

# Promoting Disaster Risk Financing in Asia and the Pacific

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## Key points

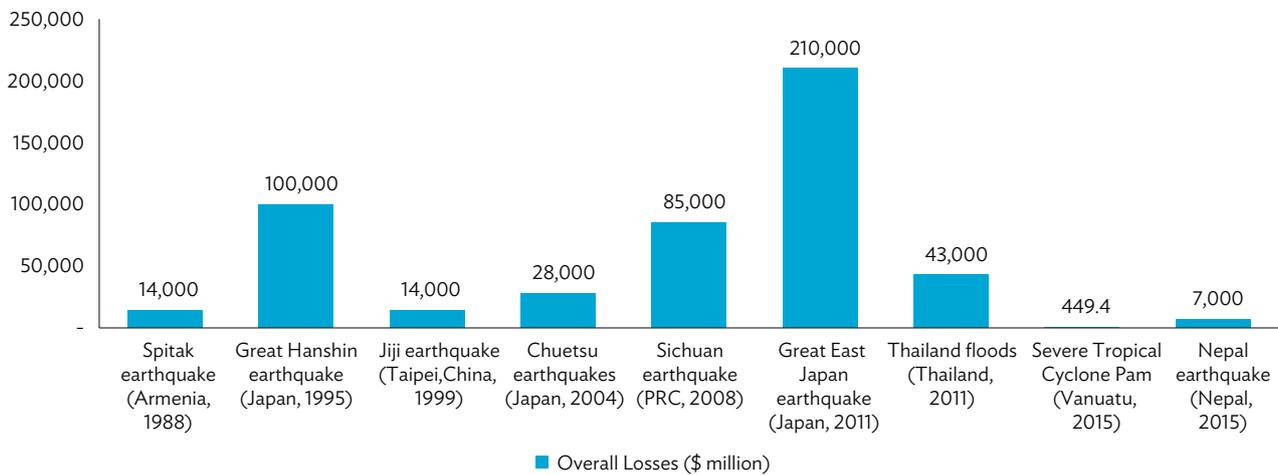
- The economies in Asia and the Pacific are exposed to disaster risks, which can cause fatalities as well as economic losses. One strategy to mitigate the economic losses and strengthen financial resilience to disasters is developing disaster risk financing.
- There are two policy options in implementing disaster risk financing: public sector and private sector disaster risk financing tools. Each option has challenges that need to be addressed for them to be effectively implemented.
- Two possible strategies could be pursued for overcoming the implementation challenges of disaster risk financing: the establishment of institutional arrangements for a combined public–private response to disaster risk financing and the development of a state-sponsored disaster insurance scheme.

Many of the economies in Asia and the Pacific are vulnerable to the impacts of natural disasters, which have caused fatalities as well as economic losses to the impacted economies (Figure 1). Since 2008, there have been several major natural disasters that occurred throughout the region. The 2008 Sichuan earthquake in the People’s Republic of China (PRC) caused approximately 84,000 fatalities and also \$85 billion in damages. In 2011, a powerful and devastating earthquake, with a magnitude of 9.0, struck the eastern part of Japan and caused \$210 billion in overall losses as well as 15,880 fatalities (Munich Re 2015). Furthermore, in 2015, two major natural disasters occurred in the Asia and Pacific region: the first one was severe Tropical Cyclone Pam that struck Vanuatu in March, which caused approximately 16 fatalities and a total economic loss estimated at \$449.4 million (Government of Vanuatu 2015). The second was the magnitude 7.6 earthquake that hit Nepal in April, causing 8,790 casualties as well as \$7 billion in economic losses (National Planning Commission, Government of Nepal 2015).

Due to the significant economic losses that were suffered by many countries in Asia and the Pacific caused by the impact of disasters in the past, as well as the increasing risk exposure to disasters in the future, the governments in the region need to possess a good understanding of assessing the economic impact of disasters, since it will be crucial for ensuring the availability of resources for disaster response, recovery, and reconstruction, which can ultimately prevent financial distress (Mahul and Signer 2014). With respect to financial management of disaster risks, the governments have a key role in developing and designing schemes that will enable postdisaster assistance, disaster insurance, and the provision of financial guarantees. Furthermore, the governments should ensure that the finance sector in their respective countries provides coverage against the risk of disaster, and they also have the responsibility to manage the contingent liabilities of disaster within the fiscal framework. The governments’ role becomes critical where the disaster risk of their respective countries is significantly high and the insurance market is not available or does not have the capability to cover such risks, which leaves the country with potentially enormous economic losses (OECD 2015).



**Fig. 1 Costliest Natural Disasters in Asia and the Pacific (1980–2015)**



PRC = People’s Republic of China.

Sources: Munich Re. 2015. *Loss Events Worldwide 1980–2015 (10 Costliest Events Ordered by Overall Losses)*. Annual statistic. Munich; Government of Vanuatu. 2015. *Post-Disaster Needs Assessment: Tropical Cyclone Pam, March 2015*. Post-disaster assessment. Port Vila; National Planning Commission, Government of Nepal. 2015. *Nepal Earthquake 2015 Post Disaster Needs Assessment*. Post-disaster assessment. Kathmandu.

Fulfilling this role has proven to be a big challenge for the governments across Asia and the Pacific. Therefore, the development of disaster risk financing (DRF) is crucial for the governments in order to accomplish their role in strengthening their respective countries’ financial resilience to disaster risks.

### Understanding disaster risk financing

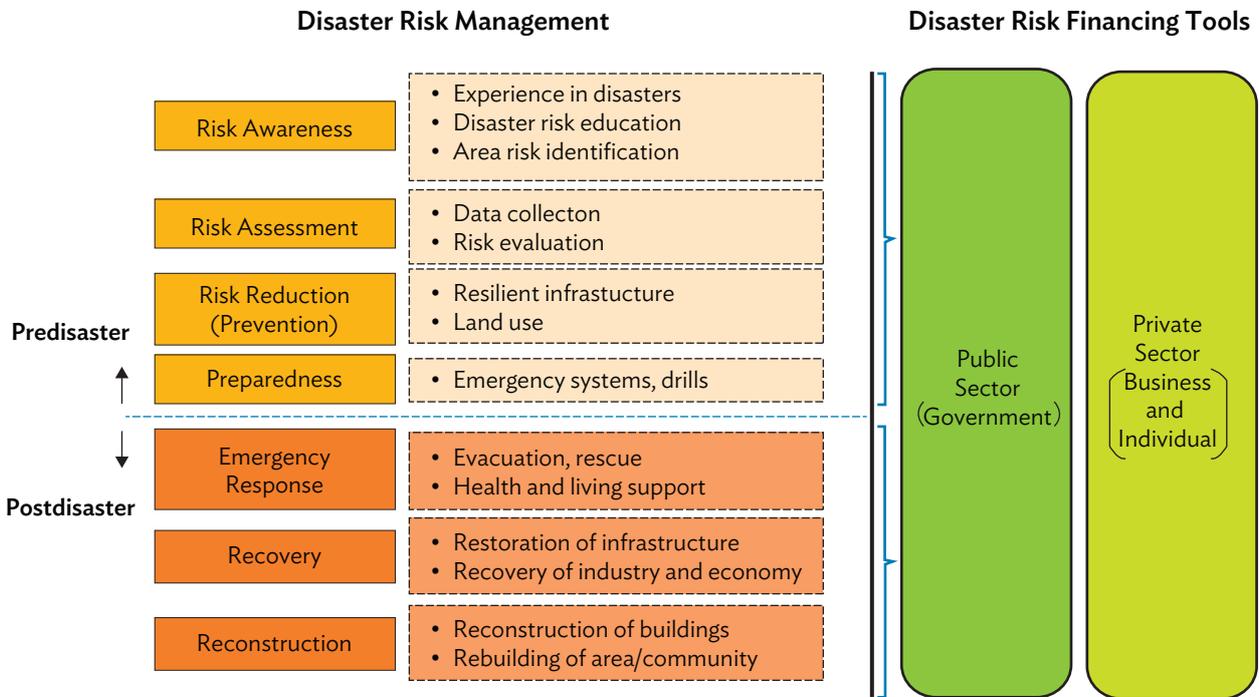
DRF is a very useful method that can be utilized by a country with significant exposure to disaster risks to manage the economic impacts of such risks. Effective DRF is crucial to promoting financial resilience against disasters in order to safeguard economic growth and development (OECD 2015). DRF

should cover the financial aspects of all measures of a comprehensive disaster risk management (DRM) system, which comprises predisaster and postdisaster measures (Figure 2) (Mita 2016).

A comprehensive DRM system helps the development of effective, sustainable, and widely utilized DRF tools. As part of the predisaster measures, increasing the risk awareness can lead to a clear recognition of demand for DRF as well as acceptance of the financial burden that might be caused by disasters. By carrying out a disaster risk assessment, which consists of hazard identification and impact assessment using relevant and accurate data, a country can develop the right measures to reduce financial vulnerabilities to disaster risks and also develop risk financing evaluation

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**Fig. 2 Disaster Risk Financing Framework**



Source: N. Mita. 2016. The Development of Disaster Risk Financing Strategies in Japan. Presentation at OECD-ADBI Seminar on Disaster Risk Financing in Asia. Asian Development Bank Institute, Tokyo, 24 June.

tools. Risk prevention measures and preparedness can reduce the risks of the disasters and also decrease the costs of the DRF. Furthermore, the availability of DRF will support the implementation of postdisaster measures such as emergency response, recovery, and reconstruction (Mita 2016; OECD 2015).

## Policy options in disaster risk financing

### Public sector tools

There are two types of DRF tools that can act as policy options for supporting both predisaster and postdisaster measures: public DRF tools and private DRF tools. Public sector DRF tools, which consist of ex ante and ex post DRF tools, are the alternative to financing disaster risk mainly used by the governments.

Governments are responsible for mitigating the financial impact of disasters, and the use of ex ante DRF tools could be effective in assisting the provision of short-term, mid-term, and long-term countermeasures for high-frequency disasters. There are several ex ante DRF tools that are frequently utilized by economies in Asia and the Pacific: government reserve funds, insurance, contingent credit arrangements, and catastrophe bonds (OECD 2013). The implementation of ex ante DRF tools may involve an opportunity cost, since the governments have to hold cash to be allocated as disaster reserve funds, whereas the money could be invested in other instruments, which could bring revenue for the governments (OECD 2013).

Alternatively, the governments could use the ex post DRF tools to avoid any opportunity cost since these tools allow

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the governments to finance disaster recovery after a disaster has already occurred. Therefore, the governments do not have to allocate cash funds prior to the event of a disaster, which can be used for other purposes. The ex post DRF tools are suitable for the countries in the region that face low-frequency disasters and that are able to generate immediate fiscal resources and have good access to the international financial market in order to provide quick financing for disaster countermeasures. The most widely used ex post DRF tools in Asia and the Pacific are budget reallocation, debt financing, taxation, multilateral borrowing, and international aid (OECD 2013; World Bank 2012).

### Private sector tools

The private sector DRF tools aim to strengthen the financial resilience of businesses and individuals against disasters. Risk transfer instruments such as private disaster insurance are one of the main tools commonly used by the economies in Asia and the Pacific. Based on the experiences of several countries in the region (e.g., Japan and New Zealand), the availability of disaster insurance was able to assist in quick economic recovery in the event of a disaster since it provided businesses and households with necessary resources for disaster recovery measures (e.g., reconstruction) in a timely manner (OECD 2013). The supply of reliable and consistent data on hazards, exposures, and vulnerabilities is crucial to ensure the availability and affordability of private disaster insurance so that it can be accessed by all businesses and households in a country (Fujimura 2016).

Furthermore, it is imperative to develop policies that can assess and ensure the

resilience and soundness of the finance sector so that it is capable of absorbing and managing the disaster risks. The assessment of finance sector resilience to disasters may include the evaluation of solvency regimes and liquidity rules, solvency and liquidity stress tests, and adequate business continuity planning within the finance sector (Fujimura 2016).

### Implementation challenges of disaster risk financing

The challenges that are faced by the economies in Asia and the Pacific in implementing the public sector DRF tools, such as government reserve funds and insurance, consist of the shortage of financial resources to be allocated for ex ante DRF tools, inadequate information sharing between governments and communities for identifying funding necessities, improper documentation for demonstrating risk assessment credibility, and the absence of an appropriate legal and regulatory framework for the implementation of a market-based sovereign risk transfer mechanism (OECD 2013). As for the other specific public sector DRF tools such as contingent credit arrangements, this option is less valuable to governments when they have a strong fiscal position and good access to the capital markets. Further, in implementing catastrophe bonds, the governments face challenges in dealing with their complexity and pricing mechanism (World Bank 2012).

Moreover, in developing private insurance markets, the economies in the region face challenges from both the demand and supply side. On the demand side, some of the challenges are lack of willingness

of the people to get private insurance due to their expectation that the government will give full compensation for the reconstruction, people's distrust of the insurance industry due to their experiences of mismanagement and unpredictable claims payments, inadequate income to pay for the insurance premium, and high taxes for the insurance premium. As for the supply side, the identified challenges are inaccurate pricing of disaster risks due to insufficient data for a proper risk assessment, inadequate promotion of the insurance products, and the implementation of poor DRM tools by the smaller-sized insurers (Mahul and Signer 2014).

As for ensuring the resilience and soundness of the finance sector, the economies of Asia and the Pacific face challenges in ensuring effective coordination among disaster surveillance authorities, uncertainty of the occurrence and impact of the disasters, human resources limitations at the regional and subregional government institutions that are in charge of disaster recovery, and ensuring that backup systems are implemented by the government units that manage the budget of disaster recovery expenditures (OECD 2013).

### Policy recommendations

A combined response by the private and public sector might overcome the implementation challenges of DRF, since they have their own strengths and weaknesses in dealing with disaster risks. The private sector has financial resources, valuable knowledge and experience in dealing with catastrophe

risk management, and broad geographical diversification which is required to absorb the disaster risks in a cost-efficient way; however, it lacks the power to set up the required frameworks. Meanwhile, the public sector or government has political and legal power to set framework conditions that facilitate adaptive responses by individuals, the public sector, and the private sector; nevertheless, it typically operates under significant financial constraints, and, as costs of disasters rise, the ability of the government to cope with natural disasters will be stretched even further. Therefore, by complementing each other, the private sector and the public sector can create a combined response for effective reduction and financing of catastrophic disaster risks (Eck 2016).

### Institutional arrangements

The establishment of necessary institutional arrangements that consist of frameworks, systems, organizations, instruments, rules, and processes is required to support the development of a combined public-private response to DRF. The institutional arrangements could facilitate the combined response in data collection, risk assessment, risk modeling, and risk reduction, which are imperative to overcome the implementation challenge of inadequate information sharing between governments and communities. One country that has implemented such a public-private effort in data collection for DRF is France with its Observatoire National des Risques Naturels (ONRN) or the National Observatory for Natural Hazards (Box 1) (Nussbaum 2015).

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### Box 1 France's Observatoire National des Risques Naturels

Observatoire National des Risques Naturels (ONRN) or the National Observatory for Natural Hazards is the result of a public–private partnership (PPP) agreement for disaster risk data collection, sharing, and dissemination. It reports to the Conseil d'orientation Pour la Prévention des Risques Naturels Majeurs or the Orientation Council for the Prevention of Major Natural Risks. The ONRN was developed in 2012 following the disastrous event of windstorm Xynthia in 2010 and the integration of the French national disaster risk reduction platform.

The ONRN is an effort that involves collaboration between the state, local authorities, specialized agencies, academia, and the private insurance and reinsurance sector with the aim to enhance natural hazards data to be more reliable and to be utilized for different applications, such as risk assessment, risk mitigation, emergency preparedness, and financial planning. Moreover, the end users of the data also have a role in governing the ONRN and therefore can provide valuable inputs for improving the ONRN.

The founding of the ONRN will allow different stakeholders at the central and local levels to share and elaborate the data and information that they have already collected. Moreover, the ONRN will also enable the presentation of reliable, harmonized, and updated data and information. The data providers of the ONRN are bonded by special contractual agreements in order to guarantee the consistency and reliability of the shared data and information. Additionally, confidential data can also be shared by the providers within the ONRN so that they can adopt a more thorough and holistic approach to natural hazards.

Source: R. Nussbaum. 2015. Involving Public Private Partnerships as Building Blocks for Integrated Natural Catastrophes Country Risk Management – Sharing on the French National Experiences of Economic Instruments Integrated with Information and Knowledge Management Tools. *Journal of Integrated Disaster Risk Management* 5(2): 82–100.

## Disaster insurance scheme

The state-sponsored disaster insurance scheme is one of the combined responses of the private and public sector that consists of a state-sponsored direct insurance program and a state-sponsored direct reinsurance program. The state-sponsored insurance program will allow the public and private sector to collaborate in providing insurance to cover certain disaster losses, which is useful in countries where there is an unwillingness or inability of the private insurance markets to cover the disaster losses due to the countries' peculiar disaster risks. The role of the government is to establish a special purpose entity that acts as a direct insurer to provide either full or partial coverage of the disaster losses, whereas the private insurance sector is

responsible for the operational activities, such as marketing, premiums collection, and claims adjustment (OECD 2013).

The state-sponsored reinsurance program will allow the government to protect the private insurance sector from the exposure of peak risks by using special proportional and nonproportional reinsurance arrangements. This strategy can be justified if the primary insurance carriers have the financial capability to cover a portion of the risk, but there is insufficient reinsurance capacity on the private insurance market to provide the necessary additional loss arrangements (OECD 2015). One of the most notable state-sponsored reinsurance programs is Japan's earthquake insurance scheme, which was introduced in 1966 (Box 2) (Mita 2016; OECD 2015).

## Box 2 Japan's Earthquake Insurance Scheme

Japan's earthquake insurance scheme is a state-sponsored reinsurance program which was introduced in 1966 by the Act on Earthquake Insurance. Under this scheme, earthquake reinsurance for the private insurance market is solely provided by Japan Earthquake Reinsurance Co., Ltd. (JER). JER acts as an earthquake reinsurance pool, which retains some portion of the liability and transferring the rest of the liability back to the private insurers and the Government of Japan through reinsurance treaties. The design of this reinsurance program will not allow JER and private insurers to retain liability that exceeds the accumulated reserves from the earthquake insurance premiums.

Under Japan's earthquake insurance scheme, earthquake insurance is an optional rider to fire insurance for covering buildings for residential purposes and personal property. Private insurers that are involved in this scheme have to fully insure their risk with JER. The earthquake insurance scheme covers the loss or damage of residential use and personal property buildings due to burial, destruction, fire, or flooding that is caused either directly or indirectly by an earthquake.

Currently, the indemnity limit for a disaster event is approximately ¥7 trillion, which is shared by the public and private sector with the following scheme:

1. For earthquake insurance liabilities up to ¥100 billion, JER will cover 100% of the insurance claims.
2. Above ¥100 billion and up to ¥362 billion, JER and private insurers are responsible for covering 50% of the claims, while the other 50% will be covered by the government.
3. For liabilities above ¥362 billion to ¥7 trillion, the government is responsible for covering 99.5% of the claims, and the private insurers and JER are responsible for covering the remaining 0.5% of the claims.

Source: Organisation for Economic Co-operation and Development. 2015. *Disaster Risk Financing: A Global Survey of Practices and Challenges*. Paris.

## Conclusion

Natural disasters pose a big threat for the economies of Asia and the Pacific, both in terms of fatalities and economic losses. One of the government roles in mitigating the impact of disaster risks is to strengthen financial resilience to disasters by developing a sound DRF system. DRF is a framework to manage the economic impact of disaster risks by covering the financial aspects of comprehensive DRM measures. There are two key players that are involved in the development of DRF: governments and private insurers.

The economies in the region face some challenges in implementing DRF. These implementation challenges are related to the inadequate data and information sharing between the governments and communities in assessing the risk and identifying the funding necessities as well as to the issue of demand and supply in the insurance market. Therefore, it is imperative for the right policies, regulations, and institutions to be in place for successfully implementing DRF. These include, among others, the establishment of institutional arrangements for a combined public-private response to DRF and the development of a state-sponsored disaster insurance scheme.

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