



VOICES OF RESILIENCE: LOCAL FLOOD MANAGEMENT PRACTICES IN BARANGAY BANQUERO, REINA MERCEDES, ISABELA

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ABSTRACT

This study explores the lived experiences and grassroots flood management practices of residents in Barangay Banquero, Reina Mercedes, Isabela – a high-risk rural community situated along the floodplains of the Cagayan River basin. While formal disaster frameworks rely heavily on top-down institutional mandates, this research examines the localized, human dimension of survival and community-driven resilience. Utilizing a qualitative phenomenological design, semi-structured interviews were conducted with fifteen long-term residents who have extensive histories of navigating severe flooding events. Through thematic analysis, the study reveals a sophisticated repertoire of self-reliant coping strategies, most notably the practice of "vertical displacement" – the multi-stage modification of household structures using makeshift lofts and elevated platforms to safeguard material assets. These practices are deeply sustained by kinship-based logistics and informal social networks that dictate organic evacuation movements. However, the findings reveal a critical "preparedness ceiling," indicating that the escalating intensity of climate-driven typhoons has surpassed a threshold where personal preparation yields diminishing returns. This mismatch inflicts a recurring psychosomatic burden on residents, characterized by anticipatory panic and physical exhaustion. Ultimately, these insights highlight the urgent need for local disaster management policies to shift away from standardized relief and instead integrate, support, and institutionalize these organic grassroots strategies to build genuine community resilience.

KEYWORDS: Disaster Preparedness, Vertical Displacement, Preparedness Ceiling, Phenomenological Study, Grassroots Resilience, Reina Mercedes.

1. INTRODUCTION

Natural catastrophes in the Philippines, particularly tropical cyclones and typhoon-induced flooding, remain the most pervasive drivers of socioeconomic disruption, infrastructure damage, and human displacement. Under Republic Act No. 10121, national frameworks emphasize a transition from reactive disaster response to proactive risk mitigation and management. However, these institutionalized, top-down policies often struggle to operationalize effectively when translated to marginalized local jurisdictions. Within the Province of Isabela, the municipality of Reina Mercedes—and specifically Barangay Banquero—occupies a position of extreme high-risk vulnerability. Situated along low-lying floodplains adjacent to the Cagayan River basin, flooding is a recurring seasonal reality for this community. While formal disaster frameworks frequently focus on macro-level interventions, they often overlook the intricate, human dimension of localized survival. A significant gap exists in contemporary disaster literature regarding how informal, self-reliant practices function under extreme environmental duress. This study directly addresses this gap by capturing the authentic, lived narratives of long-term residents in Barangay Banquero.

2. OBJECTIVES OF THE STUDY

This study aims to explore the lived experiences of the residents of Barangay Banquero, Reina Mercedes, Isabela as they relate to flood management. Utilizing a qualitative phenomenological approach, this project examines the

residents' documentation of their own experiences regarding their perception of floods, their experiences during acute inundation, and their selective coping adaptations before, during, and after flooding occurs.

3. METHODOLOGY

This study employed a pure qualitative research design with a descriptive and phenomenological approach to explore personal flood management practices and localized resilience. Data were collected through validated semi-structured interviews featuring open-ended questions designed to encourage detailed narratives about behavioral adaptations, vertical displacement, kinship-based logistics, and the psychosomatic burdens of disaster survival. The researchers ensured strict ethical standards, including informed consent, confidentiality, and anonymity throughout the research process. The gathered narratives were analyzed using thematic analysis by transcribing audio-recorded interviews, coding, and identifying recurring themes, while maintaining reflexivity and transparency to authentically represent participant perspectives.

4. SAMPLING DESIGN

The study utilized a purposive sampling technique to select fifteen (15) long-term residents from Barangay Banquero, Reina Mercedes, Isabela. Participants were explicitly chosen based on their extensive history of navigating severe flooding events, direct exposure to typhoon-induced inundation, and



deep experiential knowledge of local evacuation histories to ensure rich, data-driven qualitative narratives.

5. STATISTICAL DESIGN

As this study is entirely qualitative and grounded in a descriptive phenomenological design, traditional inferential or descriptive statistical models were not applied. Instead, the analytical framework relied on qualitative Thematic Analysis. This involved a systematic process of transcribing verbatim audio-recorded native-dialect interviews, executing structural coding of experiential phrases, and cataloging recurring concepts into formalized themes and sub-themes to establish qualitative validity.

6. GEOGRAPHICAL AREA

The geographical setting of this research is strictly confined to the rural territory of Barangay Banquero, located within the municipality of Reina Mercedes, Isabela, Region II, Philippines. This area is geographically distinguished as a high-risk, low-lying agricultural floodplain community situated directly adjacent to major river networks within the vast, catchment-heavy Cagayan River basin.

7. RESULT AND DISCUSSION

The qualitative findings of this study capture the lived experiences of grassroots survival while highlighting the urgent need for targeted strategies—such as institutionalized vertical modification, integrated psychosocial intervention, and formalized kinship coordination—to reduce climate vulnerability risks. The systematic qualitative thematic analysis of verbatim participant narratives yielded three interconnected, high-density analytical themes tracking the chronological and behavioral adaptations of the community before, during, and after acute flooding events.

7.1 Structural Adaptations and Anticipatory Agency in Pre-Flood Logistics

This theme consolidates the baseline preemptive actions executed by residents under imminent environmental threat, merging the descriptive codes of asset elevation, selective item prioritization, supply storage, structural modifications, situational vigilance, and livestock security into a single analytical framework tracking pre-flood adaptations.

The long-term residents of Barangay Banquero display what contemporary disaster literature defines as "anticipatory agency," moving past simple emergency reactions to a structured cognitive assessment of risk and value under extreme environmental duress. When a severe typhoon warning is issued, residents deploy a rapid, self-determined hierarchy of preservation. High-value household appliances and irreplaceable administrative documentation are prioritized for immediate relocation to prevent long-term socioeconomic displacement. The verbatim accounts of the participants illustrate this calculated internal hierarchy:

"Move your belongings to a high place. For those with no upper floors, moving items vertically entails constructing makeshift platforms... We will build a platform for our items on top of our roof. Lastly, the vertical movement of

goods serves as the primary means of protection... We are moving our items up to the upper floor." (P1, P6, P9)
"Prioritize our belongings, i.e., refrigerator and like items [i.e., other appliances]... I elevate our television and foam mattress so they don't get wet. Residents' focus on electronic and physical security also extends to securing important administrative documents... We secure those documents and appliances." (P3, P11, P12)

This selective prioritization process extends beyond material assets to ensure survival resources are pre-positioned before the local environment becomes completely hazardous. Proactive material procurement—including the storage of clean water, staple foods like rice (*baggit*) and noodles, flashlights, and first-aid resources—is accelerated, particularly within households nurturing vulnerable dependents. For example, P4, P5, and P7 highlighted these protective measures:

"Raise the belongings, then store water, food, and a first aid kit because we have a baby with us... If there is food, we include it with the items to be moved as long as there is rice and noodles, that's enough... Of course, we organize our things and food that we can cook." (P4, P5, P7)

"My first priority during a flood is a flashlight and food... others are much more focused on preserving important personal belongings and documents that they own... I place the documents in a secured spot, and then I place the appliances in a secured spot... we keep our belongings in a higher spot, along with food, water, and first-aid supplies, because we have a baby... for many participants in the study, the focus was still primarily based upon the ability to be self-sufficient by quantity of staple foods (i.e., rice): for P15 the most important thing is rice." (P8, P12, P4, P15)

Over years of repeated exposure to severe inundation within the Cagayan River basin, this anticipatory baseline transitions from temporary, reactive shifts to permanent architectural investments. Residents maximize vertical space within their homes by constructing permanent lofts (*pappotungan*) directly beneath or on top of roofs, or by actively investing structural capital into building two-story residences. As participant narratives indicate:

"My priority during a flood is a flashlight... that's why I work hard so I can build a two-story house because I don't want to be flooded again... Sure, we built a place to store our belongings on the roof." (P8, P6)

This active baseline confirms that the community independently engages in localized mitigation and preparation protocols that align with the strategic pillars of Republic Act 10121 and the National Disaster Risk Reduction and Management Plan (NDRRMP). By utilizing non-structural mitigation measures, residents minimize potential capital losses and shield themselves from localized institutional delays.

This matches findings by Mamon et al. (2023), who emphasize that self-determined behavioral hierarchies prevent immediate socioeconomic displacement. Similarly, Akerkar and Rajasinghe (2020) and Biana and Joaquin (2024) observe that transforming immediate physical labor into permanent structural architectural adaptations serves as a powerful indicator of transformative, localized resilience in flood-prone indigenous and rural ecosystems.



7.2 Micro-Economic Logistics and Familial Social Capital During Acute Inundation

This theme captures behaviors during acute, severe flooding events, merging the overlapping frameworks of household participation, generational and gendered task delegation, individual preparation, material containment, nuclear-based evacuation networks, and home-based shelter solutions.

When floodwaters breach localized territories, the family structure changes from a basic domestic arrangement into a coordinated logistical unit. Guided by deep social cohesion and the traditional Filipino *bayanihan* spirit, roles are designated based on gendered and generational capacities. Physically demanding tasks—such as shifting heavy appliances, handling livestock, and securing home perimeters—are delegated to male family members and younger sons who remain behind. Concurrently, female partners or primary caregivers focus on tracking environmental cues, monitoring water surges, and evacuating vulnerable dependents to safety. Participants emphasize this cooperative internal structure:

"We all help each other at home... It's just my family and me... the whole family... It's just us at home, but sometimes my nephews will help me from my house... My husband and I are both involved in organizing." (P12, P6, P2, P7, P9)

"I'm with my husband, but of course, when I know the water is high, I do it alone and he watches over our child... My sons were the ones assisting with the belongings and were the ones helping pick up the belongings... My teenage sons and my husband... I leave it up to the men who stay behind." (P13, P10, P15)

This domestic logistics network relies heavily on systematic spatial grouping. Supplies and moisture-sensitive assets are bundled compactly to reduce cognitive load and prevent material friction within confined vertical retreat zones. As detailed in the transcripts:

"The statement represents the participant's systematic grouping of items and determining that food and other essentials should be placed in the location that is open first... assessed food before placing other supplies in the restaurant-like space... It is my family that we evacuate... [after] we arrange/pack our belongings." (P7, P14, P1)

Crucially, when evacuation becomes unavoidable, residents show a clear preference for informal, kinship-based networks over government-managed public evacuation facilities. Relocation movements are dictated by informal social bonds, with families shifting their assets and dependents to the higher-elevation residences of extended family members or in-laws. As participant narratives indicate:

"I move my goods to my in-laws' house... My family is Evacuated... My children... We just stay here on the upper floor of our house... Of course, we build a platform for our belongings on the roof... that's where we stay... We are just here at the house, upstairs." (P2, P9, P15, P4, P6, P11)

For those lacking extended kin structures nearby, home-based sheltering on rooftops or improvised elevated platforms remains the chosen survival tactic, driven by a desire to protect belongings from post-disaster theft or damage.

This reliance on social capital aligns with Espina and Mendoza (2023), who position the household unit as the primary buffer against climate shocks. It also aligns with Llanes and Alampay (2022), whose research confirms that age- and gender-segregated task division optimizes productivity when facing rapid-onset environmental hazards.

Furthermore, the distinct preference for kin-based refuge over state-run shelters matches findings by Dalisay (2023) and Bronfman et al. (2021). These studies show that informal safety nets offer greater dignity, security, and emotional stability than formal government facilities.

This dynamic is further reinforced by regional literature, particularly Lupao (2026), who demonstrates that informal community networks and localized geographical intelligence serve as the primary baseline for immediate disaster response when formal Local Disaster Risk Reduction and Management (LDRRM) interventions are structurally absent or delayed.

7.3 The "Race Against Time": Post-Flood Environmental Restoration and Reverse Logistics

This final theme unifies the recovery and post-disaster rehabilitation phases, merging the highly similar processes of systematic cleaning, immediate mud removal, asset repatriation, and household reassembly into a single analytical section.

Once peak floodwaters recede, the survival routine transitions into a labor-intensive "race against time" centered on environmental decontamination and recovery. The primary, immediate challenge is removing thick, heavy alluvial mud before it dries and hardens against household structures, which would cause long-term structural decay and create acute public health hazards. This cleanup effort requires intense physical work from the entire household under wet, exhausting conditions. Participants describe this demanding phase:

"We clean as the water recedes because it leaves behind thick mud... Of course, cleaning, because after a flood it is extremely dirty... Clean the house... We will return our belongings to the house and then clean... will return the items here." (P4, P6, P11, P8)

This phase involves a complex process of reverse logistics. Possessions, textiles, and appliances stored on roofs, upper lofts, or at relatives' homes must be returned, washed, sanitized, and reassembled to restore the home to a functional state. As participant narratives indicate:

"cleaning, organizing, and washing clothes again if they got wet... clean and fix the house if any damage is found... the continued work of cleaning and sanitizing as part of recovery can be exemplified by issues related to the bedrooms, where it is still muddy there is ongoing but can offer many opportunities." (P5, P8, P4)

Re-establishing daily living spaces marks the formal end of displacement and plays a vital psychological role in helping families regain a sense of normalcy and control. Within the NDRRMP framework, these independent actions form the foundation of localized Disaster Recovery and Rehabilitation.

This matches findings by Uyan et al. (2024), who document that immediate mud-scouring is crucial for structural preservation and preventing prolonged displacement. Additionally, Esteban and Lizaralde (2022) note that the efficiency of reverse asset logistics serves as an accurate



measure of a household's recovery capacity, representing both a practical and symbolic return to normal domesticity.

8. SUGGESTIONS AND RECOMMENDATIONS

Based on the empirical findings, lived narratives, and emerging structural themes documented in this qualitative study, the following action plans are recommended to optimize disaster risk reduction and management (DRRM) paradigms:

For the Barangay Local Government Unit (BLGU) and Municipal Disaster Risk Reduction and Management Office (MDRRMO): To structurally address the personal flood management limitations and the extreme physical strains borne by local residents when attempting to manually execute the vertical shift of heavy domestic equipment, both the BLGU and the MDRRMO must collaborate to engineer and construct multi-purpose evacuation centers with elevated flooring. Providing this kind of resilient structural shelter will minimize the recurring labor-intensive physical stresses placed on families who are otherwise forced to create makeshift residential platforms during typhoons. Additionally, during the post-flood cleanup phase, the MDRRMO must proactively supply high-pressure cleaning equipment to accelerate the time-critical removal of heavy mud before it thickens, while simultaneously providing municipal technical support to construct adaptive local sewage and drainage systems that prevent the long-term deterioration of community sanitation.

For Community Leaders and Health Workers: To support local residents who experience severe emotional distress, anticipatory panic, and profound sleep disturbances while monitoring rising river catchments, healthcare providers and community leaders must create localized psychological first-aid programs and conduct structured emotional preparedness workshops. These psychosocial interventions are critical for minimizing the severe mental health tolls of disaster fatigue that individual coping mechanisms cannot solve alone. Furthermore, community leaders should organize formal workshops where long-term residents can document, formalize, and share their localized material preservation techniques and kinship evacuation solutions with newer, less experienced community members to enhance collective resilience.

For the Residents of Barangay Banquero: Concerning the long-term effectiveness and sustainability of their grassroots flood management practices, it is recommended that the residents of this barangay actively formalize their spatial adaptation strategies by organizing elevated group shelters and documenting how to modify them to fit changing local threats. Residents are strongly encouraged to conduct regular, coordinated household drills to streamline their asset containment procedures and map out kinship evacuation pathways before acute flooding events trigger panic mode. By systematically passing down proven personal flood management solutions to neighbors and expanding family networks, the community can effectively share the labor requirements of disaster recovery and mitigate individual vulnerabilities.

9. CONCLUSION

This study concludes that the long-term residents of Barangay Banquero, Reina Mercedes, Isabela, have achieved an extraordinary and highly sophisticated level of autonomous resilience through years of firsthand experience navigating severe flooding within the Cagayan River basin. This localized capacity is demonstrated through an advanced repertoire of personal flood management practices that strictly prioritize the preservation of human life and the protection of high-value household belongings. By utilizing raised platforms (*pappotungan*) as their primary line of defense against material loss and relying heavily on deep social capital, family connectivity, and mutual *bayanihan* assistance, residents have successfully created a reliable, informal safety net that provides vital refuge and shared resources where formal public infrastructure is delayed or absent.

Despite the impressive capabilities displayed by the community, the investigation ultimately concludes that the residents have reached a critical "preparedness ceiling," where individual human agency and autonomous adaptations yield diminishing returns against the escalating severity of climate-driven typhoons. The exhausting, repetitive cycle of lifting heavy furniture, combined with the psychological toll of fear, sleep deprivation, and extreme physical strain, has triggered severe disaster fatigue, making consistent household preparation increasingly difficult to sustain. Because informal kinship structures and personal routines are only capable of ensuring immediate physical survival rather than supporting long-term economic rehabilitation, there is an urgent need for a definitive shift in policy that moves primary responsibility away from vulnerable households and onto disaster management agencies to construct the permanent public infrastructure required to secure sustainable, long-term safety.

10. AREAS FOR FURTHER RESEARCH

To build comprehensively upon the qualitative baseline established in this investigation, future researchers should deploy mixed-method or longitudinal research designs to precisely quantify the exact environmental thresholds—such as river water levels, rainfall data, or storm surge heights—where grassroots coping mechanisms like vertical displacement cross the "preparedness ceiling" and structurally fail. Additionally, subsequent academic inquiries should conduct comparative cross-demographic and cross-topographical analyses within the province to investigate how the lowland floodplain survival strategies documented here differ from the upland or forest-dependent adaptations utilized by indigenous regional communities, such as the regional Agta populations. Finally, future work must focus heavily on the intersection of public health and emergency management by tracking the long-term economic and psychological impacts of recurring disasters on families, while simultaneously evaluating simulation models that can formally integrate kinship-based logistical networks into municipal, top-down Local Disaster Risk Reduction and Management (LDRRM) policies to build a truly cohesive, bottom-up disaster mitigation framework.



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