



# The Role of Disaster Accounting in Enhancing Financial Resilience: A Study on The Integration of Accounting Culture in Post-Crisis Recovery

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## Abstract

Natural disasters and global crises, such as pandemics and geopolitical conflicts, have had a significant impact on the financial stability of various organizations. In this context, disaster accounting is an important instrument for recording, analyzing, and reporting the financial impact of disasters, which includes calculating material losses, managing relief funds, and planning budgets for recovery. However, the implementation of disaster accounting still faces various challenges, such as the lack of clear regulations and the lack of organizational awareness in systematically recording the impact of disasters. This study aims to analyze the role of disaster accounting in improving organizational financial resilience through the integration of accounting culture. The method used is an exploratory qualitative approach with in-depth interviews with local governments, private companies, and non-profit institutions involved in the management of post-disaster recovery funds. The results show that although disaster accounting is recognized as an important factor in supporting transparency and financial risk mitigation, its implementation is still limited. Local governments have more disciplined record-keeping systems than the private and non-profit sectors, but still face challenges in policy effectiveness. The private and non-profit sectors generally do not have specific policies in place, which makes them more vulnerable to the financial impact of disasters.

**Keywords:** Disaster Accounting, Financial Resilience, Integration of Accounting Culture

## 1. Introduction

Natural disasters and global crises, such as pandemics and geopolitical conflicts, have had a significant impact on the financial stability of individuals, organizations, and countries [1] In this context, disaster accounting is a vital tool for recording, analyzing, and reporting on the financial impact of disasters [2] This process includes calculating material losses, managing relief funds, and planning budgets for recovery. This is relevant in disaster-prone countries such as Indonesia, where disaster accounting can increase transparency and accountability in the use of public resources [3]

Disaster Accounting is a relatively new field in the world of accounting that focuses on managing, recording, and reporting the financial impact of natural or man-made disasters [4] This concept is important to help organizations, governments, and communities understand and mitigate financial risks posed by disasters. One of the main aspects is the calculation of direct and indirect costs, such as infrastructure damage, loss of revenue, and recovery costs [5], [6] It also includes the provision of transparent financial statements to facilitate accountability and post-disaster decision-making [7]

At the international level, disaster accounting also involves the use of tools such as the Geographic Information System (GIS) to map disaster risks and impacts [8] This technology enables data-driven decision-making, as in the case of flood and drought risk mapping in South Africa, which helps to significantly reduce economic losses [9] In addition, reporting standards such as those set by the United Nations Sendai Framework for Disaster Risk Reduction serve as a guide for countries and organizations to integrate risk accounting into public policy [10]

In addition to focusing on risk mitigation, disaster accounting also plays an important role in designing financial models that support sustainability and post-disaster recovery [11] This involves comprehensive calculations to determine the cost of restoration, including the rehabilitation of ecosystems affected by disasters such as oil spills or forest fires [12] Thus, disaster accounting is not only a tool for documenting losses but also a strategic part of risk management and recovery.

Financial resilience is an important aspect in disaster risk mitigation [13], [14], [15]. By integrating a responsive accounting culture, organizations can develop more effective recovery strategies [16]. This approach allows for more sustainable financial management and supports long-term planning, as has been implemented in several countries through the Sendai Framework for Disaster Risk Reduction. In the Indonesian context, the adoption of disaster accounting that pays attention to local wisdom can also be an advantage.



Disaster accounting not only serves as a financial reporting tool but also as a means to understand risk patterns and improve organizational resilience [17] By using technologies such as Geographic Information System (GIS) and Artificial Intelligence (AI), organizations can map risks more accurately and design data-driven decision-making systems [18] This supports the role of disaster accounting as an integral part of an organization's risk management.

However, the implementation of disaster accounting faces challenges, such as low understanding of this concept at the local level, a lack of technical capacity, and a lack of integration with organizational culture [19] Therefore, this study aims to explore the role of disaster accounting in improving financial resilience with an accounting culture-based approach.

Research on disaster accounting is urgent to be carried out, given the increasing frequency and intensity of disasters and their significant impact on financial stability. By understanding how disaster accounting can be applied in various cultural contexts, this research has the potential to provide sustainable solutions for post-disaster recovery, especially in Indonesia, which has a high vulnerability to natural disasters.

Previous research has shown that disaster accounting plays a crucial role in post-disaster financial recovery. For example [20] discuss how accounting-based frameworks can improve the efficiency of aid fund allocation. The importance of technologies such as GIS in mapping disaster risk [21] However, research exploring the integration of accounting culture in the context of post-crisis financial recovery is still limited, especially in Indonesia.

This study aims to analyze the role of disaster accounting in improving financial resilience through the integration of accounting culture. The study also aims to identify challenges and opportunities in the implementation of disaster accounting, as well as provide practical recommendations to support sustainable recovery strategies.

## 2. Methods

Qualitative research with an exploratory approach aims to explore in depth the role of disaster accounting in improving financial resilience and understand the integration of accounting culture in post-crisis recovery [22] This research is designed to identify practices, challenges, and opportunities in the application of disaster accounting with a focus on the local cultural context that influences financial management after a disaster.

This research will use several data collection methods. In-depth interviews will be conducted with key informants such as accountants, financial managers, and decision-makers in organizations involved in post-crisis recovery, including local governments, private companies, and non-profit agencies. These interviews are designed in a semi-structured manner to allow for flexible exploration of the informant's experiences and views. Questions will focus on disaster accounting practices, cultural values that influence financial management, and obstacles faced in maintaining financial resilience.

In addition, documents such as post-disaster financial statements, disaster accounting policies, and official guidelines will be analyzed to understand the empirical application of disaster accounting. If possible, participatory observation will also be carried out to directly observe the post-crisis financial management process in the field.

The study focuses on a population consisting of individuals and organizations directly involved in the management of disaster accounting and post-crisis recovery. The population covers areas affected by major disasters in Indonesia in the last five years, such as Palu City and Yogyakarta. The sample was selected purposively. A total of 7 people came from local governments, given their significant role in managing disaster funds and designing financial strategies for recovery. In addition, 5 people from private companies were also involved, especially from sectors directly affected by disasters such as manufacturing, agribusiness, or tourism, to understand how they deal with financial risks due to disasters. Meanwhile, 3 people from non-profit institutions were selected for their contributions in managing relief funds and supporting the recovery of affected communities.

The sample size of 15 respondents, comprising 7 local government officials, 5 private sector representatives, and 3 non-profit workers, is sufficient for thematic saturation for several reasons:

1. Purposive Sampling: Respondents were intentionally selected for their direct involvement in disaster accounting and recovery efforts, making a smaller sample size sufficient to gain in-depth insights.
2. Expertise of Respondents: The respondents are experts from key sectors, government, private companies, and non-profits, ensuring the data collected is highly relevant and focused, which allows thematic saturation to be reached with fewer participants.
3. Focused Scope: The study's narrow focus on the integration of accounting culture in post-crisis recovery means that a smaller, targeted sample is adequate for capturing the essential themes without the need for a larger dataset.

Data analysis will be carried out thematically, starting with the initial coding of interview transcripts and documents to identify key patterns and themes. Themes such as "accounting strategy," "cultural integration," and "financial challenges" will be organized to create a comprehensive narrative. Data validation will be carried out through triangulation by comparing the results of interviews, documents, and observations, as well as through member checking to ensure accurate interpretation of the results.

## 3. Results and Discussion

### 3.1 Data Respond

The respondents in this study consisted of 15 people, namely local governments (7 people) who play a role in disaster fund management and financial recovery strategies, private companies (5 people) from affected sectors such as manufacturing, agribusiness, and tourism, and non-profit institutions (3 people) who focus on the management of aid funds and community recovery support. Respondents' participation was quite balanced between men and women, with most of the age range being between 25 and 45 years old, indicating that they were in a productive period with mature work experience. In terms of education, most respondents have Bachelor's and Postgraduate degrees, reflecting a good understanding of financial aspects and disaster policy. In terms of professions, the majority come from among Government Employees and Financial Managers, followed by Academics and Accounting Practitioners, with 1 to 10 years of work experience in finance and accounting, which shows their considerable insight in dealing with accounting challenges in disaster situations.

### 3.2 Understanding of Disaster Accounting

#### A. Level of Understanding of Disaster Accounting

Most respondents are familiar with disaster accounting, especially in local governments and the private sector. However, awareness is still low in non-profit institutions, suggesting a need for better socialization and education.

#### B. The Importance of Disaster Accounting in Improving Financial Resilience

Most respondents see disaster accounting as crucial for financial resilience. Local governments recognize its importance due to their role in disaster recovery planning, while some private sector respondents still undervalue it, especially those without disaster-related financial policies.

#### C. The Role of Disaster Accounting in Post-Crisis Financial Recovery

Most respondents agree that disaster accounting plays a significant role in post-crisis recovery, particularly in local governments that manage recovery funds. Private companies also see their importance, though some still lack policies, leading to a lower perceived role.

### 3.3 Definition of Accounting Culture:

Accounting culture refers to the shared values, norms, and practices within an organization that shape how accounting information is produced, interpreted, and utilized, particularly during crises or market disruptions. It encompasses transparency, accountability, and the approach to financial decision-making in times of uncertainty.

### 3.4 Key Elements of Accounting Culture:

1. Values:  
Values like transparency and accountability ensure reliable financial reporting and support effective decision-making during crises.
2. Norms:  
Organizational norms, such as the conservatism principle and fairness in accounting practices, guide financial resilience and disaster reporting.
3. Practices:  
Accounting practices, including technology use (e.g., GIS) for disaster impact assessment and financial recovery, ensure that losses and recovery costs are properly documented and managed.

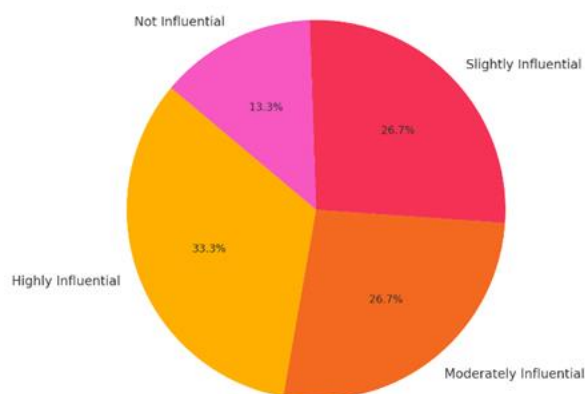
### 3.5 Measurement and Observation:

1. Values and Norms:  
Measured through interviews with key stakeholders to understand perceptions of transparency and integrity in financial reporting.
2. Accounting Practices:  
Observed through document analysis of financial reports and policies, as well as direct observation of disaster financial management practices.
3. Technology Use:  
Examined by assessing the integration of tools like GIS in accounting and decision-making processes.

### 3.6 Implementation of Disaster Accounting in Organizations

In the face of major disasters that have occurred in the last five years in Indonesia, organizations that play a role in financial recovery, both from the government, the private sector, and non-profit institutions, are expected to have a clear strategy in managing the financial impact caused. However, from the results of the questionnaire conducted, it appears that the implementation of disaster accounting in organizations still faces various significant challenges.

Most respondents revealed that their organizations do not have a specific policy related to disaster accounting. This shows that the aspect of financial recording and planning in emergencies is still not the main concern in many institutions. Strong accounting policies can help organizations develop more effective recovery strategies, reduce future financial risks, and increase resilience in the face of similar events. For organizations that have implemented disaster accounting policies, the effectiveness of these policies is still questionable. Some respondents consider the policies implemented to be quite effective in helping financial recovery, but others consider them less effective or even ineffective. This may be due to a lack of understanding of the implementation of the policy, limited resources, or a lack of coordination in its implementation.



**Fig. 1:** Impact of Accounting Culture on Financial Resilience

This pie chart illustrates the influence of accounting culture on financial resilience based on respondent feedback. The breakdown is as follows:

- Highly Influential (33.3%)
- Moderately Influential (26.7%)
- Slightly Influential (26.7%)
- Not Influential (13.3%)

The pie chart provides insight into the importance of accounting culture in fostering financial resilience during post-crisis recovery. It shows that most respondents believe accounting culture plays a moderate to high role in enhancing financial resilience, underlining its importance in strengthening financial stability and aiding recovery after disasters. This chart supports the argument that fostering an appropriate accounting culture is crucial for organizational sustainability and long-term recovery.

In addition, recording the impact of disasters in financial statements is still not a common practice in many organizations. Most respondents from various sectors admitted that their financial statements did not include specific information related to the impact of disasters on the financial condition of organizations. For some organizations that have made records, their effectiveness in making financial decisions is also still seen as diverse. Some feel that this recording is very helpful in developing future financial strategies, but there are also those who consider that this recording does not provide real benefits.

The finding that recording the impact of disasters in financial statements is not a common practice aligns with trends observed in other disaster-prone countries. For instance, in countries like the Philippines and Japan, while there have been efforts to integrate disaster accounting, disaster-related financial disclosures are still inconsistent across sectors.

In the Philippines, some organizations, especially in the private sector, have started to incorporate disaster risk management costs into their financial statements, but the practice remains sporadic. Similarly, in Japan, although there is an emphasis on disaster preparedness and recovery planning, financial reporting on disaster impacts is often limited to short-term recovery efforts rather than long-term strategic integration.

The diverse effectiveness of these practices, as noted in the study, also mirrors global challenges. While some organizations in disaster-prone regions believe that integrating disaster impacts into their financial statements helps shape better financial strategies, others still perceive it as ineffective or insufficient in guiding recovery decisions.

Thus, while Indonesia reflects similar challenges, the need for standardized disaster accounting practices is a shared issue across many disaster-prone countries, highlighting a global gap in effectively leveraging financial data to enhance resilience and long-term recovery strategies.

Overall, the results of this questionnaire illustrate that awareness of the importance of disaster accounting in organizations is still relatively low. Many organizations have not put in place adequate policies or record-keeping systems, making them more vulnerable to the financial impact of disasters. Therefore, strategic steps are needed to improve the effectiveness of disaster accounting in supporting financial recovery. Stricter regulations, increased transparency in record-keeping, and wider education about the importance of integrating disaster accounting into organizational financial management are things that need to be implemented immediately.

### 3.7 Integration of Accounting Culture in Post-Crisis Recovery

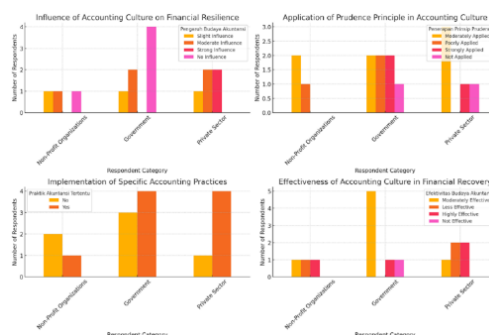


Fig. 2: Various Aspects of Accounting Culture

This set of bar charts provides a more granular view of how accounting culture impacts financial resilience. It includes four charts focusing on different elements:

1. Influence of Accounting Culture on Financial Resilience: This chart aligns with Figure 1 but provides a clearer breakdown of how respondents from different sectors (non-profit organizations, government, and private sector) view the influence of accounting culture.
2. Application of the Conservatism Principle in Accounting Culture: This shows how well the conservatism principle (a key accounting concept) is applied across sectors.
3. Implementation of Specific Accounting Practices: The chart assesses whether certain accounting practices, such as transparency and accountability measures, are implemented effectively in the three sectors.
4. Effectiveness of Accounting Culture in Financial Recovery: This chart evaluates how effective accounting culture is perceived in aiding financial recovery post-crisis.

The first chart confirms the findings from Figure 1 by showing how accounting culture influences financial resilience across different sectors. The government sector is seen to have a moderate to strong influence, while the private sector shows a slightly weaker influence. The second chart on the conservatism principle reveals that this key principle is strongly applied in some sectors (such as the government), but its application is less consistent in the private and non-profit sectors. The third chart assesses the implementation of specific accounting practices like transparency, showing that these practices are more commonly implemented in government and non-profit organizations, but private sector companies appear less consistent in their implementation. The fourth chart highlights that accounting culture is viewed as highly effective in supporting financial recovery, especially in the government sector, while the private sector and non-profit organizations show more variation in effectiveness.

These figures support the key hypothesis of the study that accounting culture plays a significant role in enhancing financial resilience and recovery after crises. The data suggests that:

- Government institutions tend to have a more established and robust accounting culture, which is crucial in navigating financial crises effectively.
- Private sector organizations, although significant, are less likely to apply accounting principles consistently, potentially due to financial pressures or less structured practices.
- Non-profit organizations, which rely heavily on external funding, face challenges in implementing consistent accounting practices that can support effective disaster recovery.

Based on questionnaire results from local governments, private companies, and non-profit institutions, it can be concluded that accounting culture significantly influences post-disaster financial resilience. Most local government respondents believe accounting culture strongly impacts recovery, reflecting stricter regulations and standards. However, opinions are mixed in the private and non-profit sectors, with some indicating that accounting culture has little effect, suggesting suboptimal implementation of disaster accounting.

In terms of the application of the conservatism principle, local governments tend to be more disciplined in applying it, while the private and non-profit sectors are more likely to state that this principle is less or not applied. This can be attributed to the differences in regulations and the level of awareness of each sector in dealing with financial risks due to disasters. Nonetheless, some private companies and non-profit institutions have begun to apply this principle in their financial management.

Regarding accounting practices applied to improve post-disaster financial resilience, local governments show better readiness than other sectors. They generally have special recording mechanisms, such as the allocation of reserve funds or recording the impact of disasters in financial statements. Meanwhile, most private companies and non-profit institutions still do not have specific practices in disaster accounting, indicating the need for increased regulation or training in the sector.

In terms of the effectiveness of accounting culture in supporting financial recovery, most respondents from local governments consider that the accounting culture in their organizations is sufficient to be very effective. On the other hand, private companies and non-profit institutions have more varied opinions; Some consider it quite effective, but others feel that the accounting culture in their organization is lacking or even ineffective. This shows that the private and non-profit sectors still have room to improve the integration of accounting culture in post-disaster financial recovery strategies.

### **3.7.1 Challenges Faced by Local Governments, Private Sector, and Nonprofit Sector in Navigating Market Disruptions**

#### **3.7.2 Local Governments**

Local governments face budget constraints and dependence on tax revenue, which can drastically decrease during market disruptions, such as natural disasters or economic crises. Limited financial management capacity and complex administrative procedures hinder rapid response. Coordination between agencies also poses a significant challenge in distributing aid, delaying recovery efforts.

### **3.8 Private Sector: Tourism Companies**

Tourism companies are highly vulnerable to market disruptions due to their reliance on external tourists. A decline in visitors, such as during a pandemic, can result in severe financial losses. To survive, companies must innovate (e.g., shifting to online services) and manage supply chain risks affected by global disruptions, such as transportation. Recovery requires strategies like rebranding and maintaining customer trust regarding health and safety.

### **3.9 Nonprofit Sector**

Nonprofit organizations are heavily dependent on donations and external funding, which often decrease during disruptions. They also face capacity limitations in responding quickly due to limited budgets and small organizational structures. These organizations must maintain accountability and transparency in the use of disaster relief funds to sustain public trust.

From all these results, local governments are better prepared to deal with financial crises due to disasters, thanks to the implementation of a stricter accounting culture. Meanwhile, private companies and non-profit institutions still face challenges in the application of prudential principles and disaster accounting practices. Therefore, increasing regulation, socialization, and training in these sectors is an important step to improve the financial resilience of organizations in the future.

## **4. Discussion**

Disaster accounting has a very important role in improving an organization's financial resilience after experiencing a disaster. Through this study, it was found that most respondents had a good understanding of the concept of disaster accounting, although the level of understanding still varied among various sectors. Local governments, as parties that play a role in managing disaster funds, generally have a better understanding than the private and non-profit sectors. This is understandable because local governments are responsible for financial planning for post-disaster recovery and ensuring that fund allocation is carried out in a transparent and accountable manner.

In the private sector, awareness of the importance of disaster accounting is increasing, especially among companies directly affected by disasters, such as manufacturing and tourism. However, there are still many companies that do not have a structured record-keeping system, so they often experience difficulties in managing financial risks due to disasters. Meanwhile, non-profit institutions that are often involved in the distribution of aid and community recovery generally have a more transparent record-keeping system. However, because they rely on external donations, their record-keeping focuses more on the accountability of aid funds than on the financial resilience of the organization itself.

Disaster accounting contributes to financial resilience in several key ways. One of the main benefits is increased transparency and accountability in the management of recovery funds. Organizations that have a good recording system are easier to account for the use of funds to related parties, be it the government, donor institutions, or affected communities. This transparency also makes it easier for organizations to apply for additional assistance, as they can show clear and well-documented financial data. In addition, recording the financial impact of disasters also allows organizations to design more effective recovery strategies. By understanding how much damage is being incurred, they can allocate resources more efficiently and develop a long-term recovery plan.

In addition, disaster accounting helps in mitigating financial risks by providing accurate data on the impact of disasters on an organization's financial condition. Companies that have implemented a special record-keeping system are better prepared to deal with economic

uncertainties, such as a decrease in revenue or a surge in operating costs due to disasters. For local governments, the implementation of disaster accounting allows them to allocate funds more effectively, ensuring that resources are used effectively to support infrastructure recovery and social assistance. In this context, organizations that have adopted disaster impact recording in their financial statements tend to have better financial resilience compared to organizations that have not implemented it.

In a study conducted by Jo et al. (2025), it was found that a regulation-based accounting framework can increase efficiency in the allocation of aid funds. The study focuses on how a good record-keeping system can accelerate financial recovery by ensuring accurate and targeted use of funds. Research conducted by Nhamo et al. (2025) also highlights the importance of using technology such as Geographic Information System (GIS) or a computer-based system used to collect, store, manage, analyze, and visualize geographic or spatial data in mapping disaster risk, which can then help organizations manage financial impacts more systematically.

The results of this study support previous findings by showing that disaster accounting does play a role in the transparency and efficiency of recovery fund management. However, this study also adds the perspective of accounting culture as a factor that has not been widely discussed in previous studies. This study shows that organizations that have a stronger accounting culture and a good record-keeping system are better prepared for disasters than organizations that do not have adequate systems.

One of the main contributions of this research is its approach based on the integration of accounting culture in post-crisis recovery. Previous research, such as that conducted by Lim et al. (2025), has discussed how the adoption of the Sendai Framework for Disaster Risk Reduction helps countries in designing better risk mitigation systems. However, this study shows that the successful implementation of disaster accounting depends not only on international frameworks, but also on how the accounting culture in each organization can affect its preparedness in dealing with disasters.

This study found that local governments tend to have a more disciplined and transparent accounting culture compared to the private and non-profit sectors. This is in line with previous research, which showed that government regulations can encourage transparency in recording disaster impacts. However, the study also found that in the private and non-profit sectors, the application of accounting culture is still very varied, with some organizations not even having special records related to the impact of disasters. This research adds to the understanding that a strong accounting culture, especially in terms of transparency and prudence, can improve the effectiveness of post-disaster financial recording and support the organization's financial recovery process. This has not been discussed much in previous research, so it makes a new contribution to this field of study.

## 5. Recommendations to Improve the Effectiveness of Disaster Accounting

Respondents provided several key recommendations to improve the effectiveness of disaster accounting in improving the financial resilience of organizations.

### a. Improving regulations related to disaster impact recording

Most respondents, especially from local governments and non-profit organizations, suggested the need for stronger regulations regarding the recording of disaster impacts in financial statements. They assessed that without clear regulations, organizations tend to lack standards in recording the impact of disasters, which ultimately complicates the financial recovery process.

### b. Increase socialization about disaster accounting

Several respondents from the private sector and non-profit institutions emphasized the need for further socialization regarding the concept and benefits of disaster accounting. This shows that there is still a gap in understanding how disaster accounting can help organizations deal with financial risks due to disasters.

From this data, it can be concluded that both regulation and education play an important role in the effectiveness of the implementation of disaster accounting. Without strong regulations and adequate socialization, organizations will experience difficulties in implementing appropriate accounting practices to deal with financial risks due to disasters.

### 5.1 Challenges in the Implementation of Disaster Accounting

In addition to the recommendations, respondents also identified some key challenges in the implementation of disaster accounting in their organizations:

#### a. Lack of organizational awareness

The main challenge expressed by most respondents was the lack of organizational awareness regarding the importance of disaster accounting. This can be seen from the number of organizations that do not have a special policy for recording the financial impact of disasters. This lack of awareness is an obstacle to efforts to strengthen post-crisis financial resilience.

#### b. Lack of specific regulation

Several respondents from local governments also highlighted that there is no regulation that specifically regulates how disaster accounting records should be kept. This results in a lack of uniform standards between organizations, so that the recording of disaster impacts is often not done systematically.

## 6. Conclusion

This study emphasizes that disaster accounting plays an important role in improving an organization's financial resilience by ensuring more transparent financial records, increasing accountability in the use of recovery funds, and supporting future disaster risk mitigation planning. Organizations that have a robust financial record-keeping system are better prepared to deal with the financial impact of disasters, while organizations that have not adopted disaster accounting policies are more vulnerable to post-crisis financial uncertainty.

Although this study shows that the local government sector has a better level of preparedness than the private and non-profit sectors, there are still many challenges in the implementation of disaster accounting. The lack of clear regulations, lack of organizational awareness, and limited resources and technical expertise are the main obstacles to effective implementation. Many organizations still do not have a specific recording mechanism for the impact of disasters in their financial statements, leading to difficulties in the financial recovery process.

To improve the effectiveness of disaster accounting, several strategic steps need to be taken. First, improving regulations and standardization of disaster accounting records is needed so that every organization has a uniform recording system that can be used as a reference in post-disaster fund management. Second, education and training for organizations, especially the private sector and non-profit institutions, should be expanded to increase understanding of the importance of disaster accounting. Third, the use of technology such as Geographic

Information System (GIS) and Artificial Intelligence (AI) can help in recording and analyzing financial impacts more accurately and efficiently.

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