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Coordination of Funding Sources in Disaster Risk Finance in Vietnam: A Case Study

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Abstract

This case study analyses the complex institutional framework of Disaster Risk Finance (DRF) in Vietnam, a nation highly vulnerable to natural disasters. A thorough desk-review methodology is applied to diverse documents and data types. The findings reveal that, despite significant government efforts, DRF in Vietnam faces limitations within the legal framework governing disaster risk activities, alongside challenges in the effective and timely mobilisation and allocation of resources. To address these issues, Vietnam should accelerate the implementation of alternative disaster risk financing instruments to enable disaster response, adopt more efficient resource mobilisation mechanisms, and develop a comprehensive dataset to support informed decision-making regarding financial strategies and alternative funding sources.

Keywords: Disaster risk finance, climate resilience, disaster management, Vietnan

JEL classification: H84, Q54, O23, Q56

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1. Introduction

Vietnam is highly susceptible to natural disasters, ranking 81st out of 191 countries according to the INFORM Risk Index (2024). With a coastline spanning 3,440 km and complex topography, the nation is exposed to a wide range of natural hazards, including hydrometeorological events such as typhoons, floods, heavy rainfalls, and droughts, as well as geophysical disasters like landslides (see *Figure 1*). In 2024, the likelihood of flooding, both river and coastal, in Vietnam, is rated at 9.9 and 9.6 out of a maximum score of 10, respectively. The country also faces low to moderate risks from earthquakes, cold spells, and heat waves. Recent statistics indicate that disasters in Vietnam are increasing in terms of intensity, scope, and unpredictability, with rising extremes and recurring cycles of impact. With more than 70% of the country's population residing in the coastal provinces and low-lying deltas, natural disasters have had significant social and economic impacts in Vietnam (see *Figure 2*). According to the Emergency Events Database (EM-DAT), over the past three decades, Vietnam has experienced 187 extreme disasters, resulting in 13,508 deaths, and affecting more than 58 million people. The associated damages are estimated at approximately USD 23.3 billion (CRED, 2023). Losses from natural disasters have accounted for 1-1.5 percent of Vietnam's GDP annually (World Bank, 2022b). In 2023 alone, the total cost of disaster-related damage reached a record high at about USD 339.38 million (VietnamPlus, 2023).

Given this heightened vulnerability, Vietnam has long recognised the need to strengthen resilience against natural hazards and mitigate the impacts of climate change. For decades, the Government has proactively developed a long-term strategy and institutional framework to strengthen Disaster Risk Management (DRM) at both central and local levels. A key milestone was the approval of the National Strategy for Natural Disaster Prevention Response and Mitigation to 2020 in 2007, which provided a strategic framework for mobilising human and financial resources toward disaster preparedness and mitigation. In 2021, an updated strategy was launched, extending to 2030, with a vision towards 2050, reaffirming the country's commitment to long-term resilience building.

Furthermore, a national programme to supporting community-based DRM has been established, providing structured guidelines for a relief system, extending from the commune to national level. This programme is expected to provide funding for immediate response and recovery efforts in the aftermath of disasters.

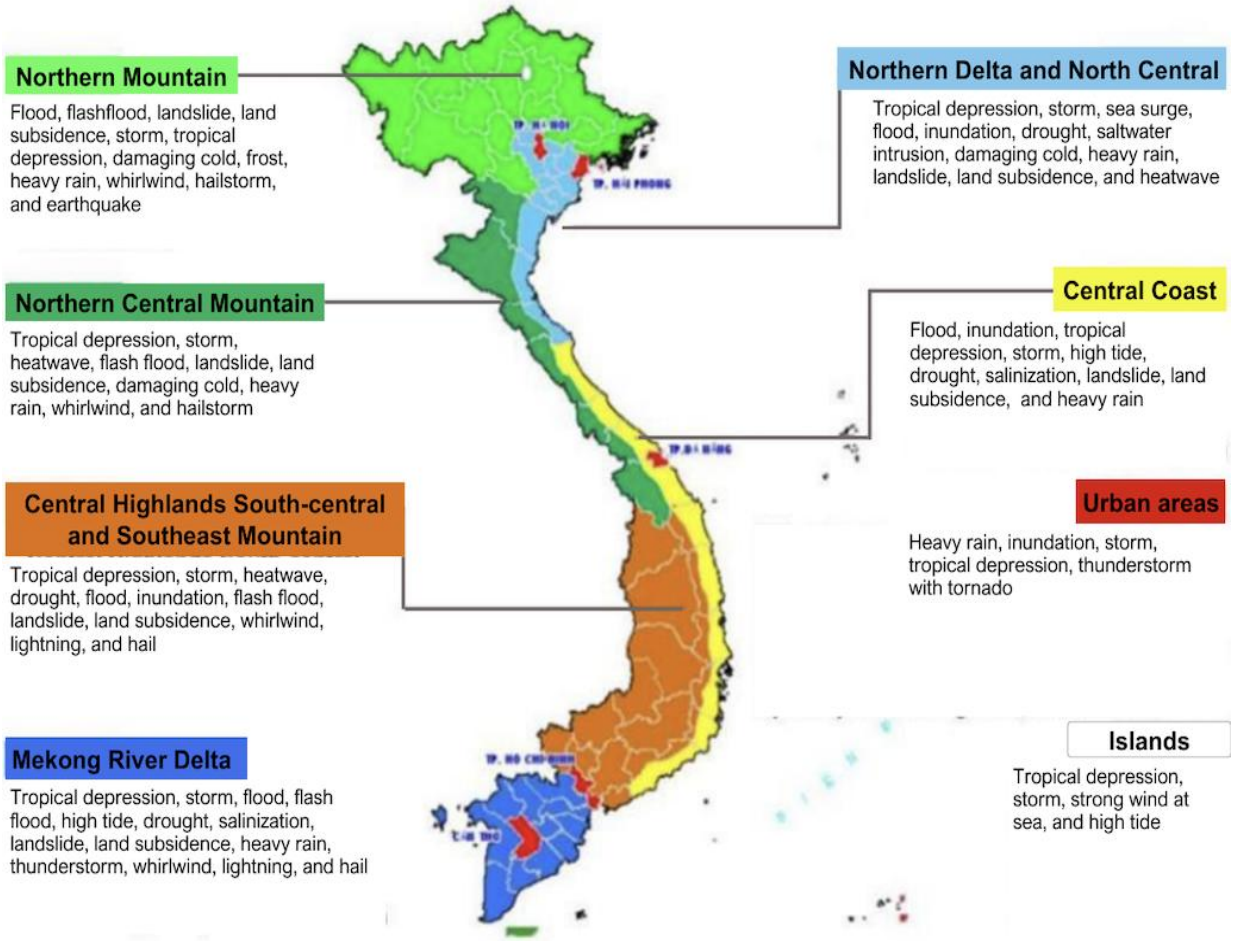

Figure 1. Disaster zones in Vietnam
Source: Vietnam Disaster Management Authority

This case study analyses the complex aspects of DRF in Vietnam, examining its legal framework, sufficiency, responsiveness, and efficiency. It evaluates the present condition of DRF, with a focus on the sources, allocation, and utilization of funds. The study also addresses the challenges of coordination, drawing insights from historical practices to enhance the synergy between different funding streams. By integrating theoretical knowledge with data from real-world cases this study aims to provide valuable lessons and practical recommendations to improve DRF approaches in Vietnam.

To explore these aspects in depth, the study undertakes an extensive review of a range of sources, including journal articles, legal and policy documents, news, and media reports relevant to DRF in Vietnam. The combination of diverse information sources offers a robust foundation for understanding Vietnam's current DRF landscape, identifying key challenges, and highlighting opportunities for strengthening the country's DRF framework. Additionally, analysis of how the Vietnamese Government and local authorities have responded to disasters provides a well-rounded perspective on the dynamics of DRF and laying the groundwork for evidence-based improvement strategies.

Figure 2. Social and economic losses due to disasters
Source: Department of Dike Management and Natural Disaster Prevention and Control

The case study is structured as follows. Section 2 provides an overview of DRF in Vietnam. Section 3 examines the specific challenges the country faces in funding DRM. Section 4 offers a detailed discussion of policy recommendations to address these challenges. Finally, Section 5 concludes the paper with key insights and closing observations.

2. Overview of DRF in Vietnam, DRM in Vietnam and Regulation framework

Vietnam has made significant efforts to strengthen DRM. The enactment of the Law on Natural Disaster Prevention and Control (Law No.33/2013/QH13) in 2013, later amended by Law 60/2020/QH14 in 2021 (hereafter referred as the Law), represents a systematic enhancement of the disaster management framework. This was the first stand-alone legislation to establish Vietnam's institutional structure, functions, and mandates for disaster management, comprehensively addressing all types of natural hazards The Law also outlines roles and responsibilities of various entities, including ministries, local authorities, stakeholders, and other key actors within the DRM system. Following the enactment of the Law, the Government has introduced a number of important legal documents, policies, and programmes to support practical implementation at national, sectoral, and provincial levels, as summarised in *Table 1* below.

Table 1. Legal documents for the implementation of DRM in Vietnam

Year	Document title	Issuance Authorities
2017	Decision No. 30/2017/ND-CP, dated 21/03/2017 on response to emergency, acts of God and search and rescue.	Government
2017	Decision No. 02/2017/ND-CP, dated 01/01/2017 on policies on assistance in agriculture production for revival of production of areas suffering from losses caused by natural disasters and epidemics.	Government.
2018	Resolution No. 76/NQ-CP, dated 18/06/2018 on disaster prevention and control	Government
2021	Decision No. 66/2021/ND-CP, dated 06/07/2021 on the guidelines of the law on disaster prevention and control.	Government
2021	Decree No. 78/2021/ND-CP, dated 01/08/2021 on the establishment of the DRM Fund.	Government

2021	Decision No. 553/QD-TTg, dated 06/04/2021 on approving the national program on community awareness raising and community-based DRM.	Prime Minister
2021	Decision No. 18/2021/QD-TTg, dated 22/04/2021 on detailed regulations on the disaster forecast, warning and information transmission and risk levels.	Prime Minister
2021	Joint Circular No. 43/2015/TTLT BNNPTNT-BKHDT, dated 23/11/2015 on providing guidance on the statistical analysis, the collection of statistics and assessment of damage caused by disaster.	Ministry of Agriculture and Rural Development and Ministry of Planning and Investment
2021	Circular No. 10/2021/TT-BKHDT, dated 22/12/2021 on guiding the integration of disaster prevention and control content into the socio-economic development plans and sectoral plan and development plans.	Ministry of Planning and Investment
2021	Circular No. 02/2021/TT-BNNPTNT, dated 07/6/2021 on guidelines for formulating local natural disaster management plans	Ministry of Agriculture and Rural Development

Source: Authors' compilation

2.1. Authorised institutions for DRM in Vietnam

The framework and responsibilities governing DRM in Vietnam are outlined in the Law and its associated legal documents, establishing a multi-agency and hierarchical model. This structure operates across four administrative levels—national, provincial, district, and commune/ward, as illustrated in *Figure 3*. At the forefront of the Vietnamese Government's disaster management policy development and decision-making is the National Steering Committee for Disaster Prevention and Control (NSCDPC). Supporting this body are Ministerial-level Commanding Committees for Natural Disaster Prevention and Control, Search and Rescue (NDPCSR), which function as key operational arms of the Government in disaster response.

Serving as the Standing Management Office for the NSCDPC, the Vietnam Disaster Management Authority (VNDMA) has evolved over two decades from the former Department of Dike Management and Flood Control. Its responsibilities have since expanded to encompass approximately 22 different types of hazards identified under the Law. The introduction of the Disaster Management Funds (DMF), overseen by MARD/VNDMA,has further strengthen VNDMA's authority by enhancing its ability to mobilise financial resources from both domestic and international donors. This added capacity bolsters its role in supporting relief operations across all provinces.In Vietnam, the severity of natural disaster risk is categorised into five levels. Each level corresponds to clearly defined responsibilities and coordination mechanisms among Governmental entities, as illustrated in *Figure 3*. This system is designed to facilitate rapidresponses and the efficient allocation of resources to affected areas, ensuring effective communication and coordination across administrative levels to enable timely action.

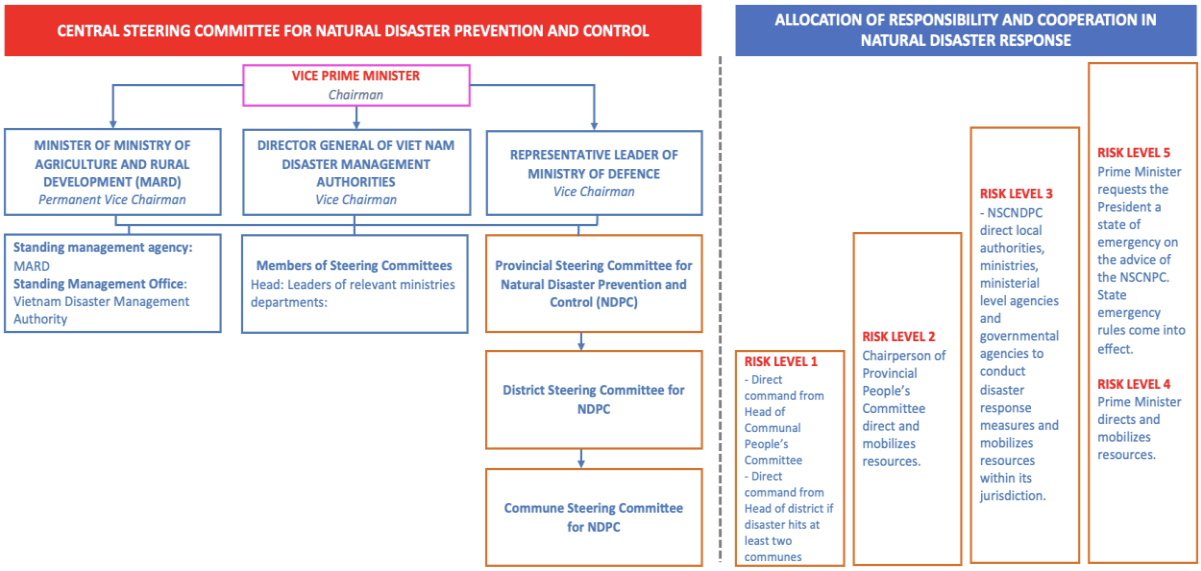

Figure 3. Vietnam disaster management structure and Lead agencies based on risk level.
Source: Decree No. 66/2021/ND-CP on elaborating some articles of the Law on Natural Disaster Management and Law on Amendments to some Articles of the Law on Natural Disaster Management and Law on Dikes.

2.2. DRF in Vietnam

2.2.1 Domestic Sources

State Budget and Associated Financial Resources - In Vietnam, state budgets at both national and local levels form the primary source of funding for DRM. Under the State Budget Law of 2015, which came into effect in 2017, a contingency fund equivalent to 2-4% of total state budget expenditure is earmarked for this purpose (see *Table 2*). This allocation supports a range of activities including disaster prevention, mitigation, recovery, epidemic management, hunger relief, and key national defence and security operations. In addition to this contingency funding, during emergencies, the central and local Governments may also access the Financial Reserve Fund, which accounted for 0.04% of total budgetary spending between 2010 and 2019, and the National Reserve, which represented about 0.2% of the total GDP by 2019. The budgetary process for government funding related to natural disaster management are presented in *Figure 4*. It is important to note that these financial reserves serve a variety of objectives beyond disaster management. Moreover, there is a lack of systematic and publicly available reporting on the actual expenditures from these funds, which presents a challenge for transparency and evaluation.

Table 2. State budget contingency (Unit: VND billion)

Year	Estimated State budget contingency	Estimated total state budget expenditure	% in total state budget expenditure
2015	19,200	1,006,700	1.91%
2017	26,000	1,273,200	2.04%
2019	32,097	1,523,200	2.11%
2021	34,500	1,709,200	2.02%

Source: Ministry of Finance[1]

[1] Reports pertaining to the state budget, as prepared by the Ministry of Finance, are available for online access at the following URL: https://ckns.mof.gov.vn/SitePages/khaithacdulieu.aspx

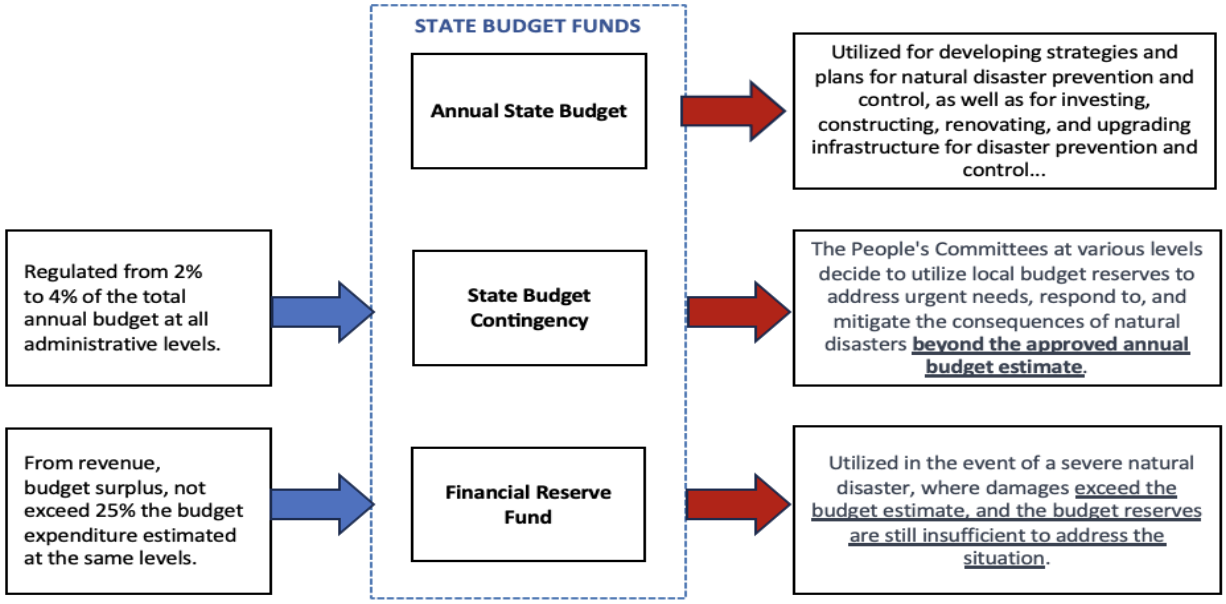

Figure 4: Overview of the State Budget and Associated Funds for Disaster Risk Management
Source: Law No. 83/2015/QH13 on Stage Budget

Disaster Management Fund **-** DMF was established in Vietnam in 2014 to provide a dedicated financial resource for disaster prevention efforts. Initially, the fund was administered at the provincial level by the respective People's Committees, with contributions from both private enterprises and individuals in the workforce, subject to certain exclusions. This structure enabled the fund to operate independently of the state budget. Following an expansion at the end of 2021, the DMF's scope was extended to include both the central and provincial government levels. While provincial authorities continue to manage their respective funds, the central (national-level) fund is now overseen by the Ministry of Agriculture and Rural Development (MARD). The financial sources and expenditure breakdown of the DMF are presented in *Figure 5*. As of April 2023, the fund had received a total of VND 5,248 billion in contributions. Of this amount, VND 3,288 billion has been disbursed for disaster-related activities, leaving a balance of VND 1,960 billion available to support future needs.

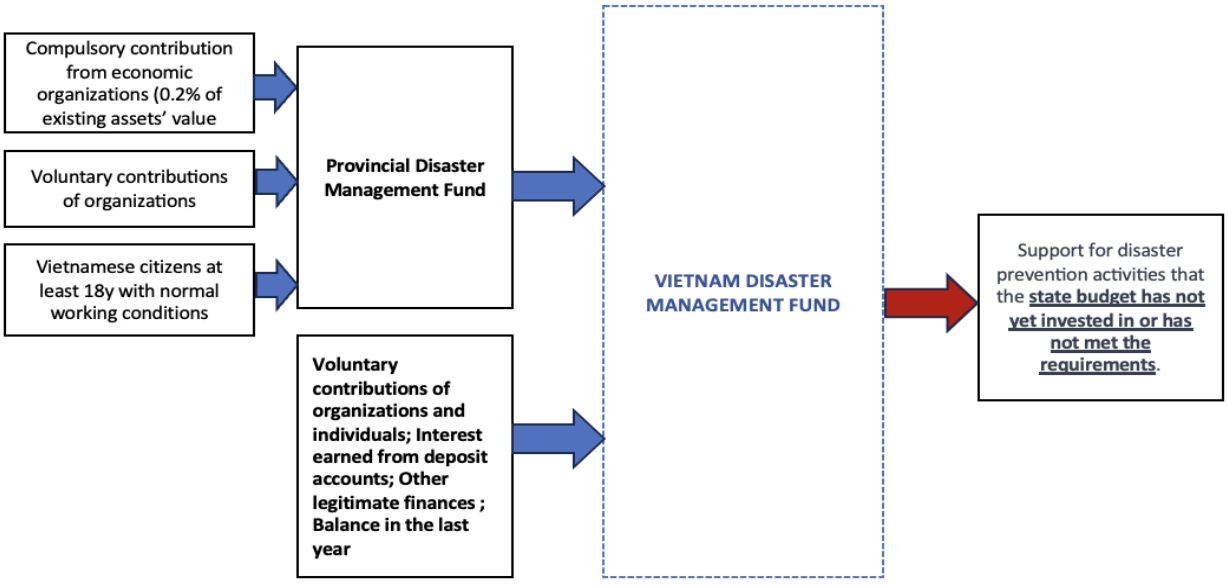

Figure 5. Overview of Funding Streams for the Vietnam Disaster Management Fund
Source: Law No.33/2013/QH13 on Natural Disaster Prevention and Control

2.2.2. International sources

Vietnam's DRM and response efforts benefit from a range of international funding sources. Although comprehensive public reports on international disaster finance are limited, several data sources offer partial insights.

The OECD's Development Assistance Committee's (DAC) database has been instrumental in tracking financial contributions from developed countries dedicated to climate-related initiatives in developing nations. It includes funding for mitigation and adaptation projects across various sectors. A preliminary calculation suggests that, between 2010 and 2021, Vietnam received approximately USD 277 million (adjusted to 2021's constant price levels) from international donors for projects classified under "Emergency Response," "Reconstruction Relief and Rehabilitation," and "Disaster Prevention and Preparedness". These funds were provided by a range of contributors, including the Green Climate Fund, the World Bank, and various DAC member countries such as the US, Japan, France, and Germany. This figure should be interpreted with caution, as many projects' descriptions may not align directly with core DRM objectives.

The Financial Tracking Service (FTS) of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) offers records of projects more closely related to disaster management, including responses to flooding and the COVID-19 pandemic. According to FTSdata, Vietnam received a total of USD 112.5 million in humanitarian aid from 2010 through 2023. As shown in *Figure 6*, the annual distribution of this funding varied significantly, with 2020 marking the peak year at USD 17.5 million. Notably, more than 42% of this funding was directed towards COVID-19 pandemic response efforts, while over 50% supported flood-related disaster relief during the same year.

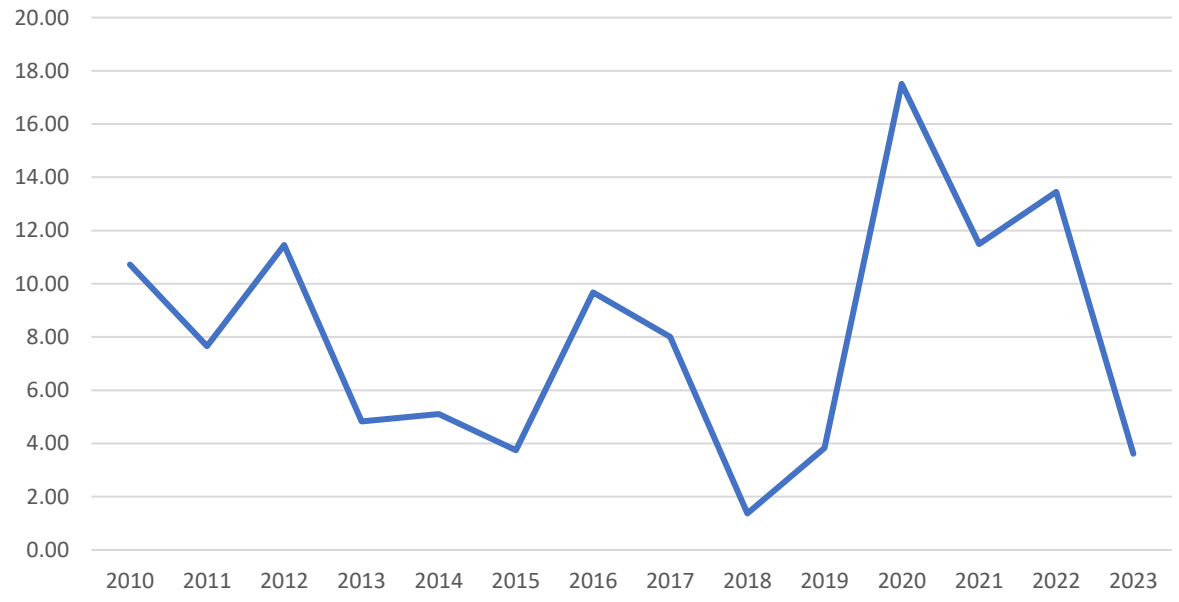

Figure 6. International funding for disaster management and response into Vietnam, 2010-2023 (USD million)
Source: Financial Tracking Service (UN)

3. Challenges in DRF in Vietnam

Sufficiency **-** Although detailed reports on DRF in Vietnam are limited, it is widely recognised that the available funding is insufficient to cover the extensive damages caused by natural disasters or to meet

the country's broader resilience needs. Vietnam's annual economic losses from natural disasters are estimated between 1% and 1.5% of its GDP. However, current adaptation financing remains modest not exceeding 1.8% of GDP annually (World Bank, 2022a). According to Vietnam's National Adaptation Plan (NAP) of Vietnam projects that natural disasters inflict annual damages amounting to 1.5%-2% of GDP, yet the state budget allocation for adaptation measures is limited to approximately 1.5% of GDP annually (Government of Vietnam, 2022). This financing gap underscores the urgent need for increased investment and the development of more diversified and sustainable funding strategies.

Legal and institutional challenges **-** In general, the Vietnamese Government has made continuous efforts to improve the legal framework shaping natural DRF activities in the country. In this regard, the establishment of the Vietnam DMF represents =a progressive step towards ensuring the availability of resources to respond to and mitigate the impacts of natural disasters. The fund also aims to promote equitable distribution of support across provinces and to facilitate the receipt of international assistance. However, the legal framework governing DRF in Vietnam continues to face several challenges.

Firstly, although most provinces and municipalities have established DRM funds as required by regulation, the overall functioning of these funds remain the subject of considerable debate. Key concerns include the fund structure, sources of contributions, collection and allocation mechanisms, and the level of coordination among entities involved in the DRM fund operations.

Secondly, many provinces face difficulties in collecting mandatory contributions for disaster prevention, as stipulated by law. This shortfall is largely attributed to the current legal framework, which lacks clear provisions and enforcement mechanisms for cases of non-compliance.

Thirdly, there are currently no dedicated legal instruments providing guidance on the use of alternative mechanisms, such as disaster insurance and credit-based solutions to supplement resources for disaster response. While both the Law on Natural Disaster Prevention and Control and the National Strategy on Disaster Prevention recognise disaster insurance as a potential effective tool, there is a notable absence of specific guidance on its implementation, use and budgeting.

Funding allocation mismatch **-** Under Decree 78/2021, a fixed compulsory contribution is required from individuals of working age, as well as domestic and foreign economic organisations. However, this collection approach has proven to be ineffective, as it fails to take into account the varying economic and social conditions across different provinces. In particular, the current approach does not adequately reflect the needs of economically disadvantaged areas, individuals making significant contributions, or regions experiencing high levels of migration and resettlement. In addition, challenges persist in the utilisation of funds at the provincial level. Some provinces accumulate surpluses due to either low demand or rigid fund allocation procedures. Conversely, disaster-prone areas often require additional financial resources for emergency response yet face restricted access to funding. Although Articles 21, 22, and 23 of Decree 78/2021 provide general guidance on the transfer of funds between central and provincial levels, as well as between provincial funds, there is currently no clearly defined mechanism outlining the conditions and processes for such transfers. This regulatory gap risks leading to persistent fund surpluses, as observed in the past, undermining the core principles of the fund, especially in terms of timeliness and efficiency.

Table 3 provides a breakdown of the funds mobilised, disbursed, and the remaining balance as of April 2023 for the DMF, grouped by provinces according to the frequency of natural disasters. The table reveals significant disparities in fund revenue and expenditure among these groups. Notably, provinces with lower exposure to disaster risks show relatively high levels of revenue and disbursement, while more disaster-prone areas demonstrate limited financial mobilisation and use. This data highlights the urgent need to establish a clear and responsive mechanism for the timely reallocation of financial resources to provinces mostly affected by natural disasters.

Table 3. Collection, allocation, and balance of provincial DMF by level of disaster risk as of April 2023 (Unit: USD million)

Disaster risk level[2]	Number of provinces	Total collection	Total allocation	Outstanding balance	Total collection/total allocation
<=8	11	1,259,208	783,062	476,146	62.19%
8<=12	10	1,411134	931,206	479,928	65.99%
12<=21	13	744,982	498,978	246,004	66.98%
21<=25	8	425,506	239,095	186,411	56.19%
25<=40	12	955,566	579,222	376,344	60.62%
>40	9	452,309	256,842	195,467	56.78%
Total	**63**	**5,248,705**	**3,288,405**	**1,960,300**	

Source: Authors' compilation from reports on the Implementation of the Disaster Management Fund by Vietnam Disaster and Dyke Management authorities.

Responsiveness **-** Another critical challenge facing Vietnam's disaster funding system is the slow response rate. Limited financial capacity at the local level often results in significant shortfalls when severe disasters occur. Accessing supplementary funding from the central Government is hindered by lengthy administrative procedures that require approval at the highest levels. This process typically involves damage assessments, submission of funding requests, subsequent evaluations, formal approvals, and finally the disbursement and allocation of resources. These delays significantly hinder the timeliness of disaster response and recovery operations. A clear example of this low responsiveness can be seen in the management of a severe typhoon in 2020, as discussed in the case below.

On October 28, 2020, Typhoon Molave, referred to Typhoon No. 9 in Vietnam, struck the central region of the country. The storm affected 11 provinces with devastating winds reaching speeds of up to 176 km/h, classifying it as a level 4 natural disaster one of the most severe storms to hit Vietnam in the past two decades. In response, NSCDPC, acting under direct orders from the Prime Minister, implemented urgent measures to mitigate the typhoon's impact. The typhoon and its aftermath caused torrential rainfall, widespread flooding, and landslides, resulting in 80 fatalities and economic losses estimated at approximately USD 430 million.

In the wake of these catastrophic events, the affected provinces were compelled to seek supplementary financial assistance from the central Government. *Table 4* presents the estimated economic damages alongside the financial support required for rehabilitation. The data highlights the severe inadequacy of funds available through budget contingencies and provincial disaster management reserves. These financial sources are only sufficient to capable of provide immediate relief, covering a minimal proportion of the total economic losses, thereby revealing a fundamental shortfall in the financial preparedness to effectively respond to natural disasters. For instance, Dak Lak province reported losses amounting to VND 133 billion, yet its annual disaster recovery budget stood at just VND 5.5 billion, with the provincial disaster prevention fund contributing a further VND 21 billion—representing only 4% and 15% of the total losses, respectively. Likewise, Ha Tinh province, which suffered some of the most extensive damage, recorded losses of VND 5,327 billion, but had just VND 157 billion allocated for disaster prevention and recovery, covering a mere 2.9% of the total economic loss.

Furthermore, the dates on the official documents indicate that the process for a provincial government to submit a funding request can take up to a week. The subsequent decision-making at the central government level requires additional time (see *Figure 7*). For example, the Ministry of Finance submitted a proposal for supplementary funding on November 19, 2020, with final approval

[2] Disaster risk classification based on UN office for disaster risk reduction with online access at the following URL: https://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=vnm&continue=y

granted on November 24, 2020. Notably, the total additional funding approved, VND 650 billion, fell significantly short of the amounts initially requested.

Table 4. Economic losses and required financial support for recovery in the provinces affected by Typhoon No.9

Province	Economic losses (VND billion)	Addition funding requested (VND billion)	Requested per losses	Temporary funding according to Decion 1815/QĐ-Ttg (VND billion)	Funding support according to Decision 1913/QĐ-TTg (VND billion)
Ha Tinh	5,327	2,863	54%	NA	50
Nghe An	516	100	19%	NA	50
Dak Lak	133	93	69%	NA	NA
Binh Dinh	500	900	180%	NA	70
Gia Lai	352	100	28%	NA	NA
Quang Nam	5,794	1,500	26%	20	130
Quang Ngai	4,850	2,275	47%	NA	150
Hue	409	1,005	246%	20	50
Quang Binh	3,512	2,440	69%	NA	50
Quang Tri	3,466	1,600	46%	40	70
Kon Tum	369	150	41%	NA	50

Source: Vietnam National Steering Committee for Natural Disaster Prevention and Control[3]

The analysis thus far has focused on the state budget and its associated financial channels. However, in the aftermath of typhoon No.9, non-state sources played a pivotal role, with private individuals, enterprises, and organisations collectively donating approximately VND 3,000 billion[4] (approximately USD 130 million). Additionally, the Financial Tracking Service reported that international humanitarian assistance totaled USD 8.879 million. Although detailed data on the speed at which these non-state funds were disbursed to affected communities are not available, media reports frequently indicated that contributions from private individuals, enterprises, and organisations tend to reach those impacted more quickly and directly than funds from the state budget.

[3] Reports on the damage caused by typhoon No.9 and financial support proposals can be accessed at URL: https://phongchongthientai.mard.gov.vn/Pages/bao-cao-cua-cac-dia-phuong-de-nghi-ho-tro-kphq-thien-tai-mien-trung.aspx

[4] This estimate is from a detailed list of contribution on Wikipedia at the URL: https://vi.wikipedia.org/wiki/L%C5%A9_l%E1%BB%A5t_mi%E1%BB%81n_Trung_Vi%E1%BB%87t_Nam_2020

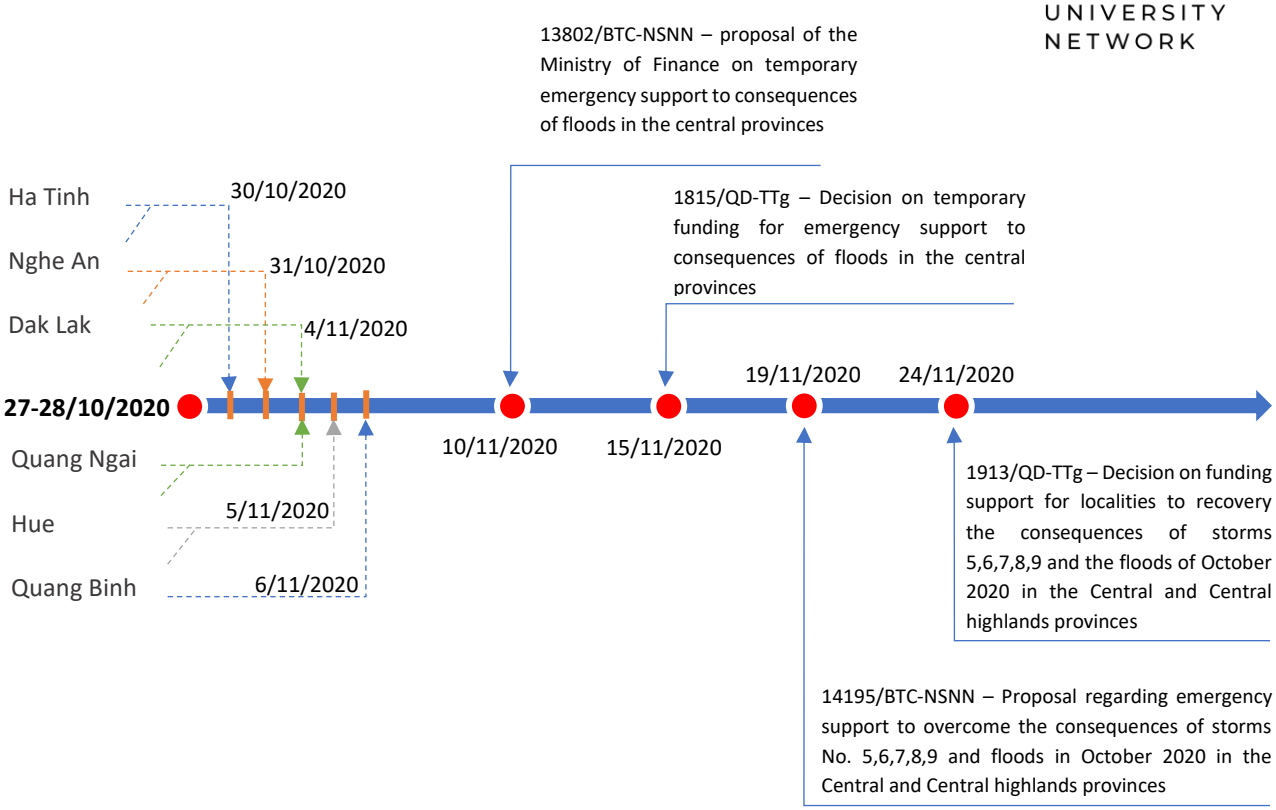

Figure 7: Timeline on financial support for recovery in the provinces affected by Typhoon No.9
Source: Vietnam National Steering Committee for Natural Disaster Prevention and Control

Incomprehensive disaster database - Vietnam has made significant progress in disaster management through the development of comprehensive meteorological and hydrological dataset, achieved through collaborative efforts between domestic and international organisations. Key databases include the National Center for Hydro-Meteorological Forecasting, VinAware, the Database for Disaster Prevention and Control, and Vietnam's Disaster Monitoring System (see *Table 5*). The integration these datasets enhances forecasting capabilities and improves responses to various types of disasters. This, in turn, is expected to reduce the impact of disasters on vulnerable provinces, alleviate the financial pressure on national disaster response resources.

However, the data required to support informed disaster risk financing decisions remains insufficient, particularly in relation to the development of risk models and the analysis of funding gaps at both national and provincial levels. These processes are critical for identifying appropriate financial solutions for disaster risks and for ensuring the timely and effective allocation of resources during emergencies. Current challenges include incomplete databases on provincial population and infrastructure, inconsistencies in post-disaster damage reporting, and a lack of comprehensive, aggregated data on funding sources and their distribution to affected provinces.

Table 5: Disaster Databases in Vietnam

Database	**Type of information**	**Authorities in charged**
National Center for Hydro-meteorological Forecasting	short- and long-term forecast on tropical cyclone, cold surge, wave map, flows, water surges, floating object, storm surges, tide… https://nchmf.gov.vn/KttvsiteE/en-US/2/introduction-2002-15.html	Vietnam meteorological and hydrological administration
VinAware	Jointly launched by Vietnam and the Pacific Disaster Center (PDC), with funding support from USAID, a custom early warning and decision support system developed and deployed	Ministry of Agriculture and

	in Vietnam by PDC, based on the Center's powerful DisasterAWARE technology. The system provides multi-disaster monitoring, early warning of natural disasters, internal information sharing, rescue suggestions...	rural development
Database for disaster prevention and control	Real-time data on rainfall monitoring, river and reservoir water levels, rainfall forecast, information on erosion and sedimentation management. http://dulieu.phongchongthientai.vn/Home/Index	Central steering committee for natural disaster prevention and control
Database of social economic for DRM.	Data on population, houses, land usage, public infrastructure, commanding committee for natural disaster prevention and search and rescue, toilets, water sources (except for population and houses, other information is available for only eight provinces) http://dskt.dmptc.gov.vn:8057/	Central steering committee for natural disaster prevention and control
Vietnam disasters monitoring system	Real, near-real time and forecasted data, such as hydro-meteorological data, reservoir data, ship on sea data, wind direction, rain, temperature, wave height, storm's path. Historical data on the disasters by provinces from 2021 to the present, with detailed information including: time, location, damages, and losses. http://vndms.dmc.gov.vn/#	Central steering committee for natural disaster prevention and control
Statistics on damage caused by natural disasters	Data on damages and losses by disasters are provided from 2006 to present, classified by damaged items including: human damage, education, healthcare, culture, agriculture-forestry, livestock, transportation, fisheries, communications, industry, clean water and sanitation, public works, etc. https://phongchongthientai.mard.gov.vn/Pages/Thong-ke-thiet-hai.aspx?p=2	Central steering committee for natural disaster prevention and control

Source: Author's compilation

4. Strengthening Vietnam's DRF

Building upon the challenges outlined, this section sets out policy recommendations aimed at strengthening DRF in Vietnam. These proposals are structured around the World Bank's four fundamental principles of DRF: (1) timely mobilisation of funds; (2) efficient disbursement of financial resources; (3) the stratification of risk layers and use of a diverse range of financial instruments; and (4) the development of robust data and analytical tools to support informed decision-making.

Timely mobilisation of funds **-** In Vietnam, where private disaster insurance is limited and local governments face constraints in both funding capacity and financial autonomy, there is a heavy reliance on government disaster funds, and ex-post financing mechanisms, such as budget reallocations and international aid. However, these sources frequently prove inadequate in meeting the urgent and immediate financial demands that arise during disasters events.

In the short run, it is crucial to enhance the regulations and procedures governing government disaster funds by increasing financial reserves and delegating greater decision-making authority to local governments. This can be achieved by augmenting contingency funds, establishing higher reserve thresholds, and streamlining bureaucratic processes to ensure timely mobilisation of resources during emergencies, thereby minimising administrative delays and facilitating swifter disaster response. Furthermore, developing a robust legal framework to encourage philanthropic contributions from a broad range of sectors would help to diversity the financial base and accelerate aid delivery. Offering

appropriate incentives and simplifying procedures would strengthen non-governmental support mechanisms during crises.

For long-term improvements, Vietnam should develop a comprehensive disaster risk financing system that incorporates advanced financial instruments such as disaster insurance and bonds, underpinned by a clear framework for both ex-ante and ex-post funding sources. This system should coordinate efforts across stakeholders establish transparent rules for the timely provision of financial assistance and include well-structured insurance mechanisms to ensure rapid disbursement of funds Furthermore, it should manage public expectations regarding compensation through clearly defined eligibility criteria, while promoting financial self-reliance. These measures would help to build public trust, and clarify the scope of government responsibility, and enhance the overall resilience of the disaster risk financing landscape.

Disaster risk layer and new funding options - In Vietnam, the increasing demand for effective DRM has prompted a reassessment of funding strategies, resulting in a shift from traditional, reactive financial mechanisms towards more proactive and efficient approaches. The adoption of diverse financial tools is essential for safeguarding against natural disasters of varying frequency and severity. In this context, Vietnam should explore the concept of disaster risk layering and consider new funding options. Disaster risk layering entails the use of a combination of financial tools and strategies tailored to different layers of risk, ranging from frequent, low-impact events to infrequent but high-impact disasters. By employing a layered approach, Vietnam can optimise resource allocation, ensuring the availability of funding for both immediate emergency response and long-term recovery. Natural disaster insurance is widely recognised as an effective means of alleviating the fiscal burden on the government by transferring risk to the private sector. Furthermore, innovative instruments such as catastrophe bonds and parametric insurance can offer additional financial buffers, thereby strengthening the overall resilience and responsiveness of Vietnam's DRM system.

However, despite its potential, the scope and uptake of disaster insurance remain limited. Specialised disaster risk insurance, introduced around 2017, primarily targets large organisations and government agencies, covering high-value assets but excluding small businesses and individual households. Insurance coverage for public assets is also inadequate, only 1% of organisations managing public property are currently insured, mainly for buildings and infrastructure under construction (Dinh & Nguyen, 2019). Agricultural insurance, following a pilot programme from 2011 to 2013 that covered rice, livestock, and aquaculture across 20 provinces, has expanded slowly. Despite government subsidies and efforts to extend the scheme to 28 provinces by 2025 (IRFF & UNDP Viet Nam, 2023), the programme faces persistent challenges, including low insurer participation, the complexity of agricultural risk, perceptions of high losses, and administrative inefficiencies. Nonetheless, Vietnam has shown strong commitment to improving its disaster risk financing. On February 10, 2022, it became the eighth member of the Southeast Asia Disaster Risk Insurance Facility (SEADRIF)[5], marking a significant step toward strengthening financial preparedness for disaster response and recovery.

Valuable lessons can be drawn from international experiences in developing effective disaster insurance system, particularly through public-private partnerships and state-sponsored reinsurance programmes. For instance, the Philippines' Earthquake Protection Insurance Corporation (EPIC) illustrates the effectiveness of public-private collaboration in providing mandatory earthquake insurance, enabling more efficient use of resources and broader coverage distribution. Likewise, Thailand’s National Catastrophe Insurance Fund (NCIF) serves as a strong example of state-backed reinsurance scheme that helps to restore confidence in the insurance market following a disaster. By supporting local insurance providers, the NCIF has improved access to and affordability of disaster insurance, thereby strengthening the financial resilience of affected communities.

[5] Southeast Asia Disaster Risk Insurance Facility (SEADRIF) was established in December 2018 with support from the World Bank and endorsement by the ASEAN+3 (China, Japan, and the Republic of Korea) Finance Ministers and Central Bank Governors. SEADRIF’s objective is to strengthen financial resilience against climate and disaster risks in ASEAN.

Thailand and India offer valuable case studies in the development of agricultural insurance schemes, showcasing diverse models that can inform Vietnam's disaster risk financing reforms. Thailand's Rice Disaster Relief Top-up Crop Insurance Scheme demonstrates the effectiveness of a government-backed micro-insurance product that harnesses public-private partnerships. Under this model the government subsidises insurance premiums, while local insurance companies share the associated risks. This mechanism ensures that rice farmers receive additional compensation during disasters, thereby strengthening resilience and reducing reliance on ad hoc relief measures. India's experience provides further insight through its implementation of multiple agricultural insurance models. The National Agricultural Insurance Scheme (NAIS) employs an area-yield index approach, wherein claim payments are based on the average yield of an insured crop within a defined administrative block. While this model streamlines implementation, it introduces basis risk, the risk that the average yield does not reflect losses on t individual farms Potential resulting in under-compensation or over-compensation. In contrast, the Weather Based Crop Insurance Scheme (WBCIS) triggers payouts based on weather indices such as rainfall, temperature, or humidity. This design allows for faster and more objective claim processing reducing the potential human error or manipulation. However, it too is susceptible to basis risk, particularly when weather stations are sparsely distributed or located far from insured farms. India's Modified National Agricultural Insurance Scheme (MNAIS) represents a hybrid solution, combining area-yield and weather-index approaches. This integrated model seeks to reduce basis risk and enhance the reliability of insurance coverage by diversifying risk measurement techniques.

Efficient disbursement of funds - To ensure the efficient disbursement of disaster funds in Vietnam, a multifaceted approach is essential. This includes customising financial contributions, developing adaptive funding models, and establishing clear protocols and tracking systems. Financial contributions should be tailored to each province's specific needs and risk profiles, based on comprehensive assessments of disaster risks, financial vulnerabilities, and post-disaster damages. An adaptive funding model that accounts for economic variability and social dynamics, such as migration and resettlement patterns, will help ensure a more equitable distribution of funds. Such system would enable more effective would enable more effective management of unused surpluses and support underfunded emergency responses, thereby improving responsiveness and fairness of disaster risk financing mechanisms Vietnam also requires a tailored disaster finance framework aligned with its unique administrative and climatic conditions. Establishing a streamlined Integrated Response Protocol between the Ministry of Finance and local agencies is crucial for the rapid and effective mobilisation of funds, ensuring coordinated action within Vietnam's hierarchical government structure. Implementing a real-time financial tracking system would promote transparency in fund disbursement, offering immediate oversight and reinforcing accountability. Clear and specific Disbursement Guidelines are needed to ensure the prompt release of funds after disasters, while upholding financial integrity and prioritising urgent needs. In addition, the enforcement of a robust Audit and Reporting Policy is essential for maintaining public and donor trust, through regular audits and transparent financial reporting. By incorporating these elements, Vietnam can enhance the responsiveness, equity, and efficiency of its disaster risk financing, ensuring the effective allocation of funds t to mitigate disaster impacts and support timely recovery efforts.

China's approach to the managing natural disaster relief funds offers valuable insights for Vietnam. A strong emphasises is placed on clear regulatory frameworks, comprehensive assessment processes, and robust supervision mechanisms to ensure efficient and transparent disbursement of funds. The *Interim Regulations on the Management of Natural Disaster Relief Funds* outlines a detailed framework encompassing procedures such as disaster classification, funding programmes, application protocols, financing, disbursement, and oversight. A key feature of China's model is the four-step disbursement process, comprising household reporting, village-level assessment, township review, and county-level decision-making, which promotes democratic, transparent, and accountable fund allocation. Additionally, the introduction of a "Smart (discount) Card" system for distributing cash assistance, alongside strict adherence to government procurement regulations for in-kind assistance

significantly enhances the efficiency and integrity of relief efforts. By institutionalising detailed regulations, procedures, and guidelines, China has established a solid foundation for standardised and consistent fund management. Furthermore proactive information disclosure and social oversight mechanisms reinforce transparency and accountability, ultimately strengthening disaster resilience (OECD, 2015, pp. 110–111).

Improve data availability for better planning and analysis - As discussed, Vietnam must establish a comprehensive dataset integrates hydrological data, disaster risk information, and socio-economic factors. Such dataset would strengthen disaster management planning across all phases, streamline reporting and monitoring processes, and provide the Government with detailed insights to tailor financial protection measures tailored to specific regional vulnerabilities.

Vietnam could also benefit from examining disaster datasets systems employed by neighbouring countries. For example, Indonesia has operated the Indonesia Disaster Database system (Data Informasi Bencana Indonesia, DiBi)[6] since 2008, which is based on the United Nations' DesInventar database. DiBi compiles and disseminates comprehensive disaster-related data at provincial and district levels, capturing both human and structural impacts across a range of hazard types. It serves as a vital tool for risk mapping, and localised DRF plans, and supports informed decision-making in risk identification, policy formulation, and the prioritisation of funding in line with disaster trends.

Building on insights from other countries and the need to strengthen Disaster Risk Financing (DRF) in Vietnam, we recommend a systematic approach to data collection and the development of essential datasets (see *Figure 8* and *Figure 9*). These recommendations are based on analysis of disaster risk financing solutions, including risk modeling and financing gap assessments (Asian Development Bank, 2015, pp. 4–8). Furthermore, we propose recommendations to ensure database quality, following the quality framework outlined by Guha-Sapir & Below (2002).

- ***Accuracy and Reliability****:* Personnel involved in database development at all levels must possess a clear understanding of disaster typologies and related information. All new data should be rigorously verified against other credible sources. To ensure consistency in data recording, regular training and detailed technical guidance are essential.
- ***Serviceability and Accessibility***: The database must be readily accessible to all users and presented in a user-friendly format. This will enable a range of stakeholders to participate in post-disaster analysis, mitigation, and recovery planning. To support cross-sectional analysis, the database should incorporate complimentary information such as health indicators, income levels, livelihoods, age, and gender demographics.
- ***Credibility****:* Transparency regarding data sources, applied analytical procedures, known limitations, and methodological concerns should be ensured and made available to relevant users.
- ***Prerequisites and Sustainability****:* The government must secure national capacity in areas such as funding, IT infrastructure, and human resources. Additionally, fostering international collaboration is vital for data validation, exchange, and the ongoing development of robust and resilient.

[6] DiBi database can be accessed at the following URL: https://dibi.bnpb.go.id/

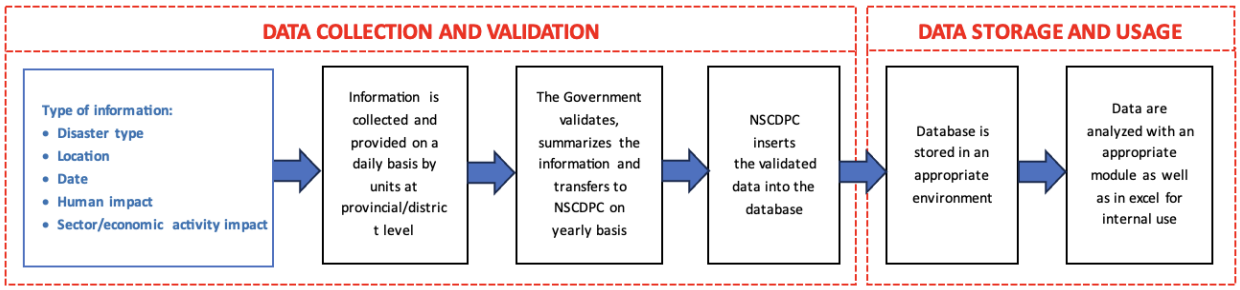

Figure 8: Data collection processSource: Author's proposal based on the framework in Asian Development Bank (2015)

Risk modeling		
i. Determine the value of assets at risk of disasters.	Data on the assets, asset valuation, and damaged assets.	Central steering committee for natural disaster prevention and control
ii. Identify and analyse the natural hazards that a city could	Historical and forecasting data on disasters (type, location, intensity, frequency, scope of impact)	
iii. Consider how vulnerable the assets are to damage as a consequence of disasters	Data on replacement or construction costs	
Financing gap analysis		

Figure 9: Type of data for DRF improvement in Vietnam
Source: Author's proposal based on the framework in Guha-Sapir & Below (2002)

5. Conclusion

This case study has outlined the current state of DRM in Vietnam and the Government's efforts to leverage DRF tools for disaster prevention and response. Vietnam has established a relatively comprehensive legal framework that defines the roles, responsibilities, and coordination mechanisms among different levels of government and relevant organisations. The country has also formalised procedures for the mobilisation and efficient allocation of resources to ensure timely disaster response and safeguard, socio-economic gains.

However, despite these efforts and stated priorities, DRF in Vietnam continues to face significant challenges These include an incomplete legal framework, limited financial infrastructure, and a lack of comprehensive, high-quality disaster data. Such limitations imped the design, implementation, and scaling of DRF tools, undermining the Government's ability to manage disaster risks proactively and systematically.

Currently, Vietnam's DRF system is underdeveloped, with insurance coverage remaining limited, and the system is heavily reliant on government funding and ex-post financing mechanisms. In this context, a phased strategy is recommended.

In the short term, Vietnam should:

- Enhance the efficiency and timeliness of government-led DRF disbursement processes, while improving local governments' autonomy and funding capacity.
- Promote the development and uptake of disaster insurance schemes and markets, which are still in the initial phases but have progressed too slowly.

In the long term, Vietnam needs a more comprehensive and integrate DRF strategy. This should include:

- Strengthening risk and financial needs assessment, supported by a robust and dynamic disaster database.
- Enhancing overall financial capacities and expanding DRF instruments and markets to diversify financial sources.
- Increasing awareness and preparedness through stakeholders and community education on disaster risks and resilience.
- Investing in preventive and adaptative infrastructure, prioritising projects that reduce vulnerability and enhance resilience to disaster and climate related.

DRF will remain a critical concern for Vietnam in the decades ahead, especially given the intensifying impacts of climate change. The current DRF landscape offers a foundation upon which more advanced and diversified financing approaches can be built The Government must act urgently to develop and implement sophisticated DRF instruments that enable timely, effective, and sustainable responses to future climate and disaster challenges.

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