

Coping with natural disasters in the Pacific

Pacific island developing countries are generally characterized by small population size and limited land area, remote geographic location and exposure to natural hazards and weather-related extremes, such as cyclones, tsunamis, droughts and floods. Based on historical frequency, the probability of a natural disaster occurring in Pacific island developing countries is estimated to be more than 20 per cent per year, which is higher than that of small States in other regions of the world.¹ Lack of economic diversification and constrained macroeconomic policy space in Pacific island developing countries also limit their ability to absorb the impact of adverse shocks. According to an index that measures a country's exposure and ability to cope with natural hazards in 171 countries, Papua New Guinea, Solomon Islands, Tonga and Vanuatu rank among the top 15 countries.² In this context, climate change is often seen as the most significant threat to the livelihood and well-being of people in the subregion.³

In addition to their devastating human cost, natural disasters often severely damage housing, transport infrastructure, agricultural output and tourism facilities. Owing to their economy-wide impact, natural disasters can result in very extensive damage and large losses. For example, damage and losses from Cyclone Pam that affected Tuvalu and Vanuatu in March 2015 are estimated at about 34 per cent and 61 per cent of GDP, respectively. Similarly, in Samoa, the estimated damage and losses from a tsunami in 2009 and Cyclone Evan in 2012 are 25 per cent and 30 per cent of GDP, respectively. As the poor and other vulnerable groups of island populations tend to live in more hazard-prone areas, the impacts on them could be disproportionately large, with significant implications for poverty reduction.

The long-run impact of natural disasters on economic development is substantial. It has been estimated that damage and losses due to natural disasters reduced GDP growth rate in Pacific island developing countries by 0.7 percentage points per year during the period 1980-2014.⁴ Thus, the aggregate output level in 2014 would have been close to 30 per cent higher than the actual level had there been no natural disasters. Another estimate from the same study suggests that, for damage and losses that are equivalent to 1 per cent of GDP, the fiscal balance would deteriorate by 0.5 per cent of GDP in the year after the disaster, as spending on reconstruction rises while tax revenue falls. The fiscal position would weaken more notably without large inflows of foreign aid and grants that typically follow natural disasters.

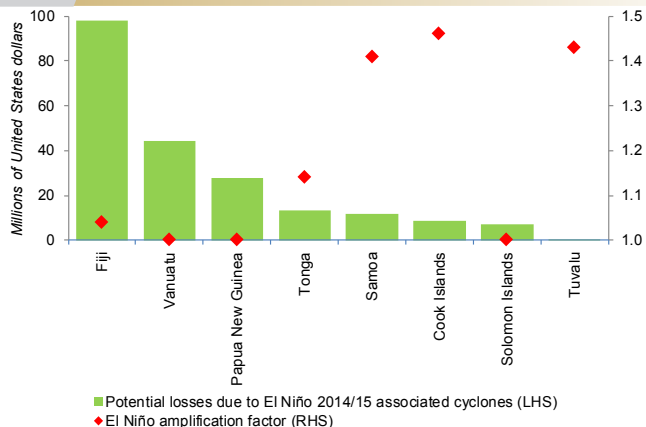
Current El Niño Impacts

Pacific island developing countries are currently facing El Niño, which is associated with irregular rainfall, increased tropical cyclone frequency and abnormal sea level conditions. Historically, the adverse impact of El Niño has been sizeable, largely because reduced wet season rainfall significantly lowers subsistence agriculture output. For example, droughts due to El Niño 1997/98 caused failure of staple food crops, such as taro and yam, and forced people to rely on bush crops and food aid. In Fiji, drought related to El Niño 1997/98 led to a 26 per cent decrease in sugarcane production and at least 1.3 per cent decline in GDP.

The potential impact of El Niño 2014/15 in Pacific island developing countries is likely to be uneven and sector-specific. For example, an El Niño event extends the skipjack tuna habitat, the main fishery resource in the subregion, towards the east (such as near Kiribati), and the later part of an El Niño event increases primary tuna productivity in the west (such as near Papua New Guinea and Solomon Islands).

El Niño events are expected to increase the magnitude of risk associated with tropical cyclone activity. The recent category 5 level Cyclones Pam and Winston, which severely impacted Vanuatu and Fiji respectively, provide graphic evidence. The figure on the next page shows the potential losses due to cyclones that are associated with El Niño 2014/15. These estimated losses are derived by multiplying a country's average annual loss due to cyclones by a corresponding amplification factor. Among other considerations, the average annual losses take into account exposure information, damage estimation and hazard assessment that are based on the experience of 2,400 cyclones in 15 Pacific island developing countries over a 60-year period.⁵ The amplification factor is based on historical El Niño events that exhibited similar atmospheric and oceanic conditions to that of the 2014/15 El Niño.⁶ Overall, the figure shows that potential losses in Cook Islands, Samoa and Tuvalu are estimated to be 41-46 per cent greater than during normal years.

Figure 1. Potential losses due to 2014/15 El Niño associated cyclones



Sources: United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), *Economic and Social Survey of Asia and the Pacific 2014: Regional Connectivity for Shared Prosperity* (Sales No. E.14.II.F.4) and ESCAP and Regional Integrated Multi-Hazard Early Warning System for Africa and Asia, "El Niño 2014/2015: impact outlook and policy implications for the Pacific islands", Science and Policy Knowledge Series, Advisory Note, November 2014.

Note: LHS = left-hand side; RHS = right-hand side.

Policies to cope with natural disasters

Policies that seek to enhance macroeconomic fundamentals, particularly the Governments' financial position, will help to increase the subregion's resilience to natural disasters. To fully meet the fiscal costs of natural disasters, Pacific island developing economies need to: (a) strengthen domestic fiscal buffers, including contingency funds and cash reserves; (b) expand the use of risk transfer instruments, such as insurance and other hedging instruments; and (c) maintain financial support from donors and multilateral institutions.

Several Pacific island developing economies have made progress in building fiscal buffers, as reflected in lower public debt levels and more favourable fiscal balances. Competing demands for scarce fiscal resources, however, also mean high opportunity costs for building buffers. To supplement the limited national sources of government revenue, donor funding remains a necessary part of efforts to increase resilience. While higher flows of external funds for climate change adaptation are expected in the Pacific subregion, red tape has resulted in slow access and high transaction costs among recipient countries. To improve access to such funds, some economies have benefited from direct budget support from donors, while other countries require improved public financial systems to enable the use of national systems for the delivery of financial assistance for dealing with natural disasters and the effects of climate change.

Fiscal planning can enhance economic resilience to natural disasters by building more natural disaster-resistant public infrastructure and by having in place post-disaster budgetary procedures to support emergency relief, economic recovery and reconstruction without sacrificing debt sustainability. There is a need to recognize the cross-cutting nature of disaster risk issues when formulating sectoral planning and government budgets in order to enable the implementation of

appropriate risk-mitigation strategies. In view of the diverse characteristics of Pacific island developing economies and the varied country-specific implications of natural disasters, tailored policy measures are required.

At the subregional level, a risk-sharing mechanism, such as the Pacific catastrophe risk insurance pilot programme, provides limited insurance cover for five Pacific islands.⁷ For the 2015 season, aggregate cover against cyclones and earthquakes, including tsunamis, amounted to \$43 million. Tonga received \$1.27 million in response to a cyclone in 2014, and \$1.9 million was paid to Vanuatu following Cyclone Pam in early 2015. Both payments helped fund the early response and assessments carried out shortly after the disasters

A road map has been adopted towards an integrated Pacific regional strategy for disaster risk management and climate change adaptation and mitigation.⁸ The objective of the strategy is to support better preparedness and resilient development planning. Activities include sharing best practice country case studies on disaster risk management and climate change adaptation and strengthening information management systems, such as the creation of databases on hazards, vulnerabilities and risk assessments. There is also a need to strengthen drought monitoring and early warning systems, enhance the use of space applications and promote risk-sensitive development strategies. The 2015 Asia-Pacific Disaster Report⁹ reiterates a number of these strategies, particularly for building natural disaster resilience in the agriculture sector.

¹ See IMF, "Enhancing macroeconomic resilience to natural disasters and climate change in the Small States of the Pacific", Working Paper No. 125 (International Monetary Fund, 2015).

² See United Nations University, *World Risk Report 2014*. The report systematically considers a country's vulnerability, and its exposure to natural hazards to determine a ranking of countries around the world based on their disaster risk. Available from www.ehs.unu.edu.

³ Pacific Islands Forum Leaders' Meeting Communique, 2015. The Forum is a grouping made up of sixteen states, namely Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. See www.forumsec.org.

⁴ IMF, "Enhancing macroeconomic resilience to natural disasters and climate change in the Small States of the Pacific", Working Paper No. 125 (International Monetary Fund, 2015).

⁵ See World Bank and others, "Pacific Catastrophe Risk Assessment and Financing Initiative: Risk Assessment Methodology" (Washington D.C., 2011). Available from www.pcrapi.sopac.org/documents.

⁶ National Institute of Water and Atmospheric Research, "South West Pacific Tropical Cyclone Outlook 2014-2015" (New Zealand, 2014)

⁷ For details, see www.worldbank.org/projects/P133255/pacific-catastrophe-risk-insurance-pilot-program?lang=en and pcrapi.sopac.org.

⁸ For details see www.sprep.org/2011sm22/pdfs/eng/Officials/WP_8_2_1_Att_1_PIFACC%20Roadmap.pdf and <http://gsd.spc.int.srdp>.

⁹ See ESCAP, "The Asia-Pacific Disaster Report 2015: Disasters without Borders, Regional Resilience for Sustainable Development" (Bangkok, 2015).

The MPFD Policy Briefs aim at generating a forward-looking discussion among policymakers, researchers and other stakeholders to help forge political will and build a regional consensus on needed policy actions and pressing reforms. Policy Briefs are issued without formal editing. This issue is prepared by Sanjesh Naidu of ESCAP Pacific Office. This policy brief benefitted from comments by Iosefa Maiava, Hamza Ali Malik and Vatcharin Sirimaneetham. For further information on this issue, please contact Aynul Hasan, Director, Macroeconomic Policy and Financing for Development Division, ESCAP (escap-mpdd@un.org).