

Sustaining Local Enterprise: Adaptive MSMEs in Flood-Prone Areas in the Third District of Albay, Philippines

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ABSTRACT

This paper develops and presents an Integrated Logical Framework for MSME Capability Context in Flood Risk Management in the 3rd District of Albay, synthesizing government support, recurring challenges, and best practices into a diagnostic and developmental model that strengthens enterprise resilience, continuity, and community safety within the Quinali “A” Watershed. The study employed a descriptive-assessment method using surveys, interviews, and document reviews, guided by structured rubrics to evaluate MSMEs’ flood risk management capabilities, practices, government support, and resilience gaps in the study area. The study found that MSMEs in Oas, Polangui, and Libon demonstrate moderate capability (2.5 to 3.4 rating) in flood risk management, with strengths in asset protection and adaptive operations but persistent weakness in financial preparedness and government support. Best practices were largely adopted (3.5 to 4.4) in Oas, while Polangui and Libon showed only partial adoption (2.5 to 3.4), reflecting uneven resilience capacities across municipalities. Overall, MSMEs “often” (3.4 to 4.4) encounter gaps in finance, market retention, and policy implementation, underscoring the need for target interventions, strong PPP engagement, and proactive government support to achieve sustainable resilience.

Keywords: *MSMEs, Flood Risk, Business Continuity, DRR, Safety, Economic Development*

INTRODUCTION

The Quinali “A” Watershed in Albay has been the subject of several studies on multi-hazard impacts and flood risk (Madriaga, 2023; Awah, et al., 2024), including works by Singson et al. (2023), Mendoza et al. (2025), and the Asia-Pacific Network for Global Change Research (2022), which highlight its vulnerability (Mendoza et al., 2025) to floods and other hazards. Hydrologic modeling studies further emphasize the watershed’s floodplain dynamics, underscoring the need for localized MSME resilience frameworks (Bañares et al., 2024; Napay & Luyun, 2018).

MSMEs in flood-prone municipalities of the Quinali “A” Watershed, particularly Oas, Polangui, and Libon, face significant challenges in flood risk management due to the absence of localized frameworks, leaving them vulnerable to operational disruptions and long-term sustainability risks (Quesada-Román et al., 2025). Flood risk method for

scarce-data catchments and municipalities (Quesada-Román et al., 2025). While broader studies on

MSME resilience exist (Agarwal et al., 2023; Gupta & Singh, 2023; Supari & Anton. 2022; Anggadwita. 2021; Anatan, 2021), localized research remains scarce, with limited data on disaster risk reduction integration, economic losses, and recovery mechanisms (Skouloudis, 2023; Vasquez et al., 2021; Khurana, 2021; Skivington, 2021) to develop a Capability Context Model tailored to MSMEs in the watershed, offering actionable strategies for owners, LGUs, and national agencies to strengthen preparedness, adaptive capacity, and sustainable economic development.

The conceptual framework for this study draws strength from the triangulation of Resource-Based View Theory (Agarwal et al., 2023; Barney, 1991), Resilience Theory (Ballesteros & Domingo, 2023), and Stakeholder Theory (Skouloudis, 2023) to examine how MSMEs in the Quinali “A” Watershed

build adaptive capacity against flood risks. The framework provides a structured lens for analyzing resilience, highlighting four interconnected components: (i) capability, (ii) practices/strategies, (iii) gaps, (iv) challenges, and institutional support that collectively shape MSME resilience. Figure 1 emphasizes that MSMEs' specific assets are critical for sustaining competitive advantage and resilience (Barney, 1991; Agarwal et al., 2023). Studies in the Philippines context confirm that MSMEs often face financial constraints (Vasquez et al., 2021), operational disruptions, and weak retention following flood events (Ballesteros & Domingo, 2023).

Government and institutional support, through policies, financial aid, and PPP (Bhat, 2021) initiatives, plays a pivotal role in bringing these gaps and reinforcing resilience. This aligns with stakeholder theory, which underscores the importance of coordinated actions among public and private institutions and agencies, including the MSMEs communities (Freeman, 1884; Skouloudis, 2023).

The Logical Framework for MSME Capability Context in Flood Risk Management in Albay's 3rd District, combining government support, challenges, and best practices into a model that strengthens resilience, business continuity, and community safety within the Quinali "A" Watershed.

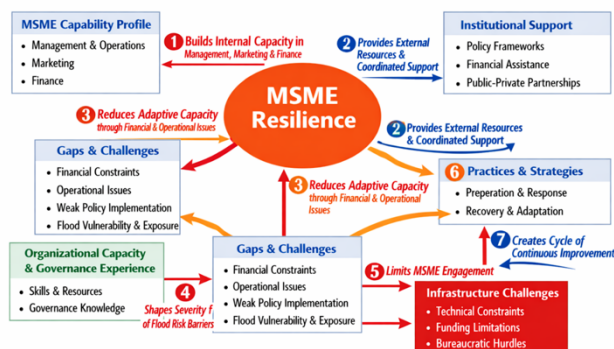


Figure 1. MSME Resilience Conceptual Framework

Figure 1 illustrates how internal capabilities, external support, and strategic practices interact to shape resilience among enterprises in flood-prone areas. Arrow 1 shows that MSME capability profiles include management, marketing, and finance. Shows how to build internal capacity to anticipate and recover from disruptions. Arrow 2 highlights how institutional support, including policies, financial aid, and partnerships, reinforces resilience by supplying coordinated resources, while arrow 3 indicates that financial constraints, operational issues, and flood

vulnerability weaken resilience by reducing adaptive capacity. The arrow 4 hinted at organizational capacity and governance experience shape the severity of infrastructure challenges, while Arrow 5 shows that these challenges limit MSME participation in development processes. Arrow 6 suggests that preparedness, response, and adaptation strategies enhance resilience, and Arrow 7 completes the feedback loop, showing that resilient MSMEs refine their practices over time. It creates a cycle of continuous improvement. All of these relationships offer a structured lens for understanding how MSMEs in the Quinali "A" Watershed can strengthen their flood risk management and long-term sustainability.

MATERIALS AND METHODS

The study surveyed 95 formally registered MSMEs in flood-prone areas of Oas, Polangui, and Libon, selected from a population of 2,011 using Slovin's formula and guided by the USAID-DENR Vulnerability Assessment of the Quinali "A" Watershed. A descriptive-assessment approach was employed through surveys, interviews, and document reviews to evaluate MSMEs' flood risk management capabilities, preparedness strategies, government support, and resilience gaps.

For rubric structured analysis: Capability Profile (management, operations, marketing, finance), Practices/Strategies (preparation, response, recovery/adaptation), Government Support (policy, financial aid, PPP initiatives), and Gaps and Challenges (operations, finance, policy, and market sustainability). Providing a comprehensive framework for identifying strengths, weaknesses, and actionable recommendations.

Table 1. Rubric for Analyzing MSMEs' Capability Profile on Flood Risk Management

Scale Range	Adjectival Description	Interpretation	Capability Classification
4.5 – 5.0	Very High Capability	MSME demonstrates outstanding and pro-active capability in managing flood risks, with well-established systems and practices	Strength
3.5 – 4.4	High Capability	MSME shows strong capability in flood risk management with few areas for enhancement	Strength
2.5 – 3.4	Moderate Capability	MSME has basic or average capability; needs further development to effectively manage flood risks	Weakness
1.5 – 2.4	Low Capability	MSME demonstrates limited capacity in handling flood-related risks, major improvements required	Weakness
1.0 – 1.4	Very Low Capability	MSME lacks essential capability in flood risk management; highly vulnerable and requires urgent support	Weakness

Requillas & Abante (2025)

The document review assessed MSMEs flood risk management practices across three phases: (i) preparation (risk assessment, asset protection, financial readiness, awareness), (ii) response (continuity, safety, crisis communication), and (iii) recovery/adaptation (financial recovery, rebuilding,

market adaptation, long-term resilience), to determine the extent of adoption and effectiveness of strategies in sustaining enterprise resilience.

Table 2. Rubric for Assessing MSMEs' Flood Risk Management Practices/Strategies

Scale Range	Adjectival Description	Practice Classification	Interpretation
4.5 – 5.0	Fully Adopted	Best Practice	The practice is exemplary and fully integrated; serves as a model for others
3.5 – 4.4	Largely Adopted	Strong Practice	The practice is well established with consistent application and good results
2.4 – 3.4	Partially Adopted	Moderate Practice	The practice is applied inconsistently or in limited scope; needs strengthening
1.4 – 2.4	Minimally Adopted	Weak Practice	The practice is present but underdeveloped; requires significant improvement
1.0 – 1.4	Not Adopted	No Practice	The practice is not applied; urgent attention and action needed

Requillas & Abante (2025)

The document review assessed the extent of government support provided to MSMEs in flood-prone areas, focusing on policy and regulatory frameworks, financial assistance, and public-private partnership (PPP) initiatives, to determine how effectively these mechanisms enhance MSMEs' flood risk management capabilities and resilience.

Table 3. Rubric for Assessing Government Support to MSMEs to Enhance Flood Risk Management Capabilities

Response	Meaning	Implication	Recommended Action
Yes	MSMEs acknowledged receipt of government support/program	Indicates effective reach and awareness of support programs; MSMEs are potentially benefiting from such support	Sustain and possibly expand current programs; continue engaging MSMEs to improve resilience
No	MSMEs did not receive or not receiving government support	Implies lack access to or absence of government support; increases MSME vulnerability to flood risks	Improve outreach, identify service gaps, and develop inclusive programs for underserved MSMEs
Not Sure	MSMEs are unaware or unsure about government support programs	Reveals and information/awareness gap; suggests poor communication and insufficient dissemination of programs	Strengthen information dissemination efforts through local channels and partnerships with LGUs or NGOs

Requillas & Abante (2025)

The document review identified the key gaps and challenges MSMEs face in managing flood risks in Oas, Polangui, and Libon, spanning operations, finance, government support, and market sustainability, validated through stakeholder input to ensure the instrument's accuracy, relevance, and contextual fit.

Table 4. Rubric for Assessing Gaps and Challenges MSMEs Encountered in Managing Flood Risks

Scale Range	Adjectival Description	Implication	Recommended Action
4.5 – 5.0	Always	MSMEs consistently experience the gaps/challenges, persistent issues could severely affect FRM capabilities	Urgent and strategic government intervention needed; prioritize policy and resource allocation to address systematic issues
3.5 – 4.4	Often	MSMEs frequently experience gaps/challenges that regularly hamper FRM	Design targeted support programs and strengthen coordination with MSMEs to address recurring gaps
2.4 – 3.4	Sometimes	MSMEs intermittently experience gaps/challenges. Indicating a moderate level of concern	Monitor trends and implement preventive or support mechanisms to avoid escalation
1.4 – 2.4	Rarely	MSMEs frequently experience gaps/challenges implying a minor or emerging issue	Maintain current support while evaluating minor areas for improvement or risk of emerging challenges
1.0 – 1.4	Never	MSMEs do not experience gaps/challenges, effectively managed or not relevant	Sustain effective strategies and consider sharing best practices across other sectors or regions

Requillas & Abante (2025)

RESULTS AND DISCUSSION

The Integrated Logical Framework for MSME Capability Context in Flood Risk Management synthesizes government support mechanisms, recurring challenges, and best practices into a structured roadmap for resilience. This framework is anchored in the realities of MSMEs in the municipalities of Oas, Polangui, and Libon within the Quinali “A” Watershed, where enterprises face recurring flood risks that threaten both business continuity and community safety.

The Capability Context Model serves as both a diagnostic and developmental tool. It integrates management, operations, marketing, and finance strategies to strengthen enterprise continuity and mitigate flood impacts. Empirical findings reveal disparities in preparedness, financial constraints, and resilience variations, underscoring the need for a contextualized framework that aligns with local realities.

At the goal level, the Logical Framework emphasizes strengthening MSME resilience and adaptive capacity. Government support data shows moderate policy presence but weak financial assistance and PPP initiatives, while challenges highlight frequent disruptions in operations, finance, market sustainability, and policy implementation. These findings justify the framework's focus on proactive, structured interventions.

The MSME Capability profile identifies critical needs in Business Continuity Planning (BCP), DRRM, financial literacy, digital adaptation, and risk management. Addressing these gaps through training and capacity-building programs is essential to reducing vulnerabilities and enhancing preparedness.

The Best Practices Evaluation highlights strategies such as asset protection, adaptive operations, customer safety, and rebuilding mechanisms. Oas demonstrates stronger adoption of these practices, while Polangui and Libon lag behind, pointing to the need for institutionalizing and scaling successful approaches across municipalities.

The Gaps and Challenges Assessment integrates evidence that MSMEs “often” face financial constraints, weak government coordination, and market retention issues. These recurring barriers require targeted interventions, including localized financing schemes, strong PPP engagement, and inclusive policy-making.

The Capability Context Model Development combines MSME needs, best practices, and government/PPP support into a tailored

framework. This ensures structured preparedness, response, and recovery strategies that evolve through stakeholder feedback.

The Implementation Framework emphasizes continuous updates, pilot testing, and collaboration to sustain MSME empowerment. Finally, the Actionable Recommendations call for proactive policies, stable funding, and community engagement to institutionalize resilience and ensure long-term sustainability.

While the Logical Framework (LogFrame) provides structured analysis, measurable indicators, and policy alignment, the Schematic Framework offers a holistic visualization of MSME interactions within the flood risk management ecosystem. It maps stakeholders, processes, and resource flows, showing how MSMEs, government agencies, PPPs, and financial institutions collaborate to enhance preparedness. Together, these frameworks complement each other, one focusing on actionable strategies and monitoring, the other on systems thinking and visualization.

Table 5. Integrated Logical Framework for MSME Capability Context in Flood Risk Management in the 3rd District of Albay

Logical Framework Component	Findings		Proposed Development Management	Indicators/ Verification	Practical Implications
	Government Support	Challenges			
Goal	Moderate policy support; weak financial and PPP mechanisms	Frequent operational and financial disruptions	Strengthen MSME resilience and adaptive capacity	Stakeholder assessments, continuity evaluations	MSMEs must engage in resilience-building initiatives
MSME Capability Profile (Internal)	Limited training support from LGUs/DTI	Gaps in BCP, finance, and risk management	Training on BCP, DRRM, financial literacy, digital marketing, risk management	Surveys, interviews	MSMEs need active participation in capacity-building
Best Practices Evaluation	Policy frameworks partially institutionalized	Oas shows stronger adoption; Polangui/Libon lag	Institutionalize asset protection, adaptive operations, rebuilding strategies	Case studies, performance reviews	Best practices can be scaled locally
Gaps and Challenges Assessment	Weak PPP and financial assistance	Challenges "Often" in finance, market retention, policy implementation	Target disruptions, financial losses, weak coordination, market retention	Focus groups, secondary data	Gaps are actionable with targeted interventions
Capability Context Model Development	Government support uneven across municipalities	Uneven resilience capacities	Tailored framework combining MSME needs, best practices, and Government / PPP support	Model refinement with stakeholder feedback	Framework must align with local realities
Implementation Framework	Support mechanism not consistently updated	Challenges recur frequently	Continuous updates, capacity-building, long-term empowerment	Pilot testing, collaboration	Requires sustained support from MSMEs, LGUs, partners
Actionable Recommendations	Weak visibility of Government programs	Market retention and finance issues persist	Proactive policies, stable funding, community engagement	Reports, dissemination	Recommendations feasible if resource-supported

Requillas & Abante (2025)

Table 5 provides a comprehensive roadmap for MSMEs in the 3rd District of Albay. It highlights that resilience can only be achieved through a balanced approach---strengthening internal capacities, institutionalizing best practices, and ensuring consistent government and community support. This integrated model not only enhances MSME flood preparedness but also contributes to broader DRRM strategies and sustainable local economic development.

CONCLUSION

In conclusion, the Integrated Logical Framework for MSME Capability Context in Flood Risk Management demonstrates that the resilience in flood-prone areas of the Quinali "A" Watershed can only be achieved through a balanced approach, strengthening internal capacities, institutionalizing best practices, and ensuring consistent government and community support. By combining diagnostic assessment with development strategies, the Capability Context Model provides MSMEs with structured preparedness, response, and recovery pathways that align with local realities. Ultimately, this integrated framework not only enhances enterprise continuity and adaptive capacity but also contributes to broader DRRM strategies and sustainable local economic development in Albay's 3rd District.

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