Journal of Infrastructure, Policy and Development 2024, 8(9), 7492.
https://doi.org/10.24294/jipd.v8i9.7492

Article

Analysis of strengthening disaster risk financing within the framework of disaster management policy in Indonesia

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CITATION

Soetono B, Barokah AS, Samudra AA, Satispi E. (2024). Analysis of strengthening disaster risk financing within the framework of disaster management policy in Indonesia. Journal of Infrastructure, Policy and Development. 8(9): 7492. https://doi.org/10.24294/jipd.v8i9.7492

ARTICLE INFO

Received: 26 June 2024
Accepted: 13 August 2024
Available online: 9 September 2024

Abstract: This research analyzes disaster risk financing within the framework of the disaster management policy in Indonesia as the implementation of the Disaster Management Law, Number 24 of 2007, by examining recent issues, challenges, and opportunities in disaster financing. Utilizing a qualitative approach, the research systematically reviews various studies, reports, and existing regulations and policies to understand the current landscape comprehensively. Recent developments in disaster risk financing in Indonesia highlight the need for a nuanced exploration of the existing policy framework. Fiscal constraints, evolving risk landscapes, and the increasing frequency of disasters underscore the urgency of effective disaster risk financing strategies. Through a qualitative examination, this study identifies challenges while illuminating opportunities for innovation and improvement within the current policy framework. The contribution of this research extends to both theoretical and practical levels. Theoretically, it enriches the academic discourse on disaster risk financing by offering a nuanced understanding of the complexities involved. On a practical level, the findings derived from the examination provide actionable recommendations for policymakers and practitioners engaged in disaster management in Indonesia. The insights aim to inform the refinement of disaster management policies and practices, fostering resilience and adaptability in the face of evolving disaster scenarios.

Keywords: public policy; disaster policy; disaster management; disaster risk financing

1. Introduction

The position and geology of Indonesia make the country very susceptible to catastrophic disasters. These risks include floods, forest fires, earthquakes, tsunamis, volcanic eruptions, and landslides. They might be categorized as hydro-meteorological or geological threats. Thus, 40% of the country's population is vulnerable. A wide range of natural calamities, including earthquakes, tsunamis, volcanic eruptions, flooding, and droughts, pose a threat to the country. It is positioned along the Pacific Ring of Fire CFE-DM. (2018). According to a recent risk mapping project for Southeast Asia, Java Island's eastern and western sections are hotspots for various dangers (UNDRR and ADPC, 2020). In Indonesia, earthquakes cause the most significant damage to household welfare. However, forest fires and droughts also greatly influence (Dartanto, 2022). As stated by the National Disaster Management Agency (BNPB), Indonesia's risk of a geological disaster is rising. This is evident in the rise in earthquake frequency since 2013 (BNPB, 2019). Indonesia is situated along the epicenter of significant earthquakes from subduction zones and active land-based plate megathrust faults. 295 active fault segments can potentially cause earthquakes larger than magnitude 6.5. This demonstrates how many possible areas are threatened by earthquake shaking and deformation caused by fault movement since active faults intersect them. Additionally, there are comparatively many earthquakes with magnitudes lower than 5. Even with a small magnitude, an earthquake can disrupt the population and destroy infrastructure if it strikes a shallow depth along an active fault line.

The Meteorology, Climatology, and Geophysics Agency's (BMKG) records can quantify the average impact of seismic events over a year (BNPB, 2019). There are between 5000–6000 earthquakes annually, all of different sizes. Data from the Central Bureau of Statistics for 2023 quoted by CNBC online reveals that there are 250–350 large earthquakes with a magnitude of M > 5.0 per year, earthquakes that cause damage 8–10 times, and the possibility of a tsunami earthquake once every two years. 203 million people dwell in earthquake-prone areas, with 60.9 million of them residing in earthquake-high-hazard zones. Between 2013 and 2018, 153 districts/cities were in earthquake-harass zones. There are currently 127 active volcanoes and 69 of them are constantly observed by the Center for Volcanology, Meteorology, Climatology, and Geophysics (PVMBG) due to their classification as extremely active and high-risk volcanoes (BNPB, 2019). According to the World Risk Report (2016), Indonesia is classified as a country with a high degree of disaster risk (Friawan et al., 2021). This results from its elevated susceptibility and degree of exposure to calamities. Disaster-prone areas account for over 75% of Indonesia's industrial infrastructure and basic connections, including auxiliary facilities (BNPB, 2019). This increases the risk of damage to infrastructure assets, raising the cost of operations and additional expenses for providing alternative services. All of this affects the economic performance, as indicated by the Gross Domestic Product (GDP).

Indonesia has a long history of dealing with disasters, starting with establishing the War Victims Family Support Agency (BPKKP) in 1945; BPKKP focused on war conditions after Indonesia's independence. Throughout the War of Independence, the Agency assisted war victims and their families (BNPB, 2021). Through Presidential Decree No. 256 of 1966, the Government established the Central Natural Disaster Management Advisory Board (BP2BAP). The Minister of Social Affairs was in charge of this Agency. BP2BAP's activities assisted with emergency response and disaster relief. This Decree prioritized natural and human-caused disasters, establishing the disaster management paradigm.

From 1967 to 1979, the frequency of natural disasters increased, and severe and organized disaster management was essential. As a result, the Cabinet Presidium issued Decree No. 14/U/KEP/I/1967 in 1967 to establish the National Coordination Team for Natural Disaster Management (TKP2BA). The TKP2BA changed to the National Coordination Agency for Natural Disaster Management with Presidential Decree No. 28 of 1979. The Coordinating Ministry of Social Welfare Affairs chairs it. Prevention, emergency handling, and rehabilitation are part of disaster management in this period. With Instruction Number 27 of 1979, the Minister of Home Affairs established a Natural Disaster Management Implementation Coordination Unit for each province as an implementation of the Presidential Decree. It continued from 1979 to 1990; thinking about disaster management was influenced by non-natural disasters such as transportation accidents, technological failures, and social conflicts. Therefore, the Disaster Implementation Coordination Unit (Satkorlak PB) was changed to the National Coordinating Agency for Disaster Management (Bakornas PB) through

Presidential Decree No. 43 of 1990. The new objectives of Bakornas PB now include social and non-natural disasters and natural disasters. Presidential Decree No. 106/1999 reaffirmed this. Disaster management requires coordination across each province's sectors, actors, and disciplines.

From 2000 to 2005, Indonesia experienced a multidimensional crisis. Social disasters cause new problems, and as they are related to displacement, they require special care. Therefore, the Bakornas PBP was established. Presidential Decree No. 3 of 2001 was later amended to Presidential Decree No. 111 of 2001. Finally, between 2005 and 2008, the 2004 earthquake and tsunami that struck Aceh and its surroundings made the Government of Indonesia and the international community pay close attention to how disasters are handled. The Indonesian Government issued Presidential Decree 83/2005 on the Bakornas Government in response. As part of implementing disaster management, this Agency has a coordination function supported by daily executives. Thus, the paradigm of disaster risk reduction became the main focus.

From 2008 until now, the Indonesian Government has been very serious about building legalization, institutions, and budgets to handle the existing disaster management system. Presidential Regulation No. 8/2008 on the National Disaster Management Agency (BNPB, BNPB) was issued after Law No. 24 of 2007 on Disaster Management. BNPB consists of a head, disaster management steering, and disaster management implementation elements. BNPB's task is to oversee the implementation of disaster management activities in a planned, integrated, and comprehensive manner. Thus, the 2004 Indian Ocean tsunami devastated Aceh and the country's western regions, prompting the Indonesian Government to reduce disaster risk, particularly the discussion on financing BNPB is the main regulatory body for all disaster management in the country (Friawan et al., 2021; Kalfin et al., 2020).

Disaster mitigation is defined by Law Number 24 of 2007 concerning Disaster Management as a set of actions to lower the risk of disasters, both by raising awareness and developing physical preparedness in response to threats. To enable people to live and work safely, disaster mitigation aims to lessen the effects created, particularly for the populace, and to serve as a foundation (guideline) for development planning. It also aims to raise community understanding about dealing with and decreasing the risks and effects of disasters. When a disaster has the potential to occur, the Government undertakes disaster management, which includes: a. preparedness; b. early warning; and c. disaster mitigation. The law goes on to explain that the purpose of mitigation, as stated in Article 44 letter c, is to lower the risk of disaster for communities residing in vulnerable areas. It is accomplished through the following means: a. putting development regulations into place; b. developing infrastructure, building layout, and development regulations; and c. setting up traditional and modern education, counseling, and training methods.

According to Law Number 24 of 2007, there are four key elements involved in catastrophe mitigation, precisely: 1) the availability of data and maps showing the locations most vulnerable to various types of disasters, 2) socialization is necessary to raise community comprehension and awareness of disaster relief, 3) awareness of what should be done and avoided, as well as understanding how to rescue oneself in the event of a disaster, and 4) arranging and planning places that are vulnerable to disasters to lessen the likelihood of disasters. Identifying and recognizing sources of danger or the threat of a disaster, monitoring the use of high-tech devices, supervising the implementation of spatial planning, monitoring natural resource management, establishing a culture of disaster awareness, implementing physical and non-physical efforts, and monitoring disaster management arrangements are some disaster mitigation activities. All these activities need the readiness of the budget to finance once the disasters have happened. The nation faces a few significant obstacles in dealing with disaster risk management. One of the critical obstacles is the expense of lives lost and property damaged; Indonesia has had to spend much money on preparedness and recovery from natural disasters (Ayuningtyas et al., 2021). Furthermore, Indonesia must prioritize its disaster risk reduction and DRM efforts because it will face years of resource competition (Relief-web, 2021). It can make it challenging to provide policies for catastrophe mitigation with enough funding. Indonesia has enacted policies and strategies to address these challenges and empower institutional capacity in international and regional cooperation and national disaster management planning (Stiftung, 2022).

To deal with challenges and obstacles, Indonesia has started the development of policies on disaster financing and has made significant progress by putting risk finance and insurance plans into place. Indonesia has bolstered its response to disasters and helped guarantee that resources for relief and recovery are accessible (The World Bank, 2021). The request showed the seriousness of dealing with disaster risk financing for assistance from different international agencies, including the World Bank (The Ministry of Finance, 2011). It was then followed by severe exercise and a series of policy development activities in the country and compared to other countries (Facility, 2023).

In the Indonesian context, the development transition from centralization to decentralization with three layers of governments at central, regional, and village levels has dramatically increased the space available for local administrations to be empowered (Sutiyoand Maharjan, 2017). The Government has a new instrument and alternative funding source for disaster risk reduction: community-based financing for disaster risk driven by public investment (Fernández Lopera et al., 2024; Mardiah et al., 2022). It is essential for different development stakeholders in Indonesia that focus on disaster risk management, particularly disaster risk financing, to have recent pictures of implementing disaster risk financing policies in Indonesia. This is because the burden of funding disasters, according to recent laws and regulations, is no longer centralized at the national agencies but also to the locals, provinces, districts, villages, and communities. The academic revisit of the policy's implementation can guide its improvement towards the continued disaster that will be mitigated in Indonesia in the future.

2. Literature review

The challenges in disaster risk management in Indonesia lead to policy reforms and investments in disaster risk management are needed to minimize loss of life, reduce damage to assets and the economy, and protect and further enhance prosperity, inclusiveness, and livability of Indonesia (Amri et al., 2017; The World Bank, 2019). For instance, there is a need for clear and comprehensive policies to implement disaster risk reduction education. Better institutional coordination is required to effectively address Indonesia's disaster risk reduction challenges (Mardiah et al., 2022).

One key policy on disaster risk management is disaster risk financing and insurance, which can be a practical policy approach for mitigating the impact of disasters. It can provide financial protection, transfer risk, incentivize proactive risk management, safeguard private property, and mainstream disaster risk management into national development plans. Disaster risk financing and insurance help countries ensure their populations are financially protected during a disaster (World Bank, 2012a). Insurance and financing for disaster risk help reduce expenses and cover post-disaster funding needs at the best possible time without sacrificing welfare, fiscal stability, or development objectives (The World Bank, 2012b). It is a major topic for public policy discourse worldwide, especially those dealing with natural disasters, that governments must address (OECD, 2021). Insurance and funding against catastrophic risk are critical mitigation methods (He and Faure, 2023; Pagano et al., 2020). First, in the event of a disaster, individuals, businesses, and governments can be financially protected by insurance and funding for catastrophe risk. This can decrease the financial impact of disasters and guarantee that recovery efforts can be funded quickly (Maduro and Fontainha, 2023).

Second, disaster risk finance and insurance allow risk to be transferred from individuals, groups, and governments to insurance companies or other risk-bearing institutions. This may reduce disasters' financial toll on those affected by them (Keerthiratne and Tol, 2017). Thirdly, disaster risk finance and insurance allow risk to be transferred from individuals, groups, and governments to insurance companies or other risk-bearing institutions. Next, Insurance markets specifically focused on catastrophic risk can be expanded through catastrophe risk financing and insurance, helping protect private property (Chen, 2019). Lastly, National development plans can incorporate catastrophe risk management through insurance and finance for such risks. To establish inclusive policy responses, thorough assessments and analyses are necessary (Sirivunnabood and Alwarritzi, 2020).

3. Methods

This research uses a qualitative approach using data sources from 116 international literature and 467 national literature, which is online data, selecting 32 policies and 121 research results from Ministries, non-governmental organizations, international organizations, and local governments, including provincial, district, and village policies and regulations related to the study topic (Sumada and Samudra, 2023; Williamson et al., 2018). However, only the relevant results and findings are quoted and structured in this study. The study was conducted between September 2023 and January 2024. All of the data presented are accessible online data publicly stored in the different online data sites of respected organizations, both governments and non-government organizations. The literature, research results, policy studies, and secondary data were reviewed multiple times to provide a comprehensive understanding of Indonesia's current landscape of disaster risk financing policies. This holistic information is then presented descriptively to show the development of critical issues in disaster policy, especially disaster risk financing (Hidayah et al., 2023; Rudolf and Gradinaru, 2017). However, the study has limitations as the examination was conducted only from the documents and literature. At the same time, it is well understood that policy survey implementation cannot just be limited to reviewing the policy's content but also its context (Grindle, 2017). In particular, when the study is on disaster risk management and disaster financing, the study of the policy's impact is essential (Samudra et al., 2023).

4. Results and discussion

4.1. Results

The Law Number 24 of 2007 on Disaster Management contains some measures governing disaster financing. These consist of set aside money, which is prepared to be used in the event of a disaster, and budgetary allotments for disaster management made to the local Government to Article 60; the governments share responsibility for disaster management finances, and they both encourage community participation in raising money from the general public. Furthermore, the law specifies that BNPB may use ready-to-use funds allotted by the Government, which are included in BNPB's budget for emergency response. The Disaster Management Law No. 24 details some stakeholders in disaster management, including in formulating disaster financing policies. The BNPB is the leading institution but is structured at the local level. Likewise, the government structure from the center to the village level has its role in formulating disaster mitigation policies. The Government has several necessary policy formation processes to implement catastrophe mitigation strategies, including disaster financing. The study found that different policies and regulations on disaster financing have been enacted by the central, province, district, and village governments since the passing of Law No. 24 of 2007 on Disaster Management.

4.1.1. Disaster risk financing and insurance policies

To safeguard Indonesia's finances and assets, the National Disaster Risk Finance and Insurance (DRFI) Strategy was created by the Ministry of Finance in 2018 and has been reinforced recently (The World Bank, 2021). Increased ability for prompt financial response to natural catastrophes and improved fiscal balance protection are the goals of Indonesia's DRFI plan. The approach provides a variety of complementary possibilities for a national disaster risk financing plan based on a preliminary fiscal risk analysis and an assessment of the present budget management of natural disasters in Indonesia (World Bank, 2012).

Between 2014 and 2018, the Government estimated US$90 million to US$500 million annually on disaster response and recovery; subnational governments spent an additional estimated $250 million. It suggests that natural disasters amounted to 1.4% to 1.9% of all central government spending over this time, two to four times higher than expected. Although it is undercapitalized, the Indonesian Government's budgetary tool for funding public post-disaster expenses is the rehabilitation and reconstruction fund. The World Bank has helped the Ministry of Finance create a national catastrophe risk financing plan to safeguard the state's finances from natural calamities. Furthermore, according to the World Bank, it has helped the BNPB enhance its timely post-disaster assistance funding procedures (World Bank Group, 2021).

The DRFI plans to strengthen Indonesia's ability to respond financially and immediately to natural disasters while better safeguarding its fiscal balance (Ministry of Finance RI, 2022). The. Based on an initial budgetary risk analysis and an evaluation of Indonesia's present budget management procedures for natural disasters, the Strategy offers a variety of complimentary solutions for a national disaster risk financing plan. The Strategy contains a mix of instruments that enable the Government to minimize disaster impacts and increase economic resilience in the face of calamities. With the Strategy, the Government made significant strides in bolstering its capacity to mitigate the risks associated with frequent natural disasters. Implementing a national disaster risk financing strategy would require substantial institutional capacity building (Balla et al., 2021; Haris et al., 2023; MoF-BKF, 2022).

4.1.2. National implementing regulation on disaster financing

To implement the Law provisions, the Government of Indonesia has enacted several regulations. First of all is Government Regulation No. 22/2008 on Funding and Management of Disaster Aid. Government Regulation Number 22 of 2008 implements a mandate of Law Number 24 of 2007 Articles 63 and 69, paragraph (4) of the need to issue government regulations that regulate the mechanism management of funds and procedures for providing and the amount of relief assistance in a disaster.

To implement these two provisions, the Government Regulation concerning Funding and Management of Disaster Assistance regulates several important issues, including resources, allocation, planning, implementation, supervision, reporting, and accountability at the pre-disaster stage, during emergency response and post-disaster. In terms of funding and managing disaster relief, BNPB oversaw the central planning of pre and post-disaster preparations for the use of funds designated for disaster management. In contrast, the Regional Disaster Management Agency (BPBD) oversaw regional coordination at the regional levels. The State Revenue and Expenditure Budget (APBN) gives the central Government a particular budget for disaster management and emergency response. Local governments can allocate ready-to-use funds to the Budget Regional Income and Expenditures (APBD).

The standards of accountability and openness must be followed while reporting and accounting for planning activities, as well as when using finances and aid for disasters, to prevent mistakes and deviations in their execution. The national, regional, local, and BNPB governments all handle activity supervision and accountability reports related to money management and disaster assistance. Oversight of all national, regional, and community-led disaster management initiatives at every stage of the catastrophe process to ensure that funds allocated for disaster relief are used consistently. The goal of funding and overseeing disaster relief is to assist efforts in disaster management that are capable, efficient, and accountable. According to the Government Regulation Number 22 of 2008, funding and management arrangements for disaster relief comprise the following provisions: a. sources of funds for disaster relief; b. use of funds for disaster relief; c. administration of disaster relief; and d. monitoring, reporting, and accountability for funding and management of disaster relief.

The state budget, regional revenue, expenditure budget, and public sources are among the shared funding sources for disaster management to which the central Government is accountable. According to Article 5 of Government Regulation No. 22 of 2008, the national government and local governments appropriately allot funds for disaster response in the APBN and APBD, State Budget, and Regional Revenue and Expenditure Budget during the pre-disaster, emergency response, and post-disaster phases). In addition, the regulation states that the Government only provides a catastrophe contingency fund; b. ready-to-use money; and c. grant-based social assistance funding under the disaster management budget derived from the State Budget. Funds designated for disaster management are those that are utilized for pre-, during, and post-disaster management. Disaster contingency funds are set aside to handle calamities and the potential for a specific disaster. Ready funds are cash the Government has on hand and reserves for use during catastrophe or disaster until the emergency response time limit expires. The Government grants social assistance funding to local governments to help with post-disaster management. Providing necessities during an emergency response is known as disaster emergency help.

The other regulation is Presidential Regulation No. 75 of 2021, which states that the Joint Disaster Management Fund is a fund used for disaster management for pre-disaster, disaster emergency, and post-disaster stages. The Funds come from various sources to support and complete adequate and sustainable disaster mitigation. The Joint Fund aims to support and complete the availability of disaster management funds that are adequate, timely, targeted, planned, and sustainable in disaster management efforts, efficiently, effectively, and accountable, and managed by the Ministry of Finance. The Joint Fund is sourced from the APBN-state budget, APBD-Regional Revenue and Expenditure Budget, and other legitimate sources of funds. This President Regulation starts to introduce insurance and sharia insurance claim payments as legitimate sources of funds besides investment results from managed funds, grants received by the fund management unit in the organizing ministry environment affairs in the financial sector, the results of collaboration with other parties; and trust fund both from within the country and abroad. Risk transfer funding can be distributed through an insurance mechanism and Sharia insurance. The fund management unit within the organizing ministry of government affairs in the financial sector pays insurance premiums or contributions in Sharia directly to the insurance company and insurance company Sharia.

The Ministries and Regional Government, or a fund management unit within the ministry that carries out government affairs in the financial sector, can become insurance policyholders. In the event of an insurance claim, payment of the claim from insurance companies and companies' Sharia insurance is deposited into the fund's management unit account within the ministry carrying out finance affairs. Funds from insurance payments claims are channeled for funding the repair, rebuilding, and replacement of the insured object according to the value payment of claims. The following regulation is issued by BNPB Head of Decree No. 1 of 2012 on Village Disaster Resilience. Disasters have destroyed the development outcomes attained via diligent work. The budget meant to be allocated for national development, and its initiatives to end poverty has also been lowered due to funds utilized for emergency response and post-disaster rehabilitation. When a disaster strikes, those who are impoverished and marginalized and reside in high-risk locations will be the most affected and disadvantaged because they often make up the highest proportion of the victims and will bear the brunt of the disaster's devastation.

The following Regulation is BNPB Head issued Decree No. 2 of 2018 concerning the Use of Ready-to-Use Funds (RUF) to provide funds that are always available and reserved by the Government in times of circumstances of disaster emergency until the time limit of the situation disaster emergency ends (BNPB Regulations Concerning Use of Ready-to-Use Funds, 2018) Referring to Article 4, 5, 6, and 7 of the Decree, BNPB manages the RUF but can be accessed by the Ministries and Government Agencies, Provincial, and District Governments through a procedure and mechanism as regulated by the Decree. It can also support the units under BNPB.

The Disaster Emergency Management Activities that can be carried out financed with RUF are limited to procurement of goods/services, including search and rescue of disaster victims, emergency aid, evacuation of victims and threatened communities, clean water, sanitation and hygiene needs, food, clothing, health services, shelters, and temporary shelters. Disaster Emergency Management Activities can be supported by activities supporting emergency handling operations disasters including activation of the emergency handling command disaster system, cleaning to make access more accessible help, emergency repairs of infrastructure and facilities to facilitate access to assistance, and controlling the threat of disasters, enable the achievement of successful activities disaster emergency management (Samudra et al., 2024).

According to Articles 14 to 23 of the Decree, RUF can also be used for financing mentoring, monitoring, evaluation, and activities reporting and specific studies of disaster impacts; according to Article 24 of the Decree, the RUF is accessible to humanity support for other countries that facing disaster (BNPB Regulations Concerning Use of Ready-to-Use Funds, 2018). The Head of BNPB also enacted Regulation No. 6.A of 2011, which provides Guidelines for the use of Ready-To-Use Funds in Disaster Emergency Status. It is an amendment to BNPB Regulation No. 6 of 2008, which concerns the same issues. The provisions of this regulation are a protocol and mechanism consisting of procedures for accessing Ready-To-Use Funds.

4.1.3. Provincial and district regulations on disaster financing

The rules concerning disaster management financing also developed in many provinces and districts, and here are some examples. The regulations were identified through the online regulations database at national and regional levels with keywords of disaster management and disaster risk financing.

a. Sragen District Regulation No. 30 of 2022 concerning render aid to Victims of House Collapses or Damage Due to Natural and Non-Natural Disasters. Assistance is provided to residential homeowners/residential houses/buildings damaged due to natural/non-natural disasters in the district area. Assistance funds are intended to assist residential houses/buildings damaged.
b. Pasuruan District Regional Regulations No. 4 of 2011 on Disaster Management states that Regional Government responsibilities in implementing disaster management include:

- Adequate allocation of disaster management funds in the Regional Revenue and Expenditure Budget for pre-disaster, during a disaster, and after a disaster;
- guaranteeing the fulfillment of the rights of communities and refugees affected by disasters accordingly with minimum service standards and regional capabilities;
- protecting society from the impacts of disasters, and disaster risk reduction and integration of disaster risk reduction with development programs.

c. Poso District, Central Sulawesi Regional Regulations Number 6 of 2016. The regulation is about ready-to-use funds under disaster emergency circumstances. It states that:
   - Disaster management funds come from APBD, the Regional Revenue and Expenditure Budget. The Regional Government provides Ready-to-Use Funds for Disaster Emergencies in the budget disaster management placed in the BPBD-Regional Disaster Management Agency budget.
   - Ready-to-Use Funds, as referred to, must always be available according to needs during a Disaster Emergency

d. Regional Regulations of West Java Province Number 2 of 2010. This Implementation of Disaster Management Regulation provisions regulates that:
   - The Regional Government provides ready-to-use funds specifically for procurement of goods and services as well as emergency construction in disaster emergency management comes from the APBD-Regional Revenue and Expenditure Budget;
   - Ready-to-use funds are used according to disaster emergency response needs but can be obtained from the State Revenue and Expenditure Budget, which is received directly by the Agency and accountable to BNPB, no later than 3 (three) months once received, which is implemented according to established guidelines by the Head of BNPB;
   - Funds for disaster management are sourced from the APBN-state budget and APBD-Regional Revenue and Expenditure Budget, Public, and other sources that are valid and non-binding;
   - The Regional Government allocates a response budget for disaster in the APBD-Regional Revenue and Expenditure Budget adequately, which is used for dealing with disasters at the pre-disaster stage, during emergency response, immediate recovery (early recovery), and post-disaster;
   - The Regional Government provides ready-to-use funds in the budget disaster management originating from the allocated APBD-Regional Revenue and Expenditure Budget within the Agency's budget and must always be available by needs during emergency response;
   - The Regional Government encourages community participation in give support sourced from the community by facilitating the community that will provide financial aid for disaster management, facilitating the community that will collect disaster management funds, and increasing public awareness to participate in assisting.

e. Pekanbaru City Regional Regulations No. 4 of 2021. Regional disaster management funds come from the APBN-state budget and APBD-Regional Revenue and Expenditure Budget and can be sourced from other legitimate funds. It also requires that regional governments allocate funds for disaster management in the APBD-Regional Revenue and Expenditure Budget with adequate value based on actual needs in the region. The budget covers pre-disaster, disaster emergency response, and post-disaster.
f. Regional Regulations of Sleman District Number 7 of 2013. This Disaster Regulation states that disaster management finance is a fund in the form of money used for disaster management in the pre-disaster stage, emergency response, and post-disaster, including all a form of wealth or goods that can be valued in money. Disaster management financing is the form of funds and goods sourced from provincial and district Regional Revenue and Expenditure Budget, state budget, public, and other parties.

4.1.4. Village policies and regulation on disaster financing

The source of funds for villages is funds given to villages from financial balance funds from the central and regional governments received by the district and city. Village Fund Allocation to strengthen village financial capacity, freedom for villages in managing government issues, village development, and society, to encourage improve village democracy to increase income and equality to achieve the welfare of village communities. The Village Revenue and Expenditure Budget is a budget that comes from Village Fund Allocations and Village Original Income and other sources, including community and independent sector funds, private sector or other parties if necessary.

The Disaster Resilience Village, as regulated by BNPB Head of Decree No. 1 of 2012 on Village Disaster Resilience, will also use the global framework for resilient societies, created based on the Hyogo Framework for Action. The policy and program related to disaster management at the village level in Indonesia recently refer to the Sustainable Development Goals, which the Government of Indonesia, through the Ministry of Villages, has adopted as Village Sustainable Development Goals by adding the cultural and local context provision (Pedoman Umum Pembangunan Desa Dan Pemberdayaan Masyarakat, 2023).

It is then also confirmed as the financing source by the Minister of Village Regulation on Details Budgeting of Village Fund (Rincian Prioritas Penggunaan Dana Desa, 2023). This framework includes elements related to governance, risk assessment, education and knowledge-building about disasters, risk management and vulnerability reduction, and preparedness and response to disasters because it will not be possible for villages/districts to do it directly to produce perfect conditions that contain all these features. In addition to establishing Village Resilience, the program is anticipated to promote the incorporation of Disaster Recovery into the Village Development Plan. Due to competition from other village development projects, Disaster Management Plan may find it challenging to secure funds if it operates independently. The Village Disaster Risk Reduction Forum is therefore anticipated to promote the inclusion of elements of the Disaster Management Plan into the Village Medium Term Development Plan, in addition to producing so that it also contains a reduction of disaster risk. By including Disaster risk reduction aspects in the Village Fund Allocation, which will be legalized by Village Regulation, Disaster risk reduction programs will receive stronger funding guarantees. Similar measures can also be implemented for sub-districts, namely integrating disaster risk reduction programs into district planning. To implement the National Policies and Regulations related to disaster risk financing, villages have already enacted regulations; below are some examples of them:

a. Hargorejo Village, Kulon Progo Regulations No. 9 of 2017 on Implementation of Disaster Management regulates an allocation of funds for internal disaster management in the Village Revenue and Expenditure Budget according to capabilities of village finance (Great Regulations, other countries can learn from such an approach)
b. Majasetra Village, Bandung Regulations No. 6 of 2018 on Majasetra Village Disaster Preparedness Response also allocate adequate disaster management funds and ready-to-use funds in the Village Revenue and Expenditure Budget for handling disaster emergency response in the Village Revenue and Expenditure Budget;
c. Kaligending Village, Kebumen Regulation No. 14 of 2020, allocates funds to the Village Revenue and Expenditure Budget and provides special treatment for poor and fragile communities, including children, disabled people, and pregnant women.

Based on the practices and experiences learned from Indonesian disaster risk financing practices, the Village Fund has not only funded the community action plan but has also drawn more significant funding for smaller-scale mitigation projects like water reservoirs and intelligent agriculture (Mardiah et al., 2022).

4.2. Discussion

The study has documented the facts and recent policy development of disaster risk financing and insurance policies in Indonesia well. It also captures policy and regulatory frameworks of disaster financing at national, provincial district, and village levels issued by the respective level of Government and found pieces of evidence that disaster risk financing under the context of disaster risk management in Indonesia has been regulated in different required policies and regulations as mandated by Law No. 24 of 2007. Thus, there are no issues with the availability of regulatory frameworks at the national, provincial, district, and village levels. However, some challenges become obstacles in exercising beyond the policy and regulations of the disaster risk financing issues.

Firstly, a study evaluated the efficacy of current disaster insurance policies, looked at the GoI’s disaster risk financing techniques, and suggested ways to enhance disaster risk reduction (DRR) (Adhasara et al., 2022). One critique of the study is that national funds were mainly used for disaster finance to pay for all disaster damages. Because the definition of an insured structure was not clearly defined under the current catastrophe insurance, it was widely included. According to vulnerability evaluations, the potential earthquake damage levels varied depending on the type of building. As a result, insurance is advised for structures in high-damage categories but not for those in low to moderately vulnerable categories (Adhasara et al., 2022). The Sendai

Framework for Action (SFA), signed in 2015, strengthened the Hyogo Framework for Action (HFA), signed in 2005. Enhancing the performance of local governments as essential participants in disaster management is one of the top aims of this global framework (Putra and Matsuyuki, 2019). Governments face great difficulty when it comes to disaster management, particularly in developing nations. They deal with several problems brought on by a shortage of human resources, unstable political environments, and government mishandling of the economy (Putra and Matsuyuki, 2019),

Some studies have been conducted at the local level to examine the decentralized context of disaster risk management, particularly disaster risk financing. The first issue examines the relationship between the population of 23 districts in the Indonesian province of Aceh, the disaster budget, and the disaster risks index (Fahlevi et al., 2019). It also looks at how Indonesian local governments suggest and create catastrophe budgets. The disaster budget and the degree of disaster risk in different districts or cities are to be statistically significantly correlated. However, this indicates a strong positive link between the catastrophe budget and the local Government's budget (Fahlevi et al., 2019).

A positive sign based on an investigation of the decentralization of disaster risk management revealed a general agreement that disaster risk governance becomes more effective and responsive when the sector is decentralized (Putra and Matsuyuki, 2019). First, it is confirmed that decentralization improved regulation, institutional establishment, budgeting, and planning in disaster management implementation. Second, despite broad advancements, there are still issues to be resolved, such as inconsistent regulations, inadequate resources and capacity for regional institutional establishments, a dearth of specialists' involvement, and a heavy reliance on the Federal Government's rise in corruption. Third, despite establishing a decentralized framework for disaster management, national institutions continue to play a significant role, and local government capability and the network as a whole still need to be constrained. These results imply that strengthening the Regional Disaster Management Agency (BPBD)'s horizontal and vertical provincial/municipal networks and giving it more authority would improve the disaster management system and enable local actors to play a more significant role in disaster management (Putra and Matsuyuki, 2019).

The other issue beyond the availability of regulation is the need for significant funds when a disaster happens, and it is insufficient with only a type of fund management. Thus, it needs a combination of different schemes. The recovery and restoration of public infrastructure are primarily funded by the local governments' heavy reliance on contingency funds, which are sometimes insufficient and subject to substantial delays (Soetanto et al., 2020). Insurance become the option as it seems possible for provincial governments to purchase insurance to protect state assets under several regulations, including Article 111 of Government Regulation No. 45 of 2013 on guidance to develop government expenditure and revenue, and Article 45 of Government Regulation No. 27/2014 on the management of state/region goods and Article 52 of The Ministry of Home Affairs Regional Financial Management Guidelines No. 13/2006 (Soetanto et al., 2020; World Bank Group, 2018, 2021). The following issue is that insurance is not widely used in the public and private sectors, especially in most low-income regions. Numerous obstacles and difficulties were classified into multiple groups: institutional, cultural, financial, ignorance, insurance planning procedures, and lack of trust. The results also imply that formal and informal approaches should be taken to improve insurance education involving various stakeholders.

Thus, as elaborated, the discussion shows that the policy and regulatory framework are just one step towards the disaster risk financing issues in Indonesia, in the context of decentralization. First, it needs to ensure the capacity of the local stakeholders, governments, and communities. Secondly, one regulation on disaster risk financing will need to be implemented and inter-correlated with other regulations. Thus, it must be implemented differently. Lastly, it cannot only rely on one approach due to the limited availability, for instance, if it only relies on a contingency fund. Thus, it needs to consider insurance schemes, both public and private. The findings of this study show Indonesia's significant progress towards a step in dealing with disaster risk financing. The availability of national policy and regulation, provincial and district policy and regulatory frameworks, disaster risk financing, and implementing regulations at the village levels. Nevertheless, as discussed at l, east, there are three issues to ensure that the policy and regulatory frameworks can be implemented. There needs to deal with capacity, implementation, and linking with other regulations, and consider other schemes of disaster financing.

5. Conclusion and recommendation

One of the identified obstacles to managing disaster risk in Indonesia is financing and the readiness to use finance. However, the country has enacted policies and strategies to address these challenges and has at least dealt with the first stage of adopting innovative approaches to disaster risk financing and insurance into different policy and local regulatory frameworks at the national, regional, provincial, district, and village levels. The policy and regulatory frameworks show that disaster management operational funds are a joint responsibility of the Central Government, Provincial Government, District Government, and Village Government according to their authority. The study found that at the national level, several regulations have been developed and enacted to implement the mandate of Law 24 of 2007 on disaster financing, the government regulation, presidential regulation, BNPB regulation, and relevant ministries regulation, including Ministry of Finance and Ministry of Home Affairs to deal with the decentralized context of disaster management and disaster risk financing. At the regional levels of provincial and district governments, different regulations have also been issued to deal with disaster risk financing. Finally, the village level promotes the implementation of village resilience policy and allocates disaster-related budgets in the RPJMDes and APBDes, Midterm Development Plan, and Village Revenue and Expenditure.

However, the study also noted that the availability of policy and regulation is one step in dealing with disaster risk financing. To ensure that the policy and regulations are really able to be implemented, it requires different exercises. This includes the availability of other regulations at different levels, improvement of capacity and coordination among the key actors and stakeholders at different levels, and lastly, the participation of the public and community in applying other schemes, in this case, disaster insurance. The Regulations already make provisions for budget allocation, and the authorities clearly guide how to access the budget for contingency and ready-use funds. Unfortunately, this study is limited to examining the documents and data online. Consequently, it cannot document information on the challenges of accessing the funds, particularly for the users, ministries, government agencies, and provincial, district, and village governments.

Recommendation

Some recommendations are moving forward to deal with the identified existing disaster management policies, particularly on disaster risk financing in Indonesia. First of all, it is important to integrate insurance and mitigation strategies as integral components of a comprehensive disaster management policy. The Government provides more significant funding for programs that mitigate disaster risk. Allocating extra funds for mitigation projects should come with a well-defined plan and set of targets. Secondly, due to the complexity of bureaucracy, to deal with the fast principle under Law 24 of 2007, top-down command and control must be eliminated, and local government flexibility and agility must be enhanced; therefore, it is better to simplify bureaucracy. Thirdly, the lessons gained from putting the Hyogo Framework for Action into practice will guide the joint efforts of governments, businesses, civil society, and other stakeholders in creating communities and countries that are resilient to disasters (Mardiah et al., 2022).

The Hyogo Framework priorities for action 2005–2015 are: (1) ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation; (2) identify, assess, and monitor disaster risks and enhance early warning; (3) use knowledge, innovation and education to build a culture of safety and resilience at all levels; (4) reduce the underlying risk factors; and (5) strengthen disaster preparedness for effective response at all levels (Mardiah et al., 2022). Based on the Hyogo Framework for Action, the current Sendai Framework of 2015–2030 framework aims to achieve the following outcomes over the next 15 years: a significant reduction in disaster risk and losses in lives, livelihoods, health, and the economic, physical, social, cultural, and environmental assets of individuals, businesses, communities, and countries (Framework and Reduction, 2015). It will be achieved through, "Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience (Framework and Reduction, 2015).

Indonesia should increase its cooperation on international platforms in order to accomplish the goals of catastrophe risk reduction. Engaging in international discussions and exchanging best practices with other nations are two ways to do this. It is also critical to include the business sector in funding catastrophe risk. With tools like green bonds and other public-private partnership models, the private sector may contribute more to funding catastrophe risk. It helps lessen the funding gap for nations vulnerable to financial shocks from disasters, which can aid in raising money to respond to natural disasters. Indonesia has to keep developing its knowledge of risk profiles and resilience building. Working with pertinent organizations like the World Bank, Asian Development Bank, European Commission Disaster Risk Management Knowledge Center, and other significant multinational organizations that specialize in disaster risk management might help achieve this. Referring to this study's limitations, a further study to learn how the implementation of the disaster financing policies is going would be beneficial. The findings of the study can document the challenges in accessing the funds and what areas of the mechanism and protocol need to be improved in the future.

Author contributions: Conceptualization, BS and ASB; methodology, BS, ASB and AS; software, BS and ASB; validation, BS and AAS; formal analysis, BS, AB and AAS; investigation, AAS and ES; resources, BS and ASB; data curation, BS; writing—original draft preparation, BS; writing—review and editing, AAS; visualization, AAS; supervision, BS and ASB; project administration, BS, ASB, AAS and ES; funding acquisition, BS. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: This article was developed from one of the assignments for the Subject of Policy Formulation and Disaster Mitigation in the Doctorate Program at Universitas Muhammadiyah Jakarta. The last two co-authors are the lecturers, Professors of Public Administration and Disaster Mitigation under the Social and Political Science of Universitas Muhammadiyah Jakarta, who agreed to proofread the developed draft of the article.

Conflict of interest: The authors declare no conflict of interest.

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