrate that risk-informed barangay planning is achievable but not yet institutionalized.

Summary of Results

Taken together, the findings indicate that most Barangay DRRM Plans in Naga City are procedurally compliant but substantively weak. Data quality issues, lack of disaggregation, inconsistent conceptual understanding of DRRM, and generic, weakly operationalized PPAs constrain the ability of these plans to function as effective risk-informed planning instruments.

DISCUSSION

This study set out to examine whether Barangay Disaster Risk Reduction and Management (BDRRM) Plans in Naga City are substantively risk-informed or primarily compliance-driven. The findings indicate that, despite widespread formal completeness, many plans remain weakly risk-informed. This gap is not merely a matter of missing activities but reflects deeper issues related to planning logic, data quality, conceptual understanding of DRRM, and institutional capacity at the barangay level.

Compliance-Oriented Planning Versus Risk-Informed Decision-Making

The dominance of formally complete yet weakly contextualized plans reinforces longstanding critiques in disaster governance literature that procedural compliance does not automatically lead to effective risk reduction (Cutter et al., 2003; Van Aalst et al., 2008). In the case of Naga City, the use of standardized templates appears to have promoted uniformity in structure but has not ensured meaningful differentiation across barangays with distinct hazard and vulnerability profiles. Risk analysis sections are often treated as documentary requirements rather than as analytical foundations for planning decisions, resulting in plans that are technically compliant but substantively shallow.

This pattern suggests that the current planning process prioritizes the production of plans over the use of plans as decision-support tools. As a result, risk-informed planning—defined as the deliberate translation of localized hazard, exposure, and vulnerability information into coherent actions across plan components—remains unevenly practiced.

Data Quality and Disaggregation as Constraints to Inclusive Planning

The observed data discrepancies and lack of disaggregation across BDRRM Plans have important implications for people-centered DRRM. Inconsistent population figures, unclear data sources, and the absence of age-, sex, or disability-disaggregated data constrain the ability of barangays to design targeted preparedness and protection measures. This finding aligns with broader evidence that inadequate local data systems undermine inclusive disaster planning and perpetuate generalized, one-size-fits-all interventions (Cutter et al., 2003).

Without reliable and disaggregated data, vulnerability is acknowledged only in descriptive terms and is rarely operationalized in planning decisions. This weakens the capacity of barangays to prioritize the needs of groups disproportionately affected by disasters and limits the effectiveness of preparedness and mitigation strategies.

Conceptual Gaps and Their Impact on Planning Coherence

The inconsistent use of DRRM terminology and concepts across plans points to uneven technical understanding at the barangay level. Confusion between hazard, risk, vulnerability, preparedness, and response undermines

internal plan coherence and contributes to misaligned actions. When response activities are mislabeled as preparedness or mitigation measures are conflated with recovery, planning becomes fragmented and reactive.

These conceptual gaps reflect broader capacity challenges within decentralized DRRM systems, where local actors are expected to perform technically demanding planning functions with limited training and support. Strengthening conceptual clarity is therefore not a semantic concern but a prerequisite for coherent and anticipatory planning.

Generic PPAs and the Limits of Template-Driven Planning

The prevalence of generic PPAs and the absence of clear implementation guidelines further illustrate the compliance-oriented nature of many plans. Recurrent activities such as trainings, information campaigns, and coordination meetings are listed across barangays regardless of risk context, often without specifying responsible units, timelines, or monitoring mechanisms. Such PPAs function more as symbolic indicators of action than as operational commitments.

This finding resonates with critiques that local DRRM plans frequently emphasize activity listing over strategic prioritization (Van Aalst et al., 2008). Without clear implementation pathways, PPAs are unlikely to translate into sustained risk reduction outcomes, particularly in high-risk and high-vulnerability barangays.

Disaster Experience as an Underutilized Planning Resource

The limited incorporation of lessons from recent tropical cyclone impacts highlights a missed opportunity for institutional learning. Despite repeated flooding, displacement, and service disruptions, these experiences are not consistently reflected in strengthened mitigation or preparedness measures within BDRRM Plans. This gap suggests that post-disaster learning remains weakly institutionalized at the barangay level.

Integrating disaster experience into planning is essential for adaptive and anticipatory DRRM, particularly in the context of climate change, where hazards are expected to intensify and recur (IPCC, 2014). Failure to do so risks perpetuating reactive planning cycles that respond to events without addressing underlying risk drivers.

Implications for Strengthening Barangay DRRM Planning

Taken together, the findings suggest that improving barangay DRRM planning requires more than stricter enforcement of templates. Efforts should focus on enhancing analytical capacity, standardizing the interpretation of DRRM concepts, improving local data systems, and fostering the routine use of risk evidence and disaster experience in planning processes. Technical mentoring, rather than compliance monitoring alone, may be more effective in shifting planning practice toward risk-informed and people-centered approaches.

The presence of isolated examples of stronger planning coherence indicates that risk-informed barangay planning is feasible within existing institutional frameworks. Scaling such practices will require sustained support, capacity-building, and alignment between city-level risk assessments and barangay-level planning processes.

Contribution to DRRM Governance Discourse

By shifting the analytical lens from compliance to planning quality, this study contributes to the growing discourse on local DRRM governance in decentralized contexts. It demonstrates that the effectiveness of barangay DRRM planning depends not only on the existence of plans but on how risk, vulnerability, and experience are understood and operationalized within them. The findings underscore the need to reframe plan review processes to emphasize substantive risk-informedness rather than procedural completeness.

CONCLUSION

This study examined whether Barangay Disaster Risk Reduction and Management (BDRRM) Plans in Naga City function as risk-informed planning instruments or primarily as compliance documents. The qualitative review of 27 barangay plans demonstrates that, while formal planning requirements are largely met, substantive

risk-informedness remains uneven. Many plans exhibit generic content, weak internal coherence, data inconsistencies, and limited integration of social vulnerability and disaster experience, constraining their effectiveness as tools for anticipatory and people-centered disaster preparedness.

The findings underscore the need to reorient barangay preparedness away from a predominantly hazard-centered approach toward a people-centered planning paradigm. While hazards such as typhoons and flooding are acknowledged across plans, the differentiated capacities, vulnerabilities, and lived realities of communities are not consistently operationalized in planning decisions. Preparedness that does not account for who is most at risk, why impacts differ, and how people cope before and during disasters risks reinforcing existing inequalities and limiting protective outcomes.

The study further highlights that climate change is no longer a future concern but a present and compounding risk factor. The recurrence and increasing intensity of climate-related hazards observed in recent years have exposed persistent weaknesses in local preparedness and mitigation. The limited incorporation of disaster learning into BDRRM Plans suggests that current planning cycles are not yet adaptive to a changing risk landscape characterized by more frequent and overlapping shocks.

In this context, the continued dominance of response-oriented provisions within barangay plans is increasingly untenable. While response capacity remains essential, prioritizing preparedness over response is critical to reducing loss, disruption, and recovery costs in the long term. The findings suggest that investments in capacity building—such as strengthening risk analysis skills, improving data systems, enhancing community-based preparedness, and standardizing DRRM conceptual understanding—may yield more sustainable benefits than reliance on infrastructure-heavy interventions alone. Large-scale structural projects, while important, are costly and may be overwhelmed by the escalating effects of climate change if not complemented by strong social and institutional capacity.

Overall, this study argues that improving barangay DRRM planning requires a shift from compliance-driven documentation toward anticipatory, people-centered, and learning-oriented planning practice. Strengthening technical support, fostering continuous capacity development, and embedding localized risk evidence into decision-making processes are essential steps toward enhancing the resilience of communities in Naga City and similarly situated urban contexts. Future research may build on these findings by examining how capacity building interventions and participatory planning approaches influence the quality and effectiveness of barangay level DRRM implementation over time.

Data Availability Statement

The data used in this study consist of publicly available government planning documents and secondary risk assessment reports, including Barangay Disaster Risk Reduction and Management Plans, city-level integrated risk analysis outputs, climate and disaster risk assessments, and social vulnerability data. Due to the nature of the analysis and ethical considerations related to potential reputational risk, individual barangay identifiers and assessment scorecards are not publicly shared. Aggregated and anonymized data supporting the findings of this study are available from the corresponding author upon reasonable request.

Ethical Considerations

This study is based on qualitative document review of official public records and secondary data sources. No direct human participation, interviews, or surveys were conducted. To ensure ethical integrity and a non-punitive research approach, barangay identifiers were anonymized in the presentation of results, and findings were reported in aggregated and thematic form. The study was conducted for academic purposes and complies with institutional ethical standards for research involving publicly accessible documents.

Conflict Of Interest

The author declares no conflict of interest in relation to this study. The research was conducted independently for academic purposes, and the findings and interpretations presented are solely those of the author.

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