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Strengthening MSME Financial Literacy after Disasters as a Strategy for Local Economic Recovery

Maryam[1], Cut Rusmina[1], Cut Hamdiah[1], Zainuddin[1], Susanti[2], Syakirah Imtinan[3]

[1]Department of Accounting, Faculty of Economics, Universitas Serambi Mekkah, Banda Aceh 23245, Indonesia
[2]Department of Management, Faculty of Economics, Universitas Serambi Mekkah, Banda Aceh 23245, Indonesia
[3]Student of Accounting Department, Faculty of Economics, Universitas Serambi Mekkah, Banda Aceh 23245, Indonesia

Corresponding Author: cut.rusmina@serambimekkah.ac.id

Abstract
Disasters pose significant challenges to local economic sustainability, particularly for Micro, Small, and Medium Enterprises (MSMEs) operating in vulnerable regions. In post-disaster contexts, MSMEs often face disrupted cash flows, limited capital, and weak access to formal financial systems, conditions that are exacerbated by low levels of financial literacy. This community service program aims to strengthen MSME financial literacy as a strategic intervention to support local economic recovery in disaster-affected areas of Aceh, Indonesia. The program employed a qualitative descriptive approach within a community service framework, combining preliminary assessment, structured financial literacy training, continuous mentoring, and reflective evaluation. Training and assistance focused on basic bookkeeping, cash flow management, cost classification, profit calculation, and the separation of personal and business finances. The results indicate substantial improvements in participants' financial recording skills, financial management practices, and awareness of financial planning and risk management. Enhanced financial literacy also improved MSMEs' ability to access post-disaster recovery financing and sustain business operations under uncertain conditions. Overall, the program demonstrates that strengthening financial literacy is a critical pathway for enhancing MSME resilience and accelerating sustainable local economic recovery in disaster-prone regions.

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1. Introduction

Disasters constitute one of the most critical challenges for local economic sustainability, particularly in regions that are highly exposed to natural hazards. Earthquakes, floods, landslides, and tsunamis not only cause physical destruction and human casualties but also generate long-term economic shocks that weaken household livelihoods and business activities [1]. In post-disaster conditions, production systems are disrupted, market access becomes limited, supply chains collapse, and purchasing power declines significantly, especially among vulnerable groups [2], [3]. Within this context, Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in restoring local economic circulation because they dominate the employment structure, provide income for households, and act as the primary drivers of grassroots economic recovery [4], [5]. However, despite their crucial role, MSMEs are also among the most vulnerable sectors in the aftermath of disasters due to their limited capital base, low asset ownership, and weak access to formal financial systems [6], [7].

One of the fundamental weaknesses that constrain the recovery capacity of post-disaster MSMEs is low financial literacy. Financial literacy refers to the ability to understand and effectively use financial knowledge and skills, including budgeting, financial recording, saving, borrowing, and risk management [8]. Numerous studies confirm that MSMEs with weak financial literacy tend to have poor financial records, ineffective cash flow management, and limited business planning capacity, which eventually hinder access to external financing and long-term business sustainability [9], [10]. In post-disaster conditions, this limitation becomes even more critical because MSMEs are required to manage recovery funds, emergency capital, and fluctuating revenues under highly uncertain economic conditions. Without adequate financial literacy, many MSME actors fail to utilize recovery assistance optimally and face a high risk of business stagnation or permanent closure [11], [12].

The problem is further exacerbated by the fact that most post-disaster MSMEs operate in informal settings and rely heavily on daily cash transactions without systematic bookkeeping. This condition leads to the mixing of personal and business finances, weak profit measurement, and ineffective cost control, making it difficult for business owners to evaluate their true financial performance [13], [14]. As a consequence, MSMEs often remain excluded from formal credit schemes, insurance programs, and government recovery facilities that require financial documentation as a prerequisite [15], [16]. From a disaster risk perspective, the absence of financial planning, savings, and risk mitigation instruments such as insurance also increases the vulnerability of MSMEs to future shocks [17], [18]. These conditions indicate that financial illiteracy is not merely a managerial weakness but a structural barrier that limits the resilience and sustainability of MSMEs in disaster-prone areas.

Strengthening financial literacy among post-disaster MSME actors is therefore a strategic intervention for accelerating local economic recovery and enhancing business resilience. Financial literacy training enables business owners to understand the importance of daily financial recording, cash flow management, cost efficiency, and simple financial statement preparation, which are essential for rational decision-making and business continuity [10], [19]. From a broader development perspective, financial literacy also enhances financial inclusion by improving MSMEs' access to banking services, microfinance, digital payments, and recovery financing schemes [12], [20], [21]. In disaster contexts, financially literate MSMEs demonstrate greater adaptive capacity, for instance by reallocating limited capital more efficiently, prioritizing essential expenditures, and restructuring business operations during recovery phases [11], [22].

Based on these considerations, this community service program was designed to address the fundamental financial literacy challenges faced by MSMEs in post-disaster areas through structured training and continuous mentoring. The main objective of the program is to strengthen the financial literacy of MSME actors so that they are able to manage business finances more systematically, utilize recovery funds more effectively, and improve their access to formal financial services. Specifically, the program aims to enhance participants' skills in simple bookkeeping, cash flow management, cost classification, profit calculation, and the separation of personal and business finances. In addition, the program seeks to cultivate a risk-aware financial attitude among MSME actors by introducing basic concepts of savings, financial planning, and business risk management in the context of disaster vulnerability [23], [24].

The expected benefits of this program are multidimensional. At the micro level, improved financial literacy is expected to increase the financial discipline, profitability, and sustainability of individual MSMEs. At the community level, financially stronger MSMEs contribute to faster local economic circulation, job creation, and household income stabilization in post-disaster environments [11], [25], [26]. At the institutional level, the availability of proper financial records improves the effectiveness of government recovery programs, facilitates monitoring and evaluation, and strengthens accountability in the distribution of assistance and financing schemes [3], [15]. More broadly, from a disaster risk reduction perspective, strengthening MSME financial literacy supports the long-term goal of building resilient local economies that are better prepared to withstand and recover from future disasters [1], [2].

Therefore, this article reports and analyzes a community service program entitled "Strengthening MSME Financial Literacy after Disasters as a Strategy for Local Economic Recovery." The program is positioned as a practical intervention to bridge the gap between post-disaster financial vulnerability and sustainable local economic recovery through capacity building in financial management. By integrating the perspectives of disaster recovery, financial literacy, and MSME development, this study is expected to contribute both theoretically to the literature on post-disaster economic resilience and practically to the design of more effective community-based recovery programs in disaster-prone regions.

2. Methodology

This article applies a qualitative descriptive methodology within a community service (PKM) framework to strengthen financial literacy among Micro, Small, and Medium Enterprises (MSMEs) in post-disaster areas of Aceh. The methodological design follows a structured approach commonly used in MSME-oriented community service studies, emphasizing participatory engagement, capacity building, mentoring, and reflective evaluation.

The program was implemented in disaster-affected areas of Aceh, particularly in regions vulnerable to floods and coastal hazards. Participants consisted of MSME actors operating in informal and semi-formal sectors, including small trading, agriculture-based products, fisheries processing, and home industries. These sectors were selected due to their high vulnerability to disasters and their important role in local economic recovery.

The program design consisted of four main stages. First, a preliminary assessment was conducted through field observations and informal interviews to identify participants' financial literacy levels, bookkeeping practices, and post-disaster financial challenges. Second, structured training sessions were delivered to introduce basic financial literacy concepts, including daily transaction recording, cash flow management, cost classification, profit calculation, and the separation of personal and business finances. Third, continuous mentoring was provided through direct assistance to support MSMEs in applying simple accounting systems adapted to their business conditions. Fourth, an evaluation stage was conducted to assess changes in participants' financial management behavior and awareness of financial planning.

Data collection relied on observation notes, mentoring records, participant feedback, and documentation of bookkeeping practices before and after the intervention. Data analysis was performed qualitatively by comparing financial management practices prior to and following program implementation. Data validity was ensured through triangulation by cross-checking observations, participant responses, and training outcomes.

Table 1. Methodological Framework of the Community Service Program

Stage	Main Activities	Data Sources	Analytical Purpose
Preliminary Assessment	Field observation and informal interviews with MSME actors	MSME participants, field notes	To identify financial literacy levels and post-disaster financial challenges
Training Phase	Financial literacy and simple accounting training sessions	Training modules, attendance lists	To improve understanding of bookkeeping, cash flow, and cost management
Mentoring Phase	Continuous assistance in applying simple accounting systems	Mentoring reports, MSME transaction records	To support practical implementation of financial recording and management
Evaluation Phase	Observation, discussion, and before–after comparison	Evaluation notes, participant feedback	To assess improvements in financial behavior and

Stage	Main Activities	Data Sources	Analytical Purpose
			management practices
Literature Support	Review of academic and institutional references	Journals, policy and institutional reports	To strengthen conceptual grounding and contextual analysis

3. Implementation of the Program

3.1 Description of Training Activities

The training activities were implemented in several disaster-affected sub-districts in Aceh, particularly in coastal and flood-prone areas where MSMEs experienced significant business disruption. The training focused on strengthening basic financial literacy, including daily transaction recording, cash flow management, cost classification, profit calculation, and the separation of personal and business finances. Considering that most Acehnese MSMEs operate in informal sectors such as fisheries processing, small trading, agriculture-based products, and home industries, the training materials were adapted using simple examples derived from participants' real business activities. The learning process applied participatory and culturally adaptive approaches, such as interactive discussions, practice-based simulations, and case studies related to post-disaster business recovery in Aceh [11], [27], [28].

The training sessions were conducted in stages to accommodate participants' limited time due to ongoing recovery efforts. Printed bookkeeping modules and simple accounting templates were distributed so that participants could continue practicing independently. Previous studies emphasize that structured financial education significantly improves MSME survival and adaptability in post-disaster contexts [2], [26]. In Aceh, where MSMEs often rely on daily cash turnover and informal financial practices, this training served as a critical foundation for rebuilding business discipline and restoring local economic circulation [29], [30].

3.2 Assistance in Applying Simple Accounting Systems

After the training phase, continuous assistance was provided to ensure the practical application of simple accounting systems by MSMEs in Aceh. The mentoring process was conducted through direct field visits to participants' business locations, including home-based enterprises, small shops, and coastal production units. MSME actors were guided step by step in recording daily transactions, separating household and business expenses, preparing simple cash flow reports, and compiling basic profit and loss statements. Given the limited digital literacy and unstable internet infrastructure in some disaster-affected areas of Aceh, the assistance initially prioritized manual bookkeeping using cash books and printed templates [31], [32].

The mentoring process proved essential in transforming theoretical knowledge into sustainable financial management practices [33]. In line with [34], continuous assistance is more effective than one-time training in building consistent bookkeeping behavior among MSMEs. In the Aceh context, proper financial records also strengthened participants' eligibility for post-disaster financial assistance, microcredit, and Islamic social finance instruments such as zakat, qardhul hasan, and revolving funds managed by local institutions [12], [35]. Thus, the assistance phase played a strategic role in linking financial literacy with real economic recovery mechanisms.

3.3 Participation and Response of MSME Participants

The level of participation of Acehnese MSME actors in the program was relatively high, reflecting their strong motivation to restore business activities after the disaster. Most participants attended training sessions consistently and actively engaged in discussions and practical bookkeeping exercises. High participant involvement was also supported by strong community cohesion (gotong royong), which is a distinctive social characteristic of Acehnese society. This social capital facilitated collective learning,

mutual encouragement, and information sharing among participants during both training and mentoring activities [11], [36].
Participants' responses to the program were largely positive. Many MSME actors stated that this was their first experience in learning systematic financial recording and profit calculation. Several participants reported that they were now able to clearly distinguish between business income and household expenditures, enabling them to better control spending and evaluate business performance. This finding supports the argument of OJK (2020) and Lusardi and Mitchell (2014) that improved financial literacy leads to better financial behavior and economic decision-making. In the post-disaster context of Aceh, this behavioral change is particularly important for strengthening household income stability and accelerating local economic recovery.

3.4 Obstacles during Program Implementation

Despite the generally successful implementation, several obstacles were encountered during the program in Aceh. One of the main challenges was the low initial level of financial literacy among MSME participants, especially those operating in traditional sectors such as small-scale fisheries, agriculture, and informal trading. Many participants were unfamiliar with basic accounting concepts and had never maintained systematic financial records before. This condition required repeated explanations and longer mentoring periods. Similar constraints are widely reported among small enterprises in disaster-prone and rural areas [37]–[39].
Other significant obstacles included time limitations due to participants' focus on restoring production activities, limited digital literacy, and infrastructure constraints such as unstable electricity and internet access in some post-disaster locations. These limitations reduced the effectiveness of digital bookkeeping adoption and online mentoring [12], [40], [41]. In addition, ongoing economic pressure after the disaster forced some MSMEs to prioritize short-term survival rather than long-term financial management improvements. Nevertheless, these challenges were mitigated through adaptive strategies, including flexible mentoring schedules, the use of simple manual bookkeeping tools, and gradual introduction of digital financial applications when conditions allowed [42], [43].

4. Result & Discussion

4.1 Improvement in MSME Financial Recording Skills

The results of the program implementation indicate a substantial improvement in the financial recording skills of MSME participants in disaster-affected areas of Aceh. Prior to the intervention, most MSME actors did not maintain systematic financial records and relied solely on memory or informal notes to track daily transactions. After participating in the training and mentoring sessions, the majority of participants were able to consistently record daily income and expenses, classify transactions, and calculate basic profits [44]. This improvement demonstrates the effectiveness of structured training combined with continuous assistance in enhancing practical financial skills among post-disaster MSMEs. Similar findings have been reported by [45], [46], who emphasize that targeted financial education significantly improves financial capability and record-keeping behavior.
In the Aceh context, the ability to maintain simple bookkeeping is particularly important for MSMEs operating in fisheries, agriculture, trading, and home-based industries, where cash transactions dominate daily operations. Improved financial recording enabled MSME actors to better understand their actual business performance, distinguish between operating costs and revenues, and identify sources of financial leakage [45]. This finding supports [47], [48], who argue that accurate financial records are a fundamental prerequisite for effective business control and decision-making. In post-disaster recovery phases, proper financial documentation also strengthens MSMEs' access to recovery financing and government assistance programs [3], [12], [26].

4.2 Changes in Financial Management Practices

Improved financial recording skills were followed by observable changes in the financial management practices of MSMEs in Aceh [49]. After the implementation of the program, many participants began to apply basic cash flow management, allocate funds for business and household needs separately, and plan operational expenditures more carefully. Several MSME actors reported that they were now able to control daily spending, manage working capital more efficiently, and evaluate business profitability on a regular basis. This behavioral change reflects the transformation of financial knowledge into actual financial management practices, as emphasized by [50], [51].

Moreover, some participants started to develop rudimentary financial planning practices, such as setting aside emergency savings and preparing monthly expense estimates. In a post-disaster context, this change is highly significant because MSMEs operate under high uncertainty and recurrent risk exposure. According to [52], [53], financial planning and savings behavior are crucial elements of business resilience in disaster-prone regions. The behavioral shift observed among Acehnese MSMEs indicates that financial literacy interventions not only improve technical skills but also cultivate a more prudent and risk-aware financial mindset that is essential for long-term business sustainability.

4.3 Impact on Business Sustainability after Disasters

The improvement in financial recording and management practices had a positive impact on the sustainability of MSMEs in post-disaster areas of Aceh. MSMEs that adopted consistent bookkeeping and basic financial management were better able to assess business losses, reorganize limited capital, and prioritize essential expenditures during the recovery period. Accurate financial records enabled them to monitor cash inflows and outflows, evaluate business feasibility, and adjust production scales according to market demand. This finding aligns with [2], [11], [54], who state that sound financial governance enhances adaptive capacity and accelerates post-disaster economic recovery.

Furthermore, improved financial documentation strengthened MSMEs' access to external support mechanisms, including microcredit, government recovery funds, and Islamic social finance instruments such as zakat-based productive assistance and qardhul hasan. In Aceh, where Islamic financial institutions and social finance play a significant role in community economic development, the availability of proper financial records becomes a critical eligibility requirement (Ascarya, 2018; Bank Indonesia, 2021). As a result, financially literate MSMEs demonstrated stronger business continuity, faster recovery, and higher resilience to subsequent economic shocks. This confirms the argument of [1], [55], [56] that strengthening MSME financial capacity is a strategic pathway toward building disaster-resilient local economies.

5. Conclusion and Recommendations

5.1 Conclusions

This community service program demonstrates that strengthening financial literacy is a strategic and effective approach to supporting post-disaster MSME recovery in Aceh. The implementation of financial literacy training and continuous mentoring successfully improved MSME actors' ability to record daily transactions, manage cash flow, separate business and personal finances, and prepare simple financial reports. These improvements represent a fundamental shift from informal to more structured financial management practices, which is a critical prerequisite for sustainable business operation. In the post-disaster context, these skills enable MSME actors to manage limited capital more efficiently and to make more rational economic decisions during the recovery phase.

Furthermore, the program confirms that improved financial literacy directly contributes to stronger business resilience and local economic recovery. MSMEs with better financial records and management practices showed higher capacity to access recovery financing, manage economic shocks, and sustain their business operations under uncertain conditions. This finding supports previous studies emphasizing that financial capability is a key determinant of MSME sustainability in disaster-prone regions. Therefore, it can be concluded that financial literacy strengthening is not merely an educational activity, but a core component of disaster-resilient local economic development in Aceh.

5.2 Practical Recommendations for MSMEs

Based on the findings of this program, several practical recommendations can be proposed for MSMEs in post-disaster areas of Aceh. First, MSME actors are strongly encouraged to consistently implement daily financial recording using simple bookkeeping formats to ensure the availability of accurate financial information for decision making. Second, MSMEs should routinely evaluate their business performance through simple profit and cash flow analyses to identify financial weaknesses and opportunities for improvement. Third, the separation of household and business finances must become a permanent habit to avoid capital leakage and to strengthen business sustainability.

In addition, MSMEs are advised to gradually adopt digital financial tools when infrastructure allows, such as mobile banking, digital bookkeeping applications, and digital payment systems, to improve efficiency and financial transparency. MSMEs should also be encouraged to develop basic financial planning, including emergency savings and simple risk mitigation mechanisms such as micro-insurance. In the Aceh context, MSME actors can also optimize Islamic social finance instruments such as zakat-based productive assistance, qardhul hasan, and cooperative-based revolving funds as alternative post-disaster financing sources.

5.3 Program Sustainability and Follow-Up Plan

To ensure the long-term impact of this community service program, sustainability and systematic follow-up actions are essential. Continuous post-training mentoring and periodic monitoring are required to maintain participants' consistency in applying proper financial management practices. Collaboration with local government agencies, universities, financial institutions, and community organizations should be strengthened to provide ongoing technical assistance, financing facilitation, and access to MSME development programs. In Aceh, coordination with local zakat institutions, sharia cooperatives, and microfinance institutions is particularly important to sustain post-disaster financial support mechanisms.

Moreover, the establishment of MSME learning communities or peer mentoring groups is recommended to facilitate knowledge sharing, collective problem solving, and mutual supervision among business actors. Such community-based approaches align with the strong social capital of Acehnese society and have been proven to enhance program sustainability. For future follow-up programs, it is also recommended to integrate financial literacy with digital skills training and basic disaster risk management education, so that MSMEs are better prepared to face future shocks. Through continuous institutional support, adaptive mentoring, and multi-stakeholder collaboration, this program can be scaled up to broader disaster-prone areas in Aceh and other regions in Indonesia.

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