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Credit: AFP - Getty Images, 2014

# Disaster Risk Finance Country Note Papua New Guinea



# Risk Profile in Papua New Guinea

Papua New Guinea (PNG) lies on the Pacific Ring of Fire, where natural hazards frequently occur and the archipelago is exposed to earthquakes, tsunamis, volcanoes, floods, cyclones and landslides. PNG has a population of 7.46 million (2014 estimate, World Bank) and land area of 462,840 km<sup>2</sup>, with diverse topography including mountainous regions on the main island and over 600 small islands.

PNG experiences the greatest number of disaster events in the Pacific Island region, and accounted for 25% of all the natural disaster events that occurred between 1950 and 2008.<sup>1</sup> In 1994, the major volcanic eruption in Rabaul resulted in damage and losses of PGK 280 million (US\$100 million) and the displacement of an estimated 150,000 people.<sup>2</sup> In 1998, a tsunami was triggered by a 7.1 magnitude earthquake off the northwest coast of PNG, which caused 2,200 deaths and forced 10,000 people to relocate. In 2008, Cyclone Guba resulted in 149 fatalities and a severe damage of PGK 200 million (US\$71.4 million). Most recently in 2018, the Kadovar Volcano eruption forced 4,000 people to evacuate, and earthquakes in the Southern Highlands may result in a death toll of more than 100 people.

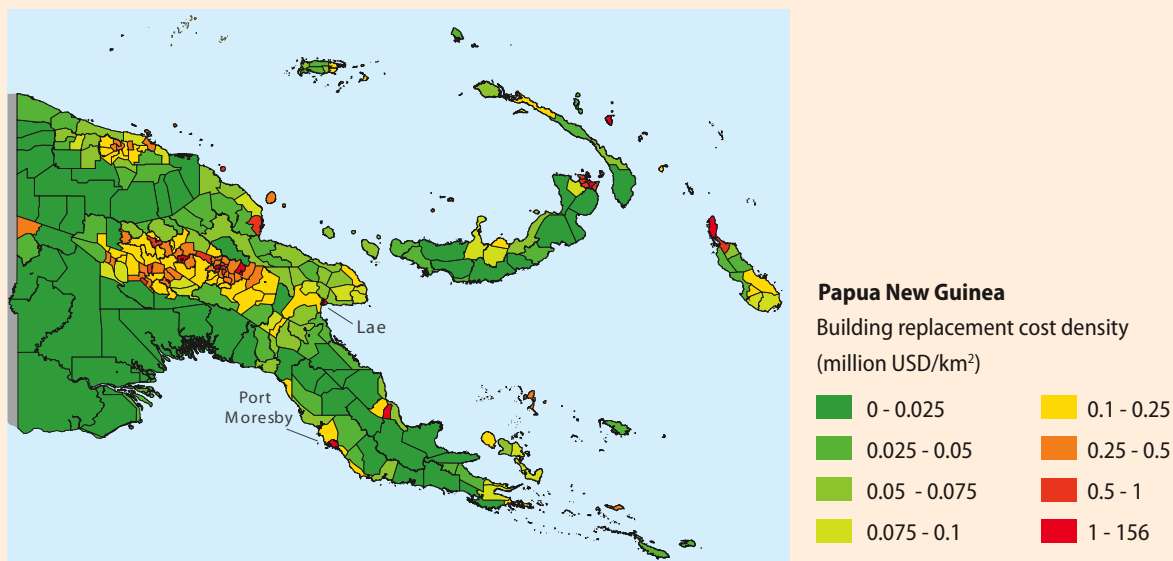
The cost to repair or rebuild public infrastructure following storms, volcanos, and other events can outweigh the financial resources available to the government. This fiscal

- **PGK 238 million (US\$85 million) of average annual loss (AAL) in PNG** is estimated from earthquakes and tropical cyclones, which is the highest level of AAL in the Pacific Island region
- **82 natural disaster events** have affected PNG between 1990 and 2010
- **25% of all natural disaster events** in the Pacific Island region between 1950 and 2008 occurred in PNG
- **150,000 people were displaced** due to a major volcanic eruption in Rabaul in 1994
- **2,200 people died from the 7.1 magnitude earthquake and tsunami** along the northwest coast of PNG in 1998

gap poses significant financial challenges for the PNG government. PNG's economic growth, 6.8% over 2005-2014, is vulnerable to natural hazards which consistently cause negative impacts to key economic sectors namely mining, agriculture and infrastructure as well as community livelihoods.

Figure 1 illustrates average annual losses by district, for tropical cyclones and earthquakes, which indicates the areas most vulnerable to these hazards in red.

Figure 1 Map of Average Annual Losses for tropical cyclones and earthquakes, by district



Source: PCRAFI, 2011

1 Desinventar: Disaster Information Systems database (2015). <http://www.desinventar.net/DesInventar/main.jsp?countrycode=pac>  
2 Desinventar (2015).



## Available Disaster Risk Financing Instruments

Currently, the PNG government predominantly relies on ex post instruments such as budget reallocation, donor assistance and external debt to manage the fiscal impacts of natural disasters.

As of 2015, ex ante disaster risk financial instruments available to the government include a budget appropriation for the National Disaster Centre (NDC) of PGK 7.9 million (US\$2.8 million) under the Department of Provincial and

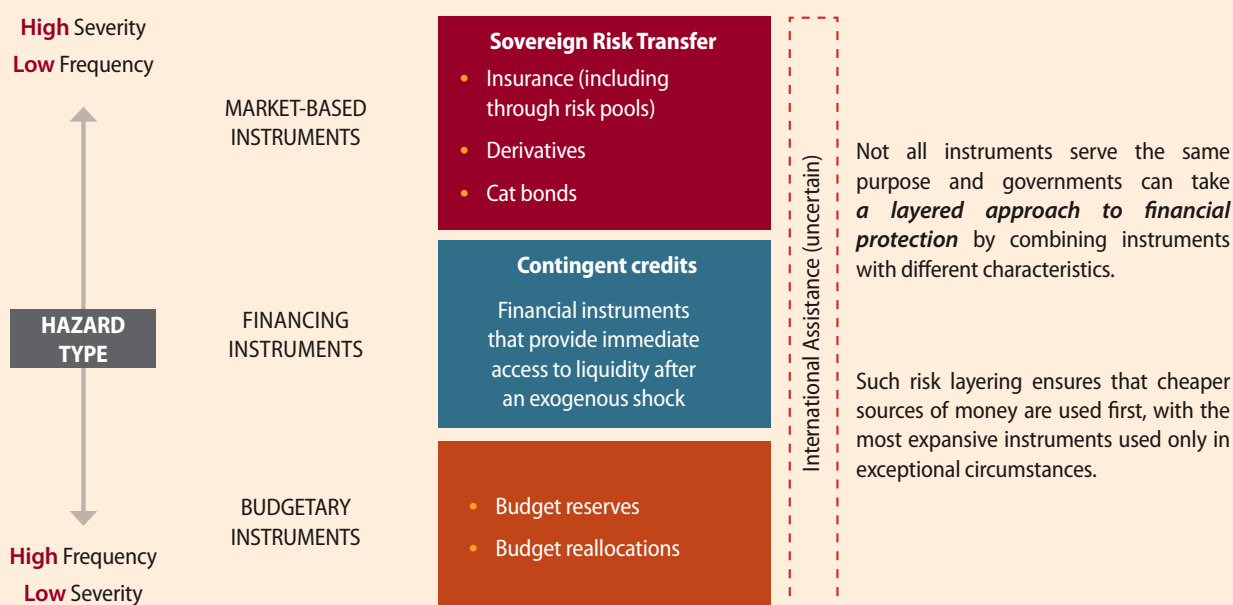
Local Government (DPLGA), known as Special Support Services budget. The PNG National Budget also includes a budget item of PGK 30 million (US\$10.7 million) within the Treasury and Finance miscellaneous budget for unforeseen allocations to government departments for natural disaster response, which is equivalent to a contingency budget. However, these current ex ante disaster risk financing instruments are insufficient even to cover recurrent annual losses, representing a significant fiscal resource gap.

## Finding the Right Mix of Disaster Risk Financing Instruments

International experience has shown that governments ideally combine different instruments to protect against natural hazard events of different frequency and severity. Such an approach prioritizes cheaper sources of funding, ensuring that the most expensive instruments are only used in exceptional circumstances. For example, sovereign insurance may provide cost-effective cover against extreme events, but it may be inefficient and costly to protect against low intensity and recurrent events. For such events, a dedicated contingency fund that 'retains' this lowest layer of risk may be a more appropriate solution. Figure 2 provides a graphic representation of this risk layering approach.

Combining instruments also enables governments to take into account the evolving needs for funds from emergency response to long-term reconstruction. For example, a government could decide to purchase (ex ante) quick-disbursing risk transfer instruments such as parametric insurance to ensure immediate liquidity in the aftermath of extreme events, but it would still raise the much larger sums required to finance reconstruction efforts through (ex post) budget reallocations, by issuing bonds, and through recoveries from traditional indemnity insurance.

Figure 2: Three-tiered sovereign risk-layering strategy for governments



Source: World Bank Group, 2017. Finance for Development: Rapid Response Financing Instruments. Washington, DC: World Bank.

# Options for Consideration

- 1 Quantify the disaster-related contingent liabilities by using the methodology developed by the World Bank and OECD as part of the APEC Finance Minister Process in 2017-2018. The expenditures shouldered by the government in response to natural disasters can be considered as a contingent liability. The PNG government could review its own legal and institutional framework and measure explicit and implicit contingent liabilities related to natural disasters.
- 2 Develop an overarching disaster risk financing and insurance (DRFI) strategy aligned to existing processes to articulate the available financing options and the associated policies for these instruments. A DRFI strategy could be developed by the Department of Treasury and endorsed by the National Executive Council (NEC).
- 3 Explore the use of ex ante DRFI instruments, such as contingent credit and/or risk transfer solutions, to access additional liquidity post-disaster, and identify providers of this type of finance. The advantage of this type of instrument is that the government can access rapid-response financing following a triggered event.



Oro Province, 2007 Credit: australianaviation.com.au

- 4 Explore the development of an insurance program to cover public assets such as critical infrastructure based on the operational framework for domestic insurance programs to be developed by the World Bank through the 2018 APEC Finance Minister Process under the presidency of PNG. The PNG government could investigate existing insurance coverage and develop coverage options to identify which assets to be insured and appropriate amount of insurance coverage.

**The PCRAFI Program – Phase II: Furthering Disaster Risk Finance in the Pacific** – is a program that scales-up regional collaboration to increase the financial resilience of Pacific Island Countries (PICs) against natural hazards and their capacity to meet post-disaster funding needs. The Program is implemented in two programmatic areas: i) Pacific Catastrophe Risk Insurance Company (PCRIC) – a regional catastrophe insurance platform dedicated to the provision of climate and disaster insurance for PICs, and ii) Technical assistance for PICs, regional organizations and PCRIC. The Program is financed by the PCRAFI Multi-Donor Trust Fund (MDTF) with contributions from Germany, Japan, the United Kingdom, and the United States through the G7 InsuResilience Global Partnership, and is managed by the Disaster Risk Financing and Insurance Program (DRFIP).

**World Bank Group’s Disaster Risk Financing and Insurance Program (DRFIP)** is a joint program of the Finance, Competitiveness, and Innovation Global Practice and the Global Facility for Disaster Reduction and Recovery (GFDRR). The program helps governments, businesses, and households manage the financial impacts of disaster and climate risk without compromising sustainable development, fiscal stability, and wellbeing. DRFIP provides analytical and advisory services, convening services, and financial services to over 60 countries worldwide.

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