

Adaptive Capacities In Flood-Prone Communities: A Descriptive Qualitative Study Of Community Resilience Along The Saug River

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Abstract

Recurring flooding remains a persistent community problem. I explored the disturbance or adversity, network of adaptive capacities, and positive adaptation experienced by residents in flood-prone communities along the Saug River. Using a qualitative descriptive design, I interviewed eight purposively sampled residents and applied thematic analysis. I found that recurring flooding disrupted livelihood, safety, mobility, and emotional well-being; however, residents used economic support, social relationships, communication systems, and collective action to sustain community resilience. Hence, Community Resilience Theory was applied to emphasize that local government units and barangay leaders may strengthen livelihood assistance, early warning systems, community participation, and psychosocial support. Future research may quantitatively validate the relationship between adaptive capacities and positive adaptation in flood-prone communities.

Keywords: Adaptive capacities, flood-prone communities, descriptive qualitative study, community resilience, Saug river

INTRODUCTION

The Problem and Its Scope

Recurring flooding in vulnerable communities is a global problem. This issue manifests as a continuing disruption in how people live, work, and maintain safety in areas repeatedly exposed to flood hazards. Flooding not only damages houses and properties; it also affects livelihood, access to resources, emotional well-being, and the capacity of communities to function after disasters. The World Meteorological Organization (2025) emphasized that Asia continues to experience increasing risks from extreme weather events, including floods, highlighting the urgent need for preparedness, early warning, and resilience-building.

Across countries, flood-prone communities continue to face challenges related to displacement, poverty, limited infrastructure, and limited access to recovery resources. The UN Office for Disaster Risk Reduction (2024) noted that disaster risk reduction should go beyond responding to disasters by also taking action to enhance governance, preparedness, and local capacity building. Thus, to successfully prepare communities to respond to future disasters, they require more than just physical protection; they also need access to economic resources, social relationships, communication methods, and collective problem-solving capabilities to respond to and recover from repeated disturbances.

In the Philippines, flooding remains a recurring concern. The World Bank (2023) identified the Philippines as one of the most disaster-prone countries because of its geographic location and frequent exposure to natural hazards. Disaster risk reduction is supported by the Sendai Framework for Disaster Risk Reduction, which emphasizes understanding disaster risk, strengthening governance, investing in resilience, and enhancing preparedness for response and recovery (United Nations Office for Disaster Risk Reduction, 2015). At the national level, Republic Act No. 10121 provides the legal foundation for a proactive, community-based approach to disaster risk reduction and management.

In Asuncion, Davao del Norte, communities along the Saug River continue to experience recurring flooding. Many residents remain in these areas despite the risks because their livelihood, family ties, and community relationships are connected to the place. While flooding has been documented as a hazard, there remains a need to describe how residents experience disturbance or adversity, demonstrate adaptive capacities, and achieve positive adaptation after repeated flooding. This study addresses this gap by focusing on residents' experiences through the lens of Community Resilience Theory (Norris et al., 2008). Hence, I conducted this study.

Significance of the Study

This study is significant because it describes the adaptive capacities of flood-prone communities, anchored on Community Resilience Theory by Norris et al. (2008). Guided by Sustainable Development Goal 11 on Sustainable Cities and Communities, and aligned with the vision and mission of Holy Cross of Davao College, the study provides a localized understanding of how economic development, social capital, information and communication, and community competence contribute to positive adaptation after recurring flooding. The findings may benefit Social Studies educators by providing real-life community examples for teaching disaster risk reduction, civic participation, and resilience. They may also help local government units, community leaders, policymakers, and disaster risk reduction planners strengthen programs related to livelihood support, early warning systems, information dissemination, community participation, environmental action, and psychosocial assistance. Furthermore, the study may serve as a reference for future researchers exploring community resilience, adaptive capacities, disaster risk reduction, and flood-prone communities.

Research Questions

In this study, I explored community resilience among flood-prone communities. Specifically, I sought answers to the following questions:

1. What forms of disturbance or adversity caused by flood, as perceived by residents, are due to recurring flooding?
2. What network of adaptive capacities is demonstrated by residents in response to recurring flooding?
3. What forms of positive adaptation are shown by residents after recurring flooding?

Theoretical Lens

I anchored this study on Community Resilience Theory by Norris et al. (2008), which defines community resilience as “a process linking a network of adaptive capacities” to positive adaptation following disturbance or adversity. The theory views resilience as a community process shaped by four adaptive capacities: economic development, social capital, information and communication, and community competence. In the context of flood-prone communities, I assumed that residents utilize these adaptive capacities to respond to recurring flooding, sustain daily life, and achieve positive adaptation despite repeated disturbances.

Conceptual Framework

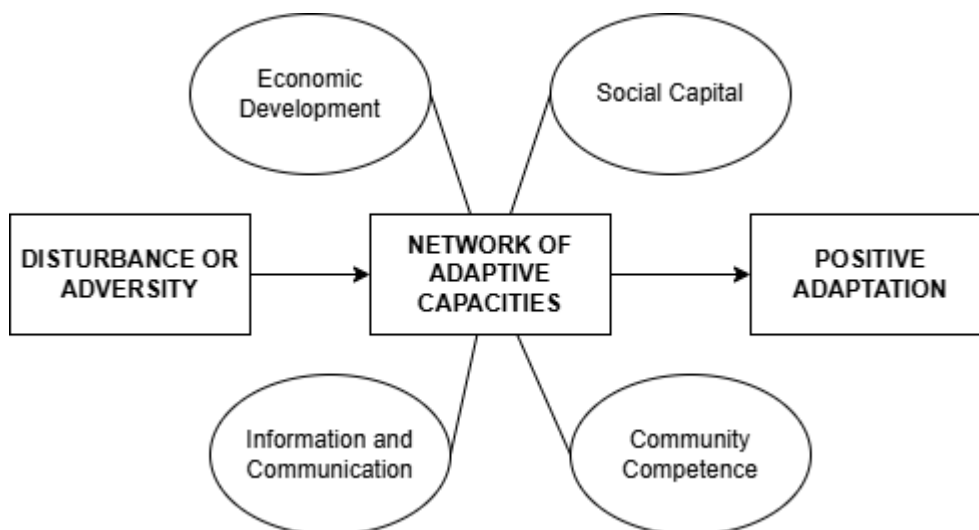


Figure 1. Conceptual Paradigm of the Study Anchored on Community Resilience Theory by Norris et al. (2008)

The conceptual framework of this study follows the original assertion of Community Resilience Theory by Norris et al. (2008). Recurring flooding constitutes the disturbance or adversity experienced by residents. To meet this challenge, the community utilizes its network of available adaptive capacities, including: economic development, social capital, information and communications, and community competence. These capacities will help the community adapt positively by strengthening preparedness, adjustment, and recovery toward continued community development.

Assumptions

I assumed that the experiences of residents in flood-prone communities along the Saug River align with the major components of Community Resilience Theory: disturbance or adversity, a network of adaptive capacities, and positive adaptation. I further assumed that residents demonstrate development in economic, social capital, information and communication, and community competence as they respond to recurring flooding. While the study does not measure resilience statistically, it focuses on the participants' accounts as credible sources for understanding how communities manage flood-related challenges.

METHODOLOGY

In this section, I presented the research design, the study locale, the sample and sampling technique, the data-gathering technique, the data-analysis technique, and the study's trustworthiness.

Research Design

In this study, I utilized a qualitative descriptive research design. I adopted this design to provide a clear and direct description of the disturbance or adversity, adaptive capacities, and positive adaptation experienced by residents in flood-prone communities. Descriptive qualitative research is appropriate when the researcher seeks to describe participants' experiences, responses, and practices based on their actual accounts (Hall & Liebenberg, 2024). This design was suitable because the study focused on how residents described recurring flooding and the community capacities they used to respond to it.

Locale of the Study

I conducted this study in flood-prone communities along the Saug River in Asuncion, Davao del Norte. These communities were selected because residents have experienced recurring flooding that affects their livelihood, mobility, safety, and daily routines. The area provided a relevant context for describing how residents experience flooding as a disturbance and how they respond through available resources, relationships, communication systems, and collective action. The selection of the locale ensured that the study was grounded in the real experiences of residents living in a flood-prone environment.

Sample and Sampling Technique

In this study, the participants were eight residents of flood-prone communities along the Saug River with direct experience of recurring flooding. I used purposive sampling to intentionally select participants who met the study's criteria. Purposive sampling is a non-probability sampling technique in which participants are chosen based on specific characteristics, experiences, or knowledge relevant to the research problem (Tajik et al., 2024). The participants were selected because they were 18 years old or older, had lived in the community for at least three years, had personally experienced recurring flooding, and were willing to participate in the study.

Data Gathering Technique

In gathering the data, I utilized semi-structured interviews as the primary method of data collection. Interviews allowed me to ask open-ended questions and follow-up questions to obtain detailed responses from participants regarding their flood experiences, community responses, and adaptive practices. This method was appropriate because qualitative interviews allow researchers to understand participants' perspectives, actions, and context-specific experiences (Junnier, 2024). With the participants' consent, the interviews were audio-recorded, transcribed, reviewed, and validated to ensure that their responses were accurately represented.

Data Analysis Technique

I used thematic analysis to examine the interview data. Thematic analysis is a qualitative data analysis technique used to identify, organize, and interpret patterns or themes within qualitative data (Naeem et al., 2023). This method was appropriate because it allowed me to organize the participants' responses according to the major components of Community Resilience Theory. These are disturbance or adversity, a network of adaptive capacities, and positive adaptation. Through coding and theme development, I identified the major patterns that described how residents experienced recurring flooding and how the community responded to it.

Trustworthiness of the Study

In this study, I established trustworthiness by observing credibility, transferability, dependability, and confirmability. Credibility was ensured through careful interviewing, accurate transcription, and participant validation of responses. Transferability was supported by providing clear descriptions of the locale, participants, and findings. Dependability was maintained by following a systematic process in data gathering and analysis. Lastly, confirmability was ensured by grounding the interpretations in participants' actual responses and by minimizing personal bias throughout the research process.

RESULTS

In this chapter, I discussed the findings of my study. I also presented the modified paradigm.

Disturbance or Adversity Experienced Due to Recurring Flooding

As I listened during the interview, one participant spoke about the difficulty of remaining in a place

where flooding repeatedly disrupts daily life. One participant from IDI stated:

“Wala pa may nibalhin biskan pa man kanunay na mi bahaon... kay naa man pod diri amoang panginabuhian.” (We still have not moved out even though our area gets flooded repeatedly... because our livelihood is also here.) (IDI-1)

This was supported by another participant who spoke in a tone that conveyed limitation and resignation:

“Ang uban mapugos nalang tungod pud kay ilang panginabuhian naa ra sa duol.” (Some are left with no choice as well because their livelihood is also located nearby.) (IDI-5)

A participant also described the emotional difficulty caused by repeated flooding, saying:

“Maka trauma siya... grabi na ang kagool.” (It can be traumatic... the sadness is just overwhelming.) (IDI-2)

Another participant remarked on the panic and difficulty during evacuation, stating:

“Malisang gyud sila... lisod kaayo mag evacuate.” (They really panic... and it becomes very difficult to evacuate.) (IDI-3)

One participant added with heaviness, saying:

“Murag nag balik-balik og gika-duhaan mi.” (It feels like we are being tested over and over again.) (IDI-4)

Going back to the participants' responses, I observed that recurring flooding is experienced not only as a physical hazard but also as a disturbance that affects livelihood, safety, mobility, and emotional well-being. The participants' narratives reveal that many residents remain in flood-prone areas not because they disregard danger, but because their livelihood and community life are tied to the place. Throughout the interviews, I detected feelings of fear, exhaustion, and uncertainty, especially when participants described trauma, panic, and repeated hardship. Listening to these accounts, I felt the weight of their situation, because the flooding not only damages homes and surroundings, but it also tests the emotional strength of residents who continue to live with the recurring risk.

Network of Adaptive Capacities Demonstrated in Response to Recurring Flooding

During the interviews, the participants described different ways the community responds to flooding through livelihood support, social relationships, communication systems, and collective action. One participant shared the role of assistance after flooding, saying:

“Naa puy time nga kanang after sa baha kay gahatag silage kuan bugas, mga delata pangsuporta pud sa mga panimalay nga kanang nabahaan.” (There were also times when, after the flood, they would give rice, canned goods, and other support to households that had been affected by the flooding.) (IDI-6)

This was supported by another participant who emphasized government support as an initial step for survival. The participant shared:

“Mga ayuda nga gipang hatag sa government... mao na ang first step nga ilang gihimo para maka survive ang mga tao jud sa baha.” (The assistance provided by the government... that is the first step they take to help people survive the flooding.) (IDI-8)

One of the participants also spoke about social support and bayanihan, saying:
"Sharing of foods, sharing of mga efforts... ga tinabangay lang."
(Sharing food, sharing efforts... just helping one another.) (IDI-8)

Another participant added:
"Pagsinabtanay... pagtinabangay... sa usag-usa." (Understanding one another... helping one another... and supporting each other.) (IDI-3)

Communication also appeared as an important capacity. One participant explained:
"Dria sa among lugar kung nay baha, naay tig suroy, nagamotor, nagapahibalo nga naa ng baha padulong na diria." (In our area, whenever there is flooding, someone goes around on a motorcycle to inform people that the floodwaters are already on the way here.) (IDI-7)

Another participant described organized community action, saying:
"Kami diri, magtinabangay na lang mi, mag-ayo sa among drainage, magbuhat mig kanal aron kung dili man mapugngan ang baha at least dili mabahaan dayon..." (Here in our community, we help one another by fixing our drainage and making canals so that even if the flood cannot be completely prevented, at least the area will not be flooded right away.) (IDI-2)

Reflecting on the participant responses, I noticed that the community's adaptive capacities are interconnected. Economic development was seen in livelihood dependence, government assistance, and return to work. Social capital was seen in bayanihan, sharing, encouragement, and mutual understanding. Information and communication were shown through barangay advisories, motorcycle warnings, reminders, and LGU updates. Community competence was reflected in drainage maintenance, canal cleaning, clean-up activities, and environmental practices. As I listened to their accounts, I felt that resilience in this community is not formed by one single response, but by a network of actions and relationships that work together during times of hardship.

Positive Adaptation after Recurring Flooding

As the interviews continued, participants described how they continued moving forward after flood events. One participant shared:

"Magtrabaho napud kay mao jud baya ang panginabuhian." (We go back to work again because that is really our source of livelihood.) (IDI-6)

Another participant described the immediate clean-up after flooding, saying:
"Pag human sab aha, maglimpyo naman pod mi... daghan kaayog mga basura." (After the flood, we also start cleaning up... there is usually so much garbage.) (IDI-1)

A participant also mentioned preparation before flooding, saying:
"Sa wala pa ang tubig nag stock nako ug tubig nga mainom, bugas ug daily needs nako sa sulod sa panimalay ginaprepare na para pag abot sa tubig di na mahago." (Even before the floodwaters arrive, I already stock up on drinking water, rice, and my daily household

needs. I prepare everything in advance so that when the floodwaters come, I will not have a hard time.) (IDI-5)

Another participant spoke of environmental response, stating:

“Gatanom sila ug bamboo kilid sa sapa... nakatabang pud sya nga dili kusog ang dagan sa tubig.” (They plant bamboo along the riverbank... and it also helps lessen the strong flow of the water.) (IDI-6)

One participant expressed acceptance and strength, revealing:

“Dawat-dawat...kinahanglan gyud na isog og di gyud maawad-an og paglaom.” (It is really about acceptance... you truly need to stay strong and never lose hope.) (IDI-2)

Going back to the participant responses, I observed that positive adaptation is shown through the residents' ability to prepare, adjust, recover, and continue functioning despite recurring flooding. Their actions include stocking supplies, returning to work, cleaning after floods, participating in environmental protection, and maintaining hope. I detected a strong sense of endurance in their responses, not because life after flooding is easy, but because they have learned to continue even after repeated disruption. Listening to their stories, I felt that positive adaptation in this community is both practical and emotional. It is practical because residents act to restore their daily lives, and emotional because they continue to hold on to courage, acceptance, and hope.

Summary of Findings

1. The participants perceived recurring flooding as a disturbance or adversity that disrupted livelihood, safety, mobility, and emotional well-being.
2. The participants demonstrated a network of adaptive capacities through livelihood support, bayanihan, information sharing, early warning, community participation, and collective problem-solving.
3. The participants showed positive adaptation through preparedness, adjustment, recovery, return to livelihood, environmental action, continued functioning, and emotional endurance

Modified Paradigm

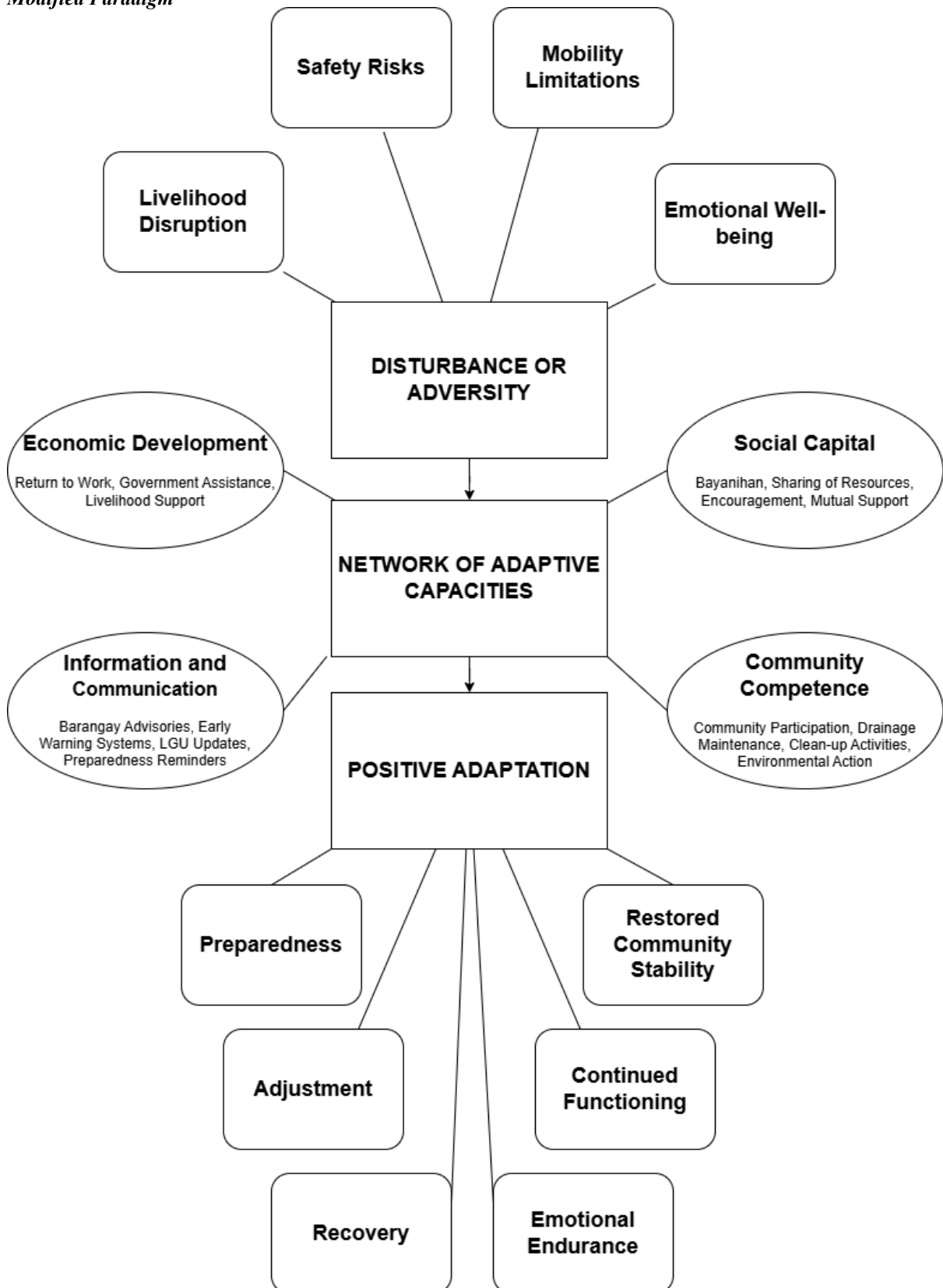


Figure 2. Modified Paradigm

The modified paradigm presents how recurring flooding becomes the disturbance or adversity experienced by residents along the Saug River. In response, the community demonstrates a network of adaptive capacities composed of economic development, social capital, information and communication, and community competence. These capacities lead to positive adaptation, which is reflected in preparedness, adjustment, recovery, continued functioning, restored community stability, and emotional endurance.

DISCUSSION

In this section, I discussed the findings of my study. I also presented the implications for practice and future directions.

Disturbance or Adversity Experienced Due to Recurring Flooding

My findings show that residents experience recurring flooding as a disturbance or adversity that affects livelihoods, safety, mobility, and emotional well-being. The participants' narratives reveal that flood events are not isolated incidents, but repeated disruptions that shape how residents live and make decisions. Their experiences show that flooding creates both visible and invisible effects, including damaged surroundings, interrupted work, limited movement, fear, anxiety, and trauma.

My findings align with the World Meteorological Organization (2025), which emphasized that climate-related hazards such as flooding continue to threaten lives, livelihoods, and community stability in Asia. Similarly, the World Bank (2023) noted that the Philippines remains highly exposed to typhoons, floods, and other hazards, underscoring the importance of community-based disaster preparedness and resilience. These studies support the idea that recurring flooding should not be viewed only as an environmental problem, but as a social and economic concern that affects the everyday functioning of communities.

Gutang's work also supports this finding by emphasizing that dangerous flooding poses serious challenges for vulnerable groups and requires disaster-resilience efforts anchored in capacity development, preparedness, and participatory governance. His discussion of disaster resiliency in flood-prone contexts strengthens the present study's finding that flooding is not only a physical hazard but also a social and developmental concern that affects safety, livelihood, education, emotional well-being, and community functioning (Gutang, 2021).

However, what makes my study significant is its focus on residents' local experience along the Saug River. While many disaster studies focus on damage, exposure, or government response, this study highlights how residents themselves describe disturbance and adversity. Their responses show that flooding is not only measured by water levels or property loss, but also by the fear, limitations, and repeated emotional burden residents carry.

Network of Adaptive Capacities Demonstrated in Response to Recurring Flooding

My findings show that residents demonstrate a network of adaptive capacities in response to recurring flooding. These capacities include economic development, social capital, information and communication, and community competence. Economic development was reflected in livelihood dependence, government assistance, and return to work. Social capital was shown through bayanihan, mutual help, sharing, and encouragement. Information and communication were conveyed through barangay advisories, early warnings, and LGU updates. Community competence was seen in clean-up activities, drainage maintenance, environmental action, and collective problem-solving.

My findings align with Norris et al. (2008), who explained that community resilience is "a process linking a network of adaptive capacities" to positive adaptation after disturbance or adversity. The findings also support the Sendai Framework for Disaster Risk Reduction, which emphasized preparedness, governance, investment in resilience, and effective response and recovery (United Nations Office for Disaster Risk Reduction, 2015). In the same way, Republic Act No. 10121 supports community-based disaster risk reduction and recognizes the role of local communities in preparedness and response.

However, my findings also show that these adaptive capacities are not equally strong at all times. Government assistance may help, but may not fully address long-term livelihood vulnerability. Bayanihan may support recovery, but it may become limited when many households are affected. Communication may warn residents, but it must remain timely and clear. Community action may reduce risks, but larger infrastructure and sustained programs are still needed. This makes the study significant because it shows that resilience depends not on a single capacity, but on how these capacities work together in actual community life.

Positive Adaptation After Recurring Flooding

My findings show that residents demonstrate positive adaptation through preparedness, adjustment, recovery, continued functioning, and emotional endurance. The participants described preparing supplies before floods, returning to work after floods, cleaning their surroundings, participating in environmental activities, and maintaining courage despite repeated hardship. These responses show that positive adaptation is not simply returning to normal; it is the ability to continue functioning while adjusting to recurring risks.

My findings align with those of Norris et al. (2008), who viewed positive adaptation as the outcome of adaptive capacities following adversity. The findings also support the Sendai Framework's emphasis on preparedness, recovery, and resilience-building in the aftermath of disasters (United Nations Office for Disaster Risk Reduction, 2015). In this study, positive adaptation is reflected in residents' ability to prepare, recover, and continue community life despite flood exposure.

However, my study adds that positive adaptation also has an emotional dimension. The participants' responses show that recovery is not only about cleaning homes, receiving assistance, or returning to work. It also involves acceptance, hope, courage, and the ability to continue despite fear and trauma. This makes the study significant because it expands the understanding of community resilience by showing that positive adaptation includes both practical recovery and emotional endurance.

Implication for Practice

Upon reflecting on the modified paradigm, local government units, barangay officials, and disaster risk reduction leaders may strengthen community resilience by developing programs that support the three major components of Community Resilience Theory. These may include livelihood assistance and recovery support, strengthened early warning and information systems, regular community clean-up and drainage maintenance, environmental protection activities, and psychosocial support for residents affected by recurring flooding. Such practices may help residents move from repeated disturbance toward stronger adaptive capacities and more sustainable positive adaptation.

Future Directions

Future studies may use quantitative or mixed-methods research to examine the relationships among disturbance or adversity, adaptive capacities, and positive adaptation in flood-prone communities. Researchers may also develop survey instruments based on the subthemes identified in this study, such as livelihood support, bayanihan, early warning, community participation, preparedness, recovery, and emotional endurance. Further studies may compare different flood-prone barangays or riverine communities to validate and expand the modified paradigm of community resilience.

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