



Building Financial Resilience: A Tailored Approach to Strengthening Disaster Risk Finance and Global Financial Safety Nets in the Asia-Pacific

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Financing for
Sustainable
Development

Abstract

The Asia-Pacific region faces escalating financial risks as disasters and climate change compound economic challenges. As reported by the UN ESCAP in 2024, over the past five decades, multi-hazard disasters, including climate-related disasters, have claimed over 1 million lives, caused \$485 billion in damages, and affected 3 billion people across the region. Simultaneously, the International Labour Organization (ILO) 2024 report shows that nearly half the region's population lacks an adequate economic safety net, with critical gaps in low- and middle-income countries.

Given the heightened risk, strengthening disaster risk finance (DRF) is crucial to enhancing financial resilience and mitigating economic shocks. Despite support from international finance institutions (IFIs), such as the International Monetary Fund (IMF) and World Bank, their initiatives often miss country-specific needs, underscoring the need for a tailored DRF assessment framework to enhance financial resilience in developing countries. The G20 has recognised this urgency and prioritised strategies to address shock-induced challenges over the past three years by managing financial volatility and strengthening the global safety net. This brief positions the G20 as a pivotal actor in integrating DRF into the global financial architecture and reforming how countries work together. The recommendations are drawn from Indonesia's experience and encompass: (1) risk data and analytics to inform the development of effective DRF policies; (2) existing financial instruments and policies for evaluating current gaps in risk financing framework; (3) institutional and legal readiness for adapting DRF into regulation and governance structures; (4) innovative financing mechanisms and challenges in fostering flexible and sustainable financial solutions for disaster resilience; and (5) perception and adaptability to transformative approaches in DRF to examine the feasibility and acceptance of novel approaches from global best practice. These components strengthen financial resilience by providing a structured framework for identifying gaps within DRF strategies, particularly in the Asia-Pacific region, where disaster risks continue to intensify. Tailoring DRF initiatives to each country's specific needs ensures that developing nations are better equipped to manage financial shocks. Ultimately, these dimensions are crucial for enhancing the global financial safety net and fostering long-term sustainability in the face of increasing disaster risks.

Keywords: Disaster Risk Finance, Financial Resilience, Climate Risk, Asia-Pacific

Diagnosis

The Asia-Pacific region is among the most disaster-prone areas worldwide, frequently experiencing severe hydro-meteorological hazards such as typhoons, earthquakes, floods, and tsunamis. A substantial proportion of disaster-affected individuals, 79%, reside in this region, accounting for 46% of disaster-related deaths and 39% of global economic losses due to disasters.¹ These disasters have been shown to result in significant financial strain on national budgets, economic growth disruption, and the exacerbation of socioeconomic inequalities. As climate change intensifies the risks of such disasters, the need for comprehensive financing throughout all stages of disaster management – mitigation, preparedness, response, and recovery – has become paramount.

Without adequate financial protection, governments must divert funds from essential development programmes or take on unsustainable debt to finance emergency response and recovery. This reactive approach is costly and inefficient, undermining long-term stability. Thus, disaster risk finance (DRF) mechanisms have become one of the solutions in incorporating finances into these disaster stages. DRF solutions, including insurance, contingent financing, and catastrophe bonds, offer a proactive strategy to ensure timely and predictable financial resources when disasters strike.

Reforming and strengthening the International Monetary Fund (IMF) and multilateral development banks (MDBs) is crucial to scaling up DRF globally. The G20 recognises disaster resilience as a pillar of financial stability, emphasising the need for improved risk financing tools, concessional funding, and stronger regional safety nets. Prioritising DRF will enhance global financial stability, support

¹ United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP). *Seizing the Moment: Targeting Transformative Disaster Risk Resilience*. (Bangkok: United Nations Publication, 2023). <https://un-ggim-ap.org/sites/default/files/media/docs/Asia-Pacific%20Disaster%20Report%202023-Full%20report.pdf>

vulnerable economies, and promote sustainable development in disaster-prone regions like the Asia-Pacific.

Aligning G20 priorities with disaster risk finance reform

Indonesia provides a compelling case study in DRF. Through its Disaster Risk Insurance and Financing (DRFI) strategy, launched by the Ministry of Finance in 2018, the country has implemented a disaster pooling fund, public-private insurance schemes, and contingency budgeting.² However, challenges remain. Limited legal certainty and regulatory barriers require DRF mechanisms and framework guidelines. Low insurance penetration and financial literacy are exacerbated by fiscal constraints, causing limited uptake of insurance by micro, small, and medium-sized enterprises (MSMEs) and vulnerable groups.³ Coordination gaps between stakeholders⁴ resulted in overlapping responsibilities, necessitating greater collaboration, domestically and internationally. Lessons from Indonesia's experience can guide other developing nations in designing tailored DRF strategies.

Strengthening DRF systems, as Indonesia's experience demonstrates, demands versatile and adaptable approaches that are highly relevant to the G20 agenda. Enhancing the enactment of DRF legislation, exemplified by Indonesia's efforts with the Presidential Regulation on the Disaster Pooling Fund, is crucial for providing the legal certainty needed to attract investment and ensure effective implementation – a priority for sustainable development across the G20. Indonesia's development of affordable and accessible DRF instruments for vulnerable populations serves as a replicable model for other G20 countries.

² Kementerian Keuangan Republik Indonesia. *Strategi Pembiayaan dan Asuransi Risiko Bencana*. (Indonesia: Badan Kebijakan Fiskal Kementerian Keuangan, 2018). https://fiskal.kemenkeu.go.id/files/parb/file/PARB2018_Revisi.pdf

³ i.e., women, children, senior citizens, and people with disabilities

⁴ e.g., central government, private sector, non-governmental organisations

Ultimately, G20 countries, working groups, existing work streams on inclusive finance and climate resilience, and MDBs could work together more effectively on DRF through joint research, capacity building, or the development of shared financial instruments. With this, complement current G20 initiatives and shape the current global agenda.

Key strategies for disaster risk finance reform: Insights from Indonesia

Indonesia aligns DRF initiatives with the country's needs and financial context and offers some important lessons for G20 policymakers in disaster risk reduction.

First, understanding the financial impacts of disasters is crucial for developing effective fiscal strategies that combine financial preparedness and physical risk reduction. Adopting a comprehensive risk perspective helps identify interlinked hazards and cascading effects, thereby enhancing financial resilience.⁵ For example, household-level loss assessments can feed into probabilistic risk models, providing policymakers with actionable insights.⁶

Second, strengthening DRF involves improving public finance and introducing market-based tools such as insurance and catastrophe bonds. A critical review of existing instruments – both public and private – can uncover inefficiencies and guide the development of cost-effective, layered financial packages that address risks across varying severities and frequencies.⁷

⁵ G20 and OECD. G20/OECD Methodological Framework: Disaster Risk Assessment and Risk Financing. Paris: Organisation for Economic Co-operation and Development, 2012. <https://www.preventionweb.net/publication/g20/oecd-methodological-framework-disaster-risk-assessment-and-risk-financing>.

⁶ Salmanidou, Dimitra M., Ayao Ehara, Rozana Himaz, Mohammad Heidarzadeh, and Serge Guillas. "Impact of future tsunamis from the Java trench on household welfare: Merging geophysics and economics through catastrophe modelling." *International Journal of Disaster Risk Reduction* 61 (2021): 102291.

⁷ World Bank. *Boosting Financial Resilience to Disaster Shocks: Good Practices and New Frontiers*. Washington, DC: World Bank, 2019. <https://documents1.worldbank.org/curated/en/239311559902020973/pdf/Boosting-Financial-Resilience-to->

Third, legal and institutional readiness is vital for operationalising DRF strategies. A supportive legal framework legitimises financial instruments and ensures transparency, while capable institutions facilitate coordination, technical capacity-building, and integration with national disaster risk management systems.

Fourth, advancing DRF requires scaling up delivery and adopting innovative financing models. For example, the ICRC's Humanitarian Impact Bond, which drew private capital for rehabilitation centres with donor repayment based on performance, exemplifies such innovation.⁸ Innovations in insurance are also an effective tool, but must be accompanied by efforts to overcome barriers like low insurance penetration and limited risk awareness.⁹

Finally, embracing transformative approaches and global best practices ensures adaptability. These often challenge traditional systems and require cultural and behavioural shifts.¹⁰ Scenario planning fosters stakeholder buy-in and behavioural change, particularly in regions with underdeveloped financial systems.

[Disaster-Shocks-Good-Practices-and-New-Frontiers-World-Bank-Technical-Contribution-to-the-2019-G20-Finance-Ministers-and-Central-Bank-Governors-Meeting.pdf](#).

⁸ H. Alderson, "How the First Humanitarian Impact Bond Will Transform Financing of Aid," Bond, 2018, <https://www.bond.org.uk/news/2018/09/how-the-first-humanitarian-impact-bond-will-transform-financing-of-aid/>.

⁹ Sheehan, B., Mullins, M., Shannon, D. and McCullagh, O., 2023. On the benefits of insurance and disaster risk management integration for improved climate-related natural catastrophe resilience. *Environment Systems and Decisions*, 43(4), pp.639-648; Wagner KR. Adaptation and adverse selection in markets for natural disaster insurance. *American Economic Journal: Economic Policy*. 2022 Aug 1;14(3):380-421.

¹⁰ Paton, Douglas, and Petra Buergelt. 2019. "Risk, Transformation and Adaptation: Ideas for Reframing Approaches to Disaster Risk Reduction" *International Journal of Environmental Research and Public Health* 16, no. 14: 2594. <https://doi.org/10.3390/ijerph16142594>

Recommendations

Driving action through a fit-for-purpose strategic framework

As a platform of major economies, the G20 has both an economic mandate and a humanitarian obligation to lead global efforts in advancing disaster risk financing. By enhancing strategic frameworks and policy guidance, the G20 can help safeguard lives and livelihoods, protect development gains, and promote long-term resilience amid escalating disaster risks. G20 leadership is critical in catalysing coordinated international action – particularly in aligning the support of multilateral institutions, including MDBs, with the actual financing needs and priorities of vulnerable and developing countries.

The following recommendations aim to address current gaps in tailored assistance and improve the effectiveness of global disaster risk financing efforts through better coordination, alignment, and innovation.

a. The G20: Catalysing global leadership in disaster risk financing

The G20, representing the world's major economies, is pivotal in strengthening the global financial safety net in response to increasing disaster risks. By integrating DRF into its strategic agenda, the G20 can foster global progress, secure funding, and guarantee lasting disaster preparedness and response financing enhancements. To fulfil this leadership role, the G20 should prioritise the following:

- **Integrate DRF systematically into the G20 Finance Track agenda** to ensure sustained policy attention and alignment across finance, development, and climate agendas.
- **Leverage the G20's convening power to align international organisations (eg, OECD, UNDRR, and MDBs) around global standards for risk data sharing and interoperability** by engaging platforms such as the G20 Data

Gaps Initiative (DGI) and the Global Infrastructure Hub (GIH), supporting the development of transparent, high-quality, and interoperable risk data systems that enhance catastrophe modelling, financial risk assessment, and evidence-based decision-making for governments, insurers, and investors.

- **Promote cross-country policy dialogue, capacity building and peer learning** on DRF by mobilising the G20 Working Group on Disaster Risk Reduction and Development to facilitate the exchange of best practices – such as integrated national financing frameworks – innovative regulatory models, and financial instruments, while strengthening institutional capacity in emerging and developing economies.
- **Support the development and scaling of innovative financing instruments** – including regional risk pools, parametric and multinational catastrophe bonds, and contingent credit facilities – through the G20 Sustainable Finance Working Group and Sustainable Finance Roadmap to increase the availability and affordability of diversified risk transfer solutions and enhance fiscal resilience.
- **Encourage private sector engagement in DRF** – including investment in risk analytics, development of tailored insurance products, social impact finance, and public-private partnerships, by leveraging the G20 Insurance Forum and the Private Finance Platform to foster an enabling regulatory environment and mobilise capital flows into DRF priorities.
- **Establish a G20-endorsed platform for DRF coordination and innovation**, in partnership with the G20 Working Group on International Financial Architecture and supported by IFIs such as the World Bank, IMF, and regional development banks, to serve as a hub for technical assistance, knowledge exchange, standard alignment, and financial mobilisation – reducing fragmentation, enhancing synergies, and tracking progress on G20 commitments to disaster risk reduction and climate resilience financing.

b. Multilateral development banks: Enabling tailored and scalable support

MDBs and development partners are critical in closing technical, financial, and institutional gaps in national DRF systems. For their support to be truly effective, MDBs must ensure their interventions are demand-driven, context-specific, and aligned with the priorities of vulnerable countries – shifting from one-size-fits-all approaches to tailored, country-owned strategies that build lasting financial resilience.

To foster an enabling environment for sustainable DRF implementation, MDBs should prioritise the following:

- **Provide targeted technical assistance and concessional finance** to support the design and deployment of DRF instruments aligned with national contexts, with the OECD – acting as G20 knowledge partner – complementing the World Bank's and UNDRR's technical efforts to ensure coherence across stakeholders.
- **Support integrated risk assessments and financial diagnostics** to inform DRF strategies that reflect local risk profiles and institutional capacities, leveraging analytical strengths across G20 partners.
- **Strengthen national legal and institutional frameworks** for DRF through support for regulatory reforms and integrating DRF into public financial management, supported by coordinated technical assistance through G20 mechanisms and knowledge partnerships.
- **Facilitate private sector engagement and blended finance solutions** by leveraging G20 platforms and guidance to diversify funding sources and reduce the fiscal burden on governments.
- **Promote innovation and adaptability** by mainstreaming tools such as scenario analysis, financial stress testing, and early action financing mechanisms, with G20 knowledge partners playing a key role in methodological and dissemination.

- **Enhance coordination with other development actors and donors** through a G20-endorsed DRF coordination platform to reduce fragmentation, align efforts with national strategies, and avoid support duplication.

Appendix

Case study: Holistic risk modelling to support government decision-making

Risk models often use macroeconomic data and not data at the household level. Salimundou et al. (2021) present a way in which household-level longitudinal data can be incorporated into a conventional loss modelling framework using the platform Oasis to quantify risk to household-level assets from future Indonesian tsunamis. Risk quantification is expressed as loss exceedance curves (Figure 1). The methodology can be adapted to other perils (earthquakes, volcanic eruptions, flooding, etc.) and other household-level metrics (school days lost, among others). The results can help decision makers plan how much to allocate against future disasters, design policies regarding social assistance, set triggers based on physical and non-physical parameters (such as monetary values), and understand residual risk faced by households.

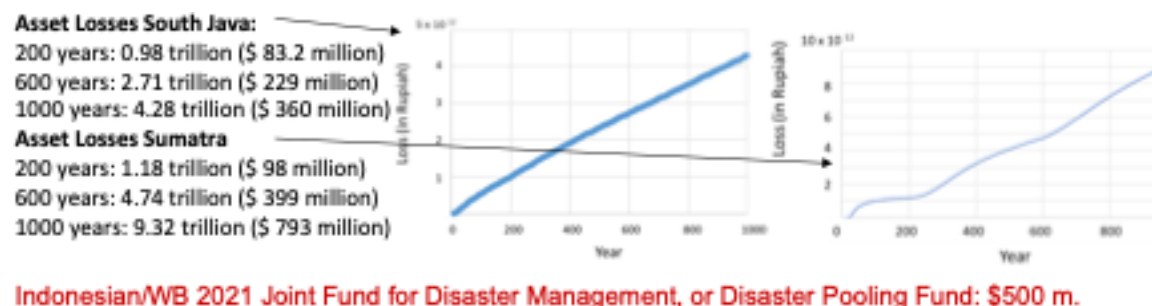


Figure 1. Risk Models Based on Asset Losses in South Java and Sumatra

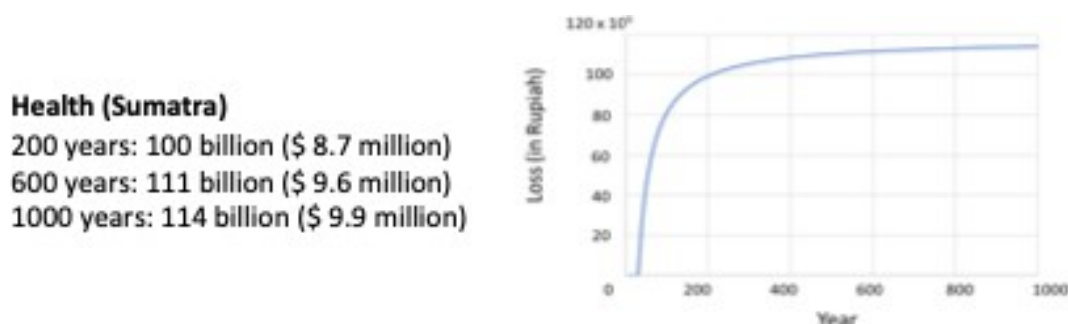


Figure 2. Risk Models Based on Health in Sumatra

**Note: Rupiah values in 2014 prices. These are adjusted for inflation to produce the corresponding USD values in 2023 prices.*

Loss exceedance curves (assets) in South Java and (assets/health) in Sumatra for future Indonesian Tsunamis

Source: Extracted from the “FITTER project: innovations and impact”, end of project presentation delivered to funders, March 2023, London. FITTER stands for Future Indonesian Tsunamis: Towards End-to-end Risk Quantification, with the team consisting of Serge Guillas, Rozana Himaz, Dimitra Salmanidou (University College London), Mohammad Heidarzadeh (Bath), and the Insurance

Development Forum. Funding: Lloyd's Tercentenary Research Foundation, Lighthill Risk Network, and Lloyds Register Foundation. The methodology was available in Salmanidou et al. (2021).

T20 South Africa Convenors



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