PCRAFI
Pacific Catastrophe Risk Assessment & Financing Initiative

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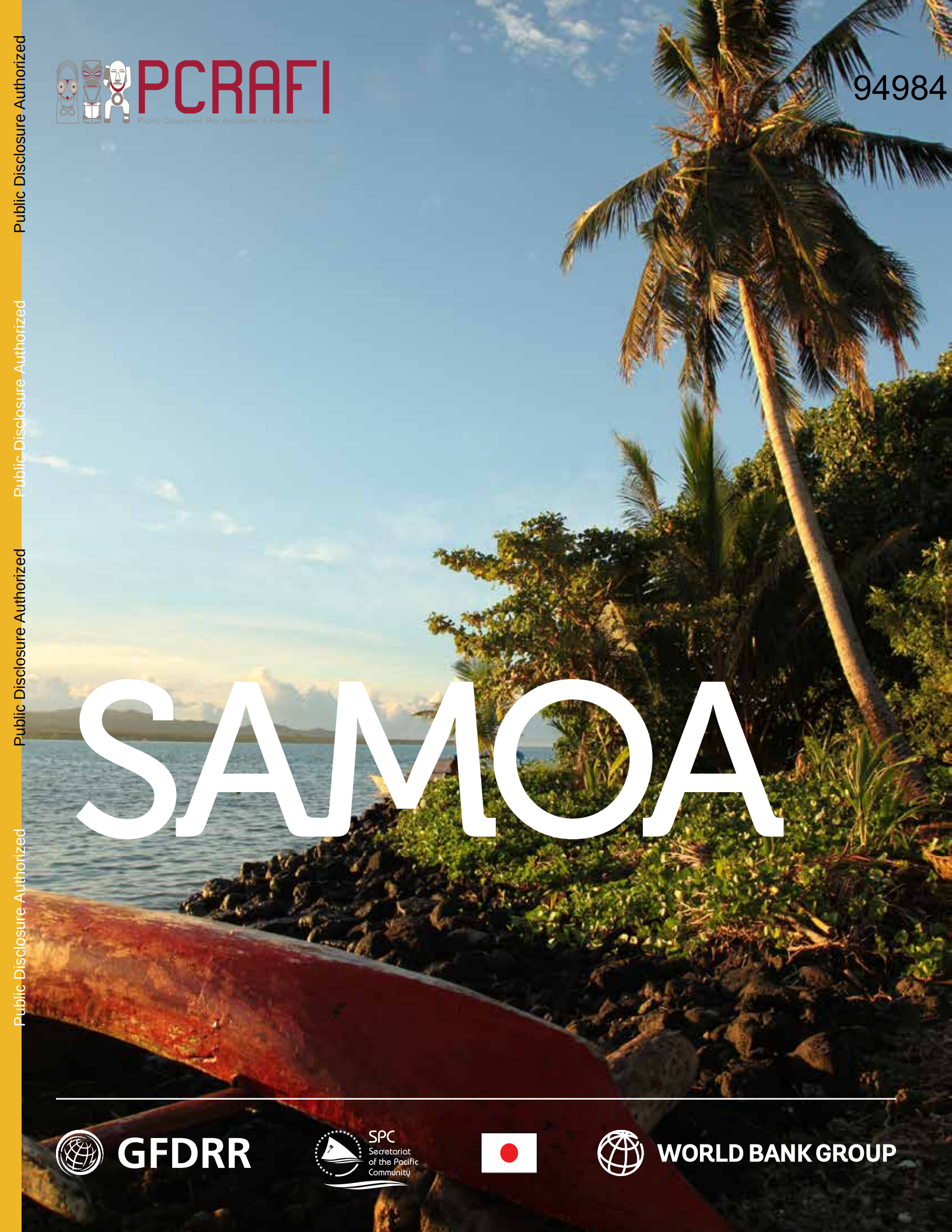

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Country Note

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Disaster Risk Financing and Insurance

PCRAFI 2015

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The World Bank

1818 H Street NW

Washington DC 20433

Telephone: 202-473-1000

Internet: www.worldbank.org

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Acknowledgments

This note has been prepared by a team led by Olivier Mahul (Disaster Risk Financing and Insurance Program Manager, World Bank) and comprising Samantha Cook (Financial Sector Specialist) and Barry Bailey (Consultant).

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The Disaster Risk Financing and Insurance Program is grateful for the financial support received from the government of Japan and the Global Facility for Disaster Reduction and Recovery.

Acronyms and Abbreviations

CBS	Central Bank of Samoa
DMO	Disaster Management Office
DRFI	disaster risk financing and insurance
EPC	Electric Power Corporation
ERTF	Emergency Response Trust Fund
GDP	gross domestic product
GFS	Government Financial Statistics
GIICS	Group of International Insurance Center Supervisors
HFA	Hyogo Framework for Action
IAIS	International Association of Insurance Supervisors
ISR	Industrial Special Risks
JNAP	Joint National Action Plan
MoF	Ministry of Finance
NAP	National Action Plan
NPI	National Pacific Insurance
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PIC	Pacific Island Country
RFA	Regional Framework for Action
SIDS	Small Island Developing States
SIFA	Samoa International Finance Authority
SOPAC	Applied Geoscience and Technology Division of SPC
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
TC	Tropical Cyclone
UNDP	United Nations Development Programme
UNISDR	United Nations International Strategy for Disaster Risk Reduction

Currency: Samoan Tala (SAT)
Average exchange rate: US$1=SAT 2.3

Executive Summary

In 2012 Tropical Cyclone (TC) Evan offered a distressing reminder of Samoa's exposure to natural hazards. TC Evan came only three years after the earthquake and tsunami of 2009, which affected 2.5 percent of the country's population, causing 143 fatalities and associated economic losses equivalent to 20 percent of gross domestic product (GDP).

The economic growth of Samoa has been impacted in the past few years by two major disasters: the tsunami in 2009 and TC Evan in 2012. Growth was also impacted by the global financial crisis. Overall GDP contracted by 5.1 percent following the tsunami in 2009, but it has gradually increased in subsequent years. Following TC Evan, real GDP declined by 0.4 percent. Growth in GDP rebounded to 2.2 percent in 2013/14 as the reconstruction program commenced (World Bank 2014).

Samoa is expected to incur, on average over the long term, about SAT 23 million (US$10 million) per year in losses due to earthquakes and tropical cyclones. In the next 50 years, Samoa has a 50 percent chance of experiencing a loss exceeding SAT 255 million (US$110 million) and a 10 percent chance of experiencing a loss exceeding SAT 812 million (US$350 million) (PCRAFI, Country Risk Profile).

Samoa has several disaster risk financing and insurance (DRFI) tools in place and is able to reallocate resources swiftly following an event. However, there is some confusion surrounding the correct post-disaster finance policies among Ministry of Finance (MoF) staff. At present these policies are spread across a variety of documents. This has resulted in delays in procurement and inefficient allocation of human resources. It is recommended that post-disaster policies be compiled into a single document for post-disaster budget mobilization and execution to avoid problems in the future.

A number of options to improve the existing DRFI measures have been presented for consideration:

(a) develop an overarching disaster risk financing strategy aligned to existing processes;

(b) develop an operations manual detailing the processes required to facilitate swift post-disaster budget mobilization and execution; and

(c) develop an insurance program for key public assets.

Introduction

Samoa is composed of two large volcanic islands (Upolu and Savai'i) and several smaller islands, and has a total land area of approximately 2,935 km^2. The resident population of Samoa for 2013 was estimated at 190,652, with 80 percent of this number living in rural areas. [1]

Samoa is exposed to tropical cyclones, floods, earthquakes, tsunamis, volcanic eruption, and drought. Samoa was ranked 51st out of 179 countries in the Global Climate Risk Index 2012 report on who suffers most from extreme weather events (Harmeling 2012).

In 2012 TC Evan offered a distressing reminder of Samoa's exposure to natural hazards. TC Evan came only three years after the earthquake and tsunami of 2009, which affected 2.5 percent of the country's population, causing 143 fatalities and associated economic losses equivalent to 20 percent of gross domestic product (GDP).

The government of Samoa, in conjunction with the Secretariat of the Pacific Community Applied Geoscience and Technology Division (SPC-SOPAC), the Secretariat of the Pacific Regional Environment Programme (SPREP), the United Nations Development Programme (UNDP) Pacific Centre, and the United Nations International Strategy for Disaster Risk Reduction (UNISDR) as well as other partners, has developed several institutional frameworks on disaster risk management and climate change adaptation at the national, subregional, and international level, including the following:

- Hyogo Framework for Action (HFA) 2005–2015
- Pacific Disaster Risk Reduction and Disaster Management Framework for Action (Regional Framework for Action, or RFA) 2005–2015
- Samoa's National Disaster Management Plan 2011–2014
- Samoa National Action Plan (NAP) for Disaster Risk Management, 2011–2016

Samoa's National Disaster Management Plan cites disaster-related financing as the role of the Ministry of Finance (MoF). Under reference 17 in the plan, the MoF must coordinate the collection, allocation, and provision of monetary aid to people affected by a disaster (GoS 2011a).

Disaster risk financing and insurance (DRFI) is a key activity of the HFA Priorities for Action 4 and 5.[2] The HFA is a result-based plan of action adopted by 168 countries to reduce disaster risk and vulnerability to natural hazards and to increase the resilience of nations and communities to disasters over the period 2005–2015. In the Pacific, the HFA formed the basis for the development of the Regional Framework for Action.

The RFA cites DRFI activities as a key national and regional activity. Theme 4 of the RFA—"Planning for effective preparedness, response

and recovery"—has an associated key national activity, "Establish a national disaster fund for response and recovery." Moreover, Theme 6 of the RFA—"Reduction of underlying risk factors"—cites the development of "financial risk-sharing mechanisms, particularly insurance, re-insurance and other financial modalities against disasters as both a key national and regional activity" (SOPAC 2005). These regional implementation activities align with the three-tiered disaster risk financing strategy promoted by the World Bank (and described below).

The Pacific DRFI Program enables countries to increase their financial resilience against natural disasters by improving their capacity to meet post-disaster funding needs without compromising their fiscal balance. This program is one application of the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI). The Pacific DRFI Program is built upon a three-tiered approach to disaster risk financing (figure 1). The different tiers align to the basic principles of sound public financial management, such as the efficient allocation of resources, access to sufficient resources, and macroeconomic stabilization. The three tiers acknowledge the different financial requirements associated with different levels of risk:

(d) self-retention, such as a contingency budget and national reserves, to finance small but recurrent disasters;

(e) a contingent credit mechanism for less frequent but more severe events; and

(f) disaster risk transfer (such as insurance) to cover major natural disasters.

This note aims to build understanding of the existing DRFI tools in use in Samoa and to identify gaps where potential engagement could further develop financial resilience. In addition, this note aims to encourage peer exchange of regional knowledge through dialogue on past experiences, lessons learned, and ways to optimize the use of these financial tools, as well as how these tools may affect the execution of post-disaster funds.

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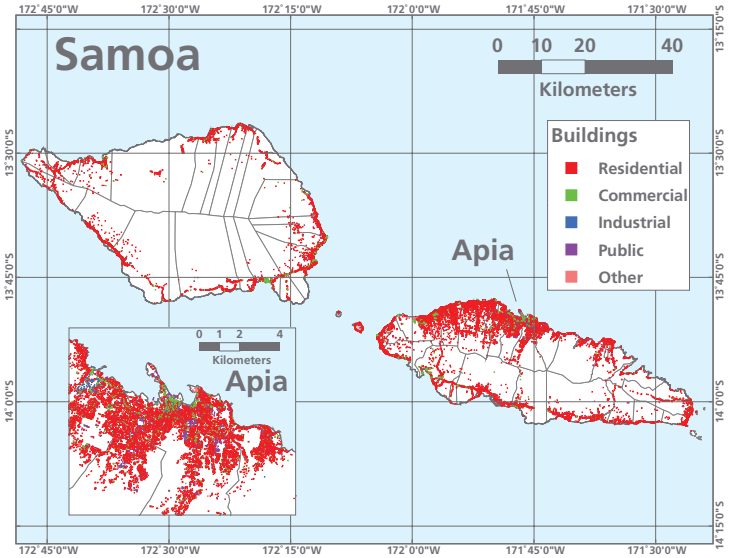
Economic Impact of Natural Disasters

In 2012, the Global Climate Risk Index ranked Samoa 51st out of 179 countries for extreme weather event impacts (Harmeling 2012). In the past 50 years Samoa has experienced 56 events with associated losses of SAT 1,270 million (US$543 million).[3]

The main hazards that affect Samoa are from tropical cyclones, earthquakes, tsunamis, and occasional flooding. In 1990, Tropical Cyclones (TCs) Ofa and Val caused estimated total loss of between SAT 690 and SAT 1,150 million (US$300 million–US$500 million) (PCRAFI, 2012), which is equivalent to approximately four times GDP (GoS 2013). In comparison, the last major flood in 2001 caused direct losses worth SAT 11 million (GoS 2013).

The economic growth of Samoa has been impacted in the past few years by two major disasters: the tsunami in 2009 and TC Evan in 2012. Growth was also impacted by the global financial crisis. Overall GDP contracted by 5.1 percent following the tsunami in 2009 but has gradually increased in subsequent years. Following TC Evan, real GDP declined by 0.4 percent. Growth

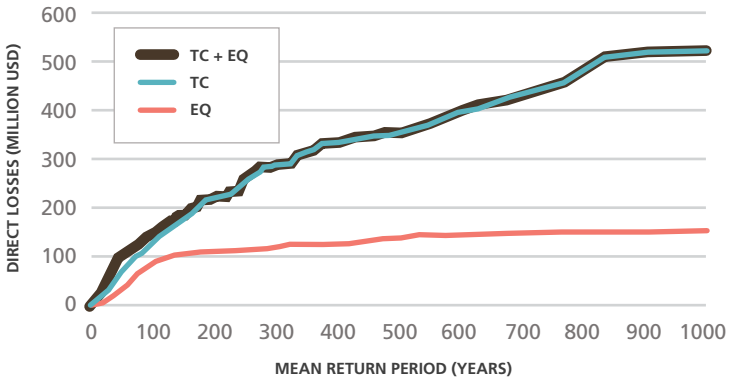
Figure 1 — Land Use/Land Cover



Source: PCRAFI 2012.

Section 02

Figure 2 — Direct Losses by Return Period



Source: PCRAFI 2012

Note: TC = tropical cyclone; EQ = earthquake

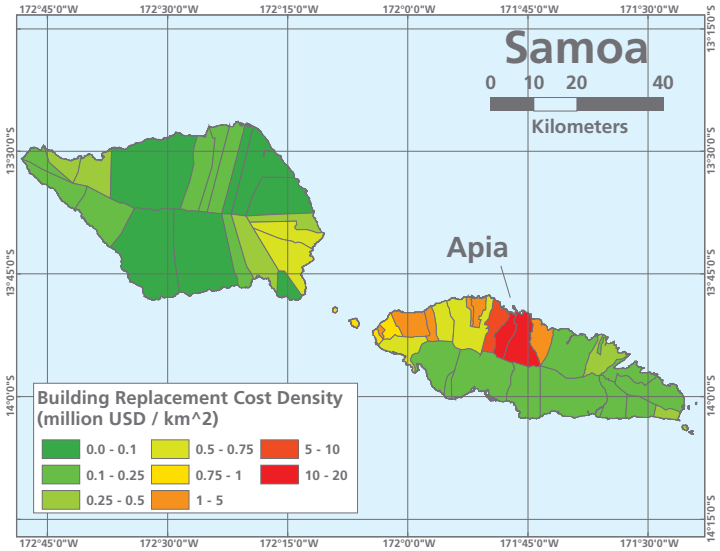
in GDP rebounded to 2.2 percent in 2013/14 as the reconstruction program commenced (World Bank 2014).

Tourism is a major economic driver and has increased the concentration of assets along Samoa's coastline, where the majority of the population resides. Figure 2 shows that the majority of buildings, residential and commercial, are located along the coastline.

Samoa is expected to incur, on average over the long term, about SAT 23 million (US$10 million) per year in losses due to earthquakes and tropical cyclones. In the next 50 years, Samoa has a 50 percent chance of experiencing a loss exceeding SAT 255 million (US$110 million), and a 10 percent chance of experiencing a loss exceeding SAT 812 million (US$350 million) (see figure 3).

Figure 4 shows the average annual loss by area, with red indicating a high level of average annual losses—those worth SAT 5.5 million (US$2.4 million) and over.

Figure 3 — Average Annual Loss by Area



Source: PCRAFI 2012

Public Financial Management of Natural Disasters

Following the declaration of a state of emergency, staff from the Ministry of Finance are relocated to the Disaster Management Office (i) or the National Emergency Operation Centre. This change is to help ensure that procurement of emergency supplies occurs as quickly as possible. For expenditures agreed upon by the National Disaster Council, emergency procurement policies allow for payments to be made to contractors within one week, as opposed to the standard term of 30 days.

Samoa has experienced two major disasters within a three-year period, the tsunami in 2009 and TC Evan in 2012. These events placed considerable pressure on core government staff, in particular in the DMO and the MoF. As a result of these events, however, the policies and processes for DRFI have been tested—and found to be effective.

Effective post-disaster financial response relies on two fundamental capabilities:

(a) the ability to rapidly mobilize funds post-disaster, and

(b) the ability to execute funds in a timely, transparent, and accountable fashion.

This section discusses the existing procedures for post-disaster budget mobilization and execution, and where possible provides examples of their use.

Post-Disaster Budget Mobilization

Samoa has a variety of ex-ante and ex-post financial tools, and the timing for mobilizing and executing these funds varies significantly. Building on the World Bank framework for disaster risk financing and insurance (see annex 1), table 1 shows the ex-ante and ex-post financial tools available, indicates which have been utilized by Samoa, and gives indicative timings. The tools utilized by Samoa are highlighted in blue and show the indicative timing involved in mobilizing the funds. Those sections highlighted in gray are

for generic instruments that to date have not been used in Samoa.

The sections below discuss in detail both the ex-ante and the ex-post financing tools available to Samoa, including the time it takes to mobilize these funds and the amount of funding available.

Ex-Ante Practices and Arrangements

The uncertainty surrounding international assistance has increased pressure on countries to establish domestic sources of financing—such as national reserves or the transfer of risk to the international insurance market—for post-disaster relief. The ex-ante practices and arrangements that have been made by Samoa include an emergency fund, a contingency budget, and sovereign catastrophe risk insurance.

Emergency fund

Following a declaration of emergency, an emergency fund can be established to receive any monies reallocated from the government as well as donations from the international community, private enterprises, and members of the public. This was the process following the tsunami in 2009 and TC Evan in 2012.

The establishment of an emergency fund is requested by the Disaster Advisory Committee and is authorized by the financial secretary. Section 61 of the Public Finance Management Act requires the source of finance, signatories, and expenditure areas to be assigned in advance in order to prevent misuse of the funds.

Table 1— Sources of Funds Available

	SHORT TERM (1-3 MONTHS)	MEDIUM TERM (3-9 MONTHS)	LONG TERM (OVER 9 MONTHS)
Ex-post Financing			
Donor Assistance (relief)			
Budget Reallocation			
Domestic Credit			
External Credit			
Capital Budget Realignment			
Donor Assistance (reconstruction)			
Tax Increae			
Flash Appeal			
Ex-ante Financing			
Emergency Fund			
Contingency Budget			
Contingent Credit			
Sovereign (parametric) Catastrophe Risk Insurance			
Traditional Disaster Insurance			

Source: Government of Samoa

Box 1— The Pacific Catastrophe Risk Insurance Pilot

The Pacific Catastrophe Risk Insurance Pilot aims to provide immediate budget support following a major tropical cyclone or earthquake/tsunami. The insurance is designed to cover emergency losses, which are estimated using both a modeled representation of the event based on hazard parameters and a calculation of total modeled physical damage. Unlike a conventional insurance scheme, where a payout would be assessed against actual incurred costs, this scheme pays out on the results of a model. The advantage of this approach is that it results in a much faster payout. The payout would act as a form of budget support and would go some way to cover the costs that would be incurred by the government in the aftermath of a severe natural disaster that disrupts the provision of government services. Countries can choose between three layers of coverage—low, medium, and high—depending on the frequency of events. The lower layer will cover events with a return period of 1 in 10 years, that is, more frequent but less severe events. The medium layer will cover events with a 1-in-15-year return period, while the higher layer will cover less frequent but more severe events, or those with a return period of 1 in 20 years. However, countries may request that a more customized option be developed for them.

The emergency fund established in the aftermath of TC Evan received SAT 5.1 million (US$2.2 million) in budgetary reallocation from the unforeseen expenditure line following a request from the National Disaster Committee. This fund was approved by the legislative authority, established, and disbursing funds within 24 hours of the request from the committee.

Contingency budget

A contingency budget, known as the "unforeseen expenditure" equivalent to 3 percent of the total appropriation bill, is available subject to Article 96 of the constitution. The release of funds for unforeseen expenditure requires approval from the legislative assembly[4] following advice presented by the Minister of Finance. In 2013 the maximum contingency budget would have been equivalent to SAT 16 million (US$7 million). According to estimates, there is a 7.2 percent chance that disaster losses will exceed this amount in any given year.

Table 2— Selected Insurance Coverage, 2014–2015 Pilot Season

	TROPICAL CYCLONE	EARTHQUAKE
Policy period	November 1, 2013–October 31, 2014	
Peril selected	Tropical cyclone	Earthquake
Layer of coverage selected	1 in 20 years	1 in 20 years
Coverage limit as a percentage of contingency budget	137 percent	89 percent
Reporting agencies	Joint Typhoon Warning Center	United States Geological Survey

Source: World Bank and PCRAFI 2014.

Sovereign catastrophe risk insurance

The coverage selected by Samoa provides an aggregate coverage limit worth more than double the unforeseen payments (contingency budget) for the fiscal year 2013/14 (see table 2). Samoa chose a level of coverage designed to pay out for tropical cyclone and earthquake/tsunami events of such severity that a triggering event would be expected to occur once every 20 years on average, over the long term. The coverage is in effect from November 1, 2014, to October 31, 2015.

Ex-Post Practices and Arrangements

By definition a disaster exceeds a country's capacity to cope with it, and there will therefore always be a need for ex-post practices and arrangements. An optimal strategy for DRFI relies on a combination of ex-ante and ex-post financial instruments. Ex-post arrangements benefit from being able to establish the extent of the disaster and prioritize the response needs. For this reason these arrangements take longer to implement than ex-ante arrangements, but they can often mobilize larger amounts of finance. This section discusses the ex-post practices and arrangements that have been made by Samoa.

Budget reallocation

Intradepartmental transfers can be made following authorization from the head of the department and the financial secretary. These transfers are allowed provided that the transfer does not increase the appropriation for that line item by 20 percent or more, and the total appropriation for the department must remain unaltered.

Following the declaration of a state of emergency, the minister of finance may approve expenditure to help address needs arising from the emergency. Any such expenditures must be published in Savai'i and presented to the legislative assembly at the earliest opportunity, although such expenditures do not require their approval. The expenses must also be included in the annual financial statements.

External credit

Both the fiscal deficit and public debt have increased following the 2009 tsunami and TC Evan in 2012. In the fiscal year 2008/09, Samoa had a debt-servicing ratio equivalent to 45.4 percent of GDP. In fiscal year 2011/12—prior to TC Evan—this ratio was trending upward to 57.6 percent of GDP and was expected to increase

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further. The tsunami recovery program is being financed by grants, however, so this increase may prove to be relatively small.

Following these events, the government of Samoa revised its targeted debt threshold to 50 percent of GDP, placing restraints on any new borrowing. As a consequence the International Monetary Fund and World Bank revised the risk of debt distress from low to moderate, a change that increases the urgency of fiscal consolidation (IMF 2012).

Donor funds for relief and reconstruction

While donor funds will always be required in the event of an emergency, there is also an element of uncertainty surrounding how much will be provided, what will be provided, and when funds will arrive in country. Consequently, overdependence on international relief as a source of post-disaster financing can delay the provision of initial relief and inhibit ex-ante contingency planning. Development partners, international organizations, local nongovernmental organizations, businesses, and individuals contribute in the form of cash grants and aid in kind. The provision of aid in kind, while vital, can affect the costs borne by governments for the distribution these goods.

In the month following TC Evan, Samoa received cash donations from the international community worth over SAT 4.8 million (US$2 million); in addition, the local and international community also donated significant supplies to help with initial relief. Experience shows that donations continue even after relief work ends and recovery and reconstruction programs begin. For example, the completion report for the tsunami fund states that SAT 62.4 million (US$26.7 million) was received from development partners and private individuals and organizations (GoS 2011b.). This serves to demonstrate that while donor assistance for reconstruction may take some time to mobilize, it allows significant amounts of finance to be raised.

Total Response Funds Available

Samoa has the ability to raise a maximum of SAT 47.1 million (US$20.5 million) for disaster response, equivalent to 9 percent of total expenditures in 2013/14. This figure is based on the unforeseen expenditure allowance for the fiscal year 2013/14, the emergency fund established for TC Evan, and the aggregate coverage limit from the Pacific Catastrophe Risk Insurance Pilot (see figure 5). It should be emphasized that this amount is a maximum; given the nature of the emergency fund process, there is an element of uncertainty surrounding how much could actually be made available. In other words, the SAT 5.1 million that the Government was able to reallocate following TC Evan provides us with an indication of what can be made available. Similarly, the aggregate payout is the absolute maximum that Samoa could receive following an earthquake/tsunami or a tropical cyclone. It is estimated that there is a 2 percent chance that disaster losses will exceed this amount in any given year.

Post-Disaster Budget Execution

Following the experience of the 2009 tsunami, the response to TC Evan was triggered quickly: finance was sourced and allocated within the first week. The MoF was able to reallocate SAT 5.1 million (US$2.2 million) into an emergency fund and open a relief account for donations from members of the public and private sector entities.

Additional finance for the recovery and reconstruction framework following TC Evan was sought via the reprogramming of funds, savings in the recurrent budget, and funding from development partners. While much of the funding from development partners was sought in grants, large amounts were also made available in loans. To facilitate reconstruction of major infrastructure such as roads and electricity, the Asian Development Bank and the World Bank made loans for key infrastructure projects.

Following the tsunami in 2009, the Central Bank of Samoa (CBS) established a credit facility of SAT 5 million for tourism-related loans. The Development Bank of Samoa oversaw the day-to-day management of this facility. The aim was to expand fale (a traditional style of house in Samoa) businesses that could not be supported via grants and other financial vehicles.

The government of Samoa financed approximately 14 percent of the 2009 tsunami reconstruction program. A deficit of SAT 9.7 million (US$4.1 million) was identified and filled by the government to ensure continuation of the reconstruction program. This finance came from the reprogramming of funds and was also partially sourced from World Bank and Asian Development Bank budget support loans. Consequently, some

Figure 4 — Amount of Ex-Ante Funds Available for Immediate Response

Disaster risks	Disaster risk financing instruments	Amount of funds available
High-risk layer (E.G. Major earthquake, major tropical cyclone)	**Disaster risk insurance**	**Total catastrophe risk insurance coverage** **SAT26m** (US$11.3m)
Medium-risk layer (E.G. Floods, small earthquakes)	**Contingent credit**	
Low-risk layer (E.G. Localized flood, landslides)	**Contingency budget, national reserves, annual budget allocation**	**Unforeseen:** **SAT16m** (US$7m) **Emergency fund:** **SAT5.1m** (US$2.2m)

Source: World Bank.

work continued into the 2011/12 budget for some sectors.

Samoa has a proactive approach to DRFI and is able to reallocate resources swiftly following an event. However, there is some confusion surrounding the correct post-disaster finance policies among MoF staff. At present these policies are spread across a variety of documents. The result has been delays in procurement and inefficient allocation of human resources. To avoid these issues in future, it is recommended that post-disaster policies be compiled into a single document for post-disaster budget mobilization and execution.

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Domestic Catastrophe Risk Insurance Market

All classes of non-life insurance premium in Samoa are estimated to be worth SAT 41 million (US$17 million). This figure includes premiums for businesses placed with offshore insurers by locally licensed agents and brokers. The exact amount of premium for offshore-placed insurance was not available from the CBS.

The market is composed of four local insurers. While such a market would normally be classified as small, insurance industry sources advised that this market is in fact very competitive. Non-life premium per capita is estimated at US$90.00, which is consistent with other developing Pacific Island Countries (PICs).

There is legislation in place that regulates the local insurance industry (the 2007 Insurance Act), and the CBS acts as the insurance regulator. The CBS collects information to ensure that solvency margins are met. It also monitors accumulations for all classes and requests information on reinsurance protection.

International insurance companies registered in Samoa are regulated by a separate body, the Samoa International Finance Authority (SIFA). SIFA is a member of the International Association of Insurance Supervisors (IAIS) and the Group of International Insurance Center Supervisors (GIICS).

The Public Finance Management Act (2001), Section 54, requires the government to establish an insurance fund and to pay insurance premiums out of this fund. The premiums for the existing property insurance program are paid out of this fund.

▼ **Photo Credit**
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The main catastrophe hazard in Samoa is tropical cyclone. Insurers will insure only those properties that meet the cyclone standard set out in the building code. Cyclone insurance is available as an extension of property policies only after the engineer's certification of compliance with the cyclone code has been received. The average premium rate for cyclone extension is 0.20 percent of the total insured value. Based on estimates of insured-to-total losses in prior major cyclone events, it is estimated that only 20 percent of businesses and 10 percent of residential premises have cyclone insurance. Earthquake as a peril is normally offered automatically on the full sum insured. The average premium rate for the earthquake peril is 0.10 percent of total insured value, although there is some variation among insurers. Tsunami is included as an earthquake peril.

The government has a property insurance program in place for major public buildings on an indemnity value basis. At present there is no insurance of key infrastructure assets, such as bridges or roads.

Public trading bodies make their own insurance arrangements, including property insurance for key assets. These property insurance programs insure against earthquake, but the cyclone insurance extension is not always taken.

Please refer to annex 3 for the full market insurance review that was conducted in Samoa in 2013.

Photo Credit

Australian Department of Foreign Affairs and Trade/Flickr

Options for Consideration

Samoa has implemented several DRFI tools to improve its financial resilience to natural disasters. However, the policies are spread throughout a variety of documents, and during a disaster staff find it difficult to access needed information; they often must rely on key staff to ensure the correct policies are followed. The following recommendations for minimizing any potential loss of institutional knowledge have been suggested for consideration.

Recommendation 1: Develop an overarching disaster risk financing strategy aligned to existing processes. Samoa has a proactive ex-ante approach to DRFI. However, the activities in place have been developed in isolation; while some processes are documented, this information can be difficult to find. One way to address this issue would be to develop an overarching DRFI strategy for the Cabinet Development Committee to endorse. This would create a single document to articulate the available financing options and associated policies behind these tools. In addition, an action plan for implementation activities is also recommended.

Recommendation 2: Develop an operations manual detailing the processes required to facilitate swift post-disaster budget mobilization and execution. This manual would clearly document the post-disaster budget mobilization and execution procedures and processes for MoF staff. In addition, it could feature the disaster response plan for the MoF that is now required under the Disaster Management Act. During a disaster it is important that staff know and understand the correct procedures to follow, and having a manual that details the processes in a single document would help to embed existing processes such as the allocation of a member of staff from MoF to the DMO.

Recommendation 3: Develop an insurance program for key public assets. This would include a full review of the current insurance program for the government by MoF. In addition, it would identify assets to be included and indicate appropriate coverage selection for these assets. The potential for establishing an insurance vehicle could also be investigated if deemed appropriate.

End Notes

1 Samoa Burea of Statistics, "Key Statistics," http://www.sbs.gov.ws/index.php?option=com_content&view=article&id=35&Itemid=102.

2 Priority for Action 4—"Reduce the underlying risk factors"—has an associated key activity of financial risk-sharing mechanisms such as insurance, while Priority for Action 5—"Strengthen disaster preparedness for effective response at all levels"—includes the establishment of emergency funds such as a contingency budget.

3 Pacific Disaster Net - http://www.pacificdisaster.net/pdn2008/

4 This is the equivalent of the cabinet in some countries.

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About PCRAFI

The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) is a joint initiative between the Secretariat of the Pacific Community through its Applied Geoscience and Technology Division (SPC-SOPAC), the World Bank, and the Asian Development Bank, with financial support from the government of Japan, the Global Facility for Disaster Reduction and Recovery (GFDRR), and the European Union, and with technical support from Air Worldwide, New Zealand GNS Science, and Geoscience Australia.

The initiative aims to provide the Pacific Island Countries (PICs) with disaster risk modeling and assessment tools for enhanced disaster risk management, and to engage PICs in a dialogue on integrated financial solutions to increase their financial resilience to natural disasters and climate change. The initiative is part of the broader agenda on disaster risk management and climate change adaptation in the Pacific region.

The Pacific Disaster Risk Financing and Insurance (DRFI) Program is one of the many applications of PCRAFI. It is designed to increase the financial resilience of PICs by improving their capacity to meet post-disaster financing needs without compromising their fiscal balance. Through DRFI, technical assistance is available to PICs to build capacity in the public financial management of natural disasters. The technical assistance will build on the underlying principles of the three-tiered disaster risk financing strategy and focus on three core aspects:

- the development of a public financial management strategy for natural disasters, recognizing the need for ex-ante and ex-post financial tools;
- the post-disaster budget execution process, to ensure that funds can be accessed and disbursed easily post-disaster; and
- the insurance of key public assets, to resource the much larger funding requirements of recovery and reconstruction needs.

The PICs involved in PCRAFI are the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, the Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, the Solomon Islands, Timor-Leste, Tonga, Tuvalu, and Vanuatu.

For further information, please visit http://pacrisk.sopac.org or contact PCRAFI@spc.int.

Annex 1

World Bank Framework for Disaster Risk Financing and Insurance

Major disasters increase public spending requirements and reduce revenues, placing further strain on limited national budgets. The immediate and long-term fiscal consequences of a disaster depend on the sources of revenue available to the government versus its public expenditure commitments. Investment in disaster risk financing instruments can help prevent the diversion of funds from key development projects and significantly reduce the time needed to activate an initial response. Financial protection is a core component of any comprehensive disaster risk management strategy, and should be implemented alongside the pillars of risk identification, risk reduction, preparedness, and post-disaster reconstruction (see figure A.1).

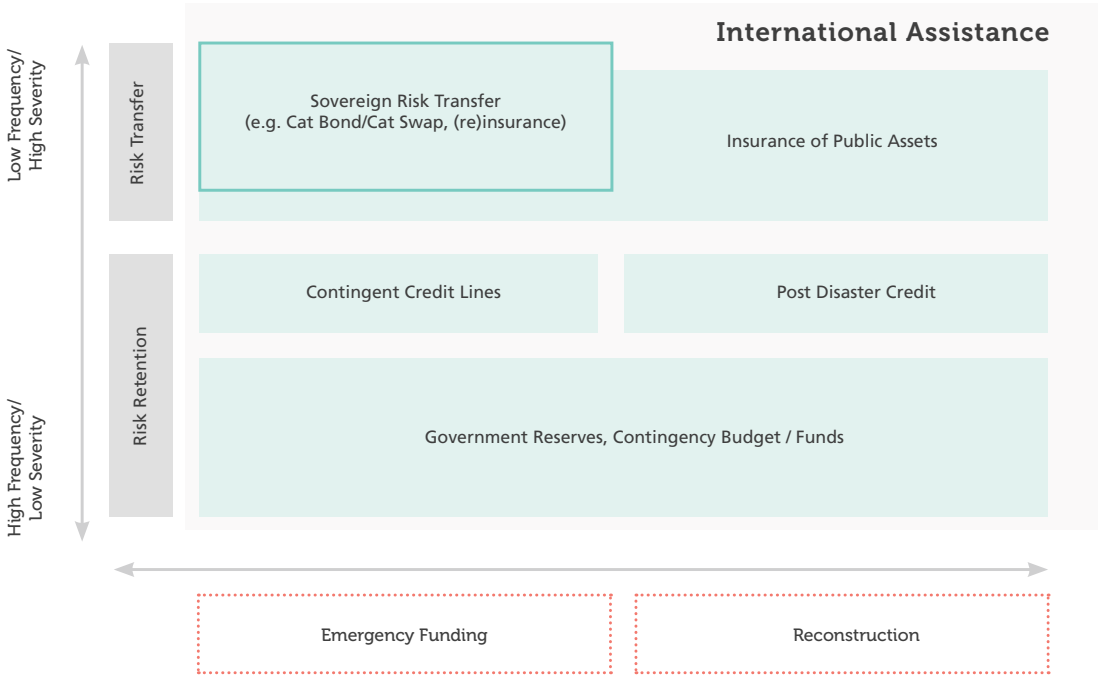
The World Bank framework for disaster risk financing and insurance advocates a three-tiered approach for the development of financing arrangements to cover the residual disaster risk that cannot be mitigated. These layers align to the basic principles of sound public financial management, such as the efficient allocation of resources, access to sufficient resources, and macroeconomic stabilization. The first layer, retention, relates to countries' development of an internal layer of protection against natural disasters to prevent the diversion of funds from development projects (see figure A.2). This layer uses tools such as contingency budgets and national reserves. The aim is to finance small but high-frequency disasters. The second layer is aimed at less frequent but more severe events that are too costly to pre-finance through retention mechanisms. Here, liquidity mechanisms—such as contingent credit, which can mobilize additional funds immediately following an event—become cost-effective.

The third layer, disaster risk transfer (such as insurance), focuses on mobilizing large volumes of funds for large but infrequent natural disasters. For events of this type, risk transfer instruments—such as insurance or catastrophe swaps and bonds—become cost-effective in averting a liquidity crunch.

There is a clear time dimension to post-disaster funding needs and the various phases of relief, recovery, and reconstruction. Some financing instruments can be activated rapidly. Others may take longer to activate but can generate substantial funding. The disaster risk financing strategy needs to reflect both time and cost dimensions, ensuring that the volume of funding available at different stages in the response efforts matches actual needs in a cost-efficient manner.

Figure A.1 — Disaster Risk Management Framework

Figure A.2 — Three-Tiered Disaster Risk Financing Strategy

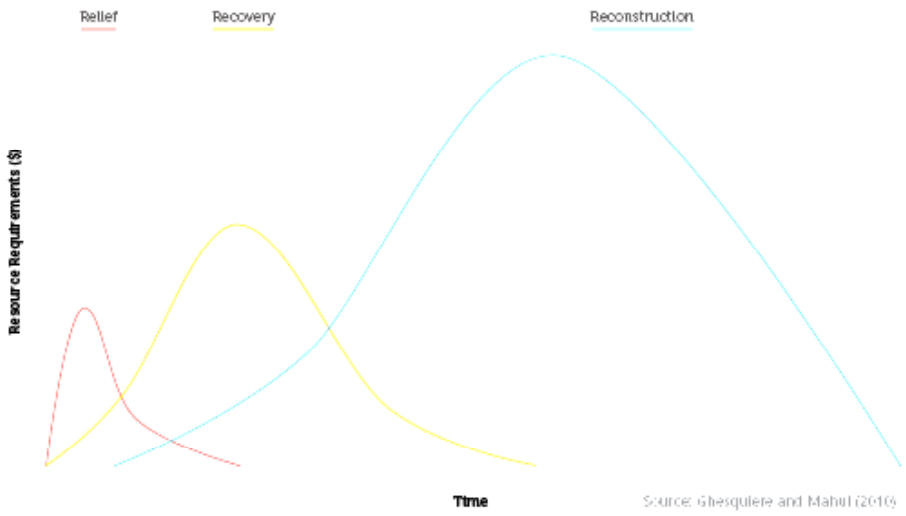


The initial relief phase requires a quick injection of liquidity from day 0 but does not need to be sustained for a long period of time (see figure A.3). Rapid budget mobilization and execution are key for financing initial disaster response, and governments should develop appropriate policies and procedures for procurement and acquittals to facilitate them. Initial relief should be met via annual budget allocations and the establishment of dedicated reserves for disaster response that can be accessed immediately; major catastrophes will exhaust these funds quickly. The residual risk associated with higher-cost events should be transferred to third parties via a mixture of more expensive (re)insurance tools and catastrophe bonds and, for the most extreme events, international assistance.

The recovery phase requires additional funds but not immediately (see figure A.3). Some of the funds for this phase can therefore be raised via post-disaster budget reallocation and the realignment of national investment priorities. However, the opportunity cost for these options is high, given that they can lead to reduced expenditure on other key investment areas, such as health and education. Consequently, governments may also choose to utilize development partner contingent credit arrangements.

In contrast, the reconstruction phase has much larger financing requirements needed over a much longer period of time (see figure A.3). Given the large funding requirements associated with reconstruction, this phase often requires post-disaster reconstruction loans to complement traditional disaster insurance. Governments may also introduce temporary post-disaster tax increases aligned to budget restructuring.

Figure A.3 — Post-Disaster Phases: Funding Requirements and Duration`



If adequate and timely funding arrangements are not in place, the adverse socioeconomic impact of a disaster can be significantly exacerbated, at both the macroeconomic and household levels. An optimal disaster risk financing and insurance strategy aims to combine ex-ante and ex-post financial instruments to secure adequate and timely funding at lower cost for the successive post-disaster phases. The optimal mix of finance instruments will be unique to each country based upon its associated hazard and exposure. Table A.1 lists potential finance instruments that can be used to address disasters. Those that are shaded in blue indicate the generic timelines for mobilizing and executing these funds, though each country may be slightly faster or slower depending on its internal processes. The table can be adapted by countries to reflect these differences according to the financial instruments they have utilized and the time it takes to mobilize these funds. Given the innovative nature of the work in this area and the number of products under development, this list is not exhaustive.

Ex-post financing vehicles are those that become available in the wake of an event. The most familiar form of ex-post disaster financing is donor assistance for relief. There are two forms this finance can take, cash grants and aid in kind, and both play an important role in response. The provision of aid in kind, while vital, can affect the distribution costs for these goods. While donor funds will always be required, there can often be an element of uncertainty surrounding how much will be provided, what will be provided, and when funds will arrive in country.

Budget reallocation often plays a key role for the continuation of relief and the initial stages of the recovery program. Generally, this process takes time, as the reallocation of funds will need to be

Table A.1— Availability of Financial Instruments Over Time

	SHORT TERM (1-3 MONTHS)	MEDIUM TERM (3-9 MONTHS)	LONG TERM (OVER 9 MONTHS)
Ex-post Financing			
Donor Assistance (relief)			
Budget Reallocation			
Domestic Credit			
External Credit			
Capital Budget Realignment			
Donor Assistance (reconstruction)			
Tax Increae			
Flash Appeal			
Ex-ante Financing			
Emergency Fund			
Contingency Budget			
Contingent Credit			
Sovereign (parametric) Catastrophe Risk Insurance			
Traditional Disaster Insurance			

Source: World Bank 2013.

agreed upon by the cabinet and across ministries. Budget reallocation can sometimes divert funds from key development projects and hence seriously harm the long-term growth prospects of the country. The same issues are relevant to capital budget realignment, although the timelines for that process are typically significantly longer.

Domestic credit, such as the issuance of government bonds, can be used to raise additional revenue to fund post-disaster expenditures. Again, due to the processes involved, domestic credit will take some time to operationalize and is best suited to financing recovery and reconstruction activities. External credit will likewise take time to be agreed upon with providers and will require clear articulation of the activities it is to finance. Both of these forms of credit will have an impact on the debt-servicing ratio of a country and may not be a viable option for heavily indebted countries.

Donor assistance for reconstruction can be delivered as a form of direct budget support, grant, or a post-disaster reconstruction loan. The form of finance used here will depend on the size of the event, the development status of a country (for example, low-income countries may have access to concessional loans and have more access to grants), and the debt-servicing ratio of a country. Typically, this form of finance is conditional and requires sufficient lead time for aligning the priorities of countries and donors to meet reconstruction and recovery needs.

Tax increases will help redress the increase in public expenditure following a disaster by generating additional revenue. Although higher taxes could be politically unfavorable, they create a sustainable source of finance for reconstruction activities. Conversely, some governments have applied tax incentives to encourage donations to response

funds from both the private sector and members of the public. This approach can be popular when tax credits are written off on annual tax returns.

Ex-ante financing provides an element of financial certainty during a disaster, because governments have established these sources of finance in advance. These funds can be quickly disbursed following an event so that essential relief work commences immediately. A reserve fund provides a dedicated amount of funding for response and if properly managed can accrue over time to increase the level of funding available. However, the opportunity cost of holding money in a dedicated fund is high, as it diverts funds from the operational budget. Careful analysis should be undertaken to identify the optimal level of reserves that a country should hold and maintain.

Contingent credit is a relatively new instrument, with current forms offering disbursement following an event whose magnitude has been agreed upon in advance. It can be fungible or conditional by design. As with other sources of credit, the amount available will depend on the development status of the country and the debt-servicing ratio. The advantage of contingent credit is that a drawdown can be made within a 24-hour period.

Parametric insurance uses hazard triggers, linking immediate post-disaster insurance payouts to specific hazard events. Unlike traditional insurance settlements that require an assessment of individual losses on the ground, parametric policies do not pay based on actual losses incurred. Instead, the payout disbursements are triggered by specific physical parameters for the disaster (e.g., wind speed and earthquake ground motion). The payouts provide a rapid, yet limited, injection of liquidity that can be a valuable boost to relief funds.

Traditional disaster insurance offers indemnity coverage. Receipt of funds may take longer than with parametric insurance, as a detailed damage assessment is required. However, as payouts are directly linked to the damage experienced, the payout will better match the needs of the insured party.

Public financial management in the Pacific is dictated by the fact that many PICs are classified as Small Island Developing States (SIDS). Typically, countries in this classification have a narrow revenue base, are net importers, and have a consequential reliance on aid as an income stream. These characteristics can limit the options available for post-disaster finance. It is unlikely that a SIDS government could afford to reallocate the capital

budget, and a tax increase could make many items unaffordable and hence be detrimental to citizens' quality of life. Given these constraints on the national budget, alternatives such as contingent credit and risk transfer options should be used to reduce the drain on limited public funds.

PIC governments face critical challenges for financial resilience to natural disasters. Most PICs have restricted options for securing immediate liquidity for swift post-disaster emergency response without compromising their long-term fiscal balance. In addition, PICs are constrained by their size, borrowing capacity, and limited access to international insurance markets. In the absence of easy access to debt and well-functioning insurance markets, a large portion of the economic losses stemming from adverse natural events is borne by governments and households, with support from development partners.

The Pacific has seen several recent cases that show the need for immediate liquidity post-disaster. In the Cook Islands, in the immediate aftermath of TC Pat in 2010, a delay in the receipt of travel funds meant that key government personnel could not immediately commence the initial damage assessment. Following TC Vania in 2010, Vanuatu had to reallocate a significant amount of the national budget. Similarly, Fiji and Samoa had to reallocate budgetary funds in the wake of TC Evan in 2012 and 2013; and the Santa Cruz earthquake in the Solomon Islands in February2013 drained the annual budget for the National Disaster Management Office and used the majority of the national contingency budget.

Lacking contingency reserves and access to short-term loan funds, PICs have limited post-disaster budget flexibility and rely heavily on post-disaster donor assistance. Studies by SPC (2011 and 2012) that look at the fiscal impact of past disasters in selected PICs demonstrate the financial constraints in post-disaster budget reallocation and build a case for establishing national reserves. While international assistance will always play a valuable role, overdependence on such assistance as a source of financing carries limitations; international aid can be uncertain, which inhibits contingency planning, and can be slow to materialize. Increasingly, PICs such as the Cook Islands are establishing national reserves for funding initial response.

The World Bank, SPC, and their partners, with grant funding from the government of Japan, have implemented the Pacific Disaster Risk Financing and Insurance Program to help the PICs increase their financial resilience to natural disasters and improve their financial response capacity in the aftermath of natural disasters. This program is part of the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI).

Annex 2

Glossary

Attachment point. The attachment point (deductible) amount is essentially the excess payable before any payout is made under a policy. That is, anything under this value will be borne by the policy holder.

Catastrophe swap. A catastrophe swap, also known as a cat swap, is a financial tool used to transfer some of the risk that the covered party faces from catastrophes to the international reinsurance or capital markets. In the case of the Pacific Catastrophe Risk Insurance Pilot, tropical cyclone and/or earthquake risk is passed to the financial markets.

Coverage limit. This indicates the maximum payout as defined under the policy.

Emergency losses. Emergency losses in the context of the Pacific Catastrophe Risk Insurance Pilot are calculated by using a percentage of the estimated ground-up losses.

Exhaustion point. The exhaustion point indicates the loss level at which the payout under a policy reaches its maximum point.

Ground-up losses. Ground-up losses in this context refer to estimated total damage to buildings, infrastructure, and cash crops.

Payout. A payout refers to the amount of cash that countries will receive following an eligible event.

Premium. The premium is the cost that an insured party will pay for a given level of coverage: the more that is included in the coverage provided, the higher the premium will be. Premiums are determined by the amount of coverage a country chooses, the event attachment point (deductible) and exhaustion point (limit) of that coverage, and the risk profile of the country.

Risk pool. A risk pool is a group of people, institutions, or countries that collaborate to manage risk financially as a single group.

Annex 3

Insurance Market Review, February 2014

Executive Summary

Non-life insurance premiums, all classes, are estimated in Samoa to be SAT 41 million (US$17 million). This figure includes premiums for business placed with offshore insurers, by locally licensed agents and brokers. The exact amount of premium for offshore placed insurance was not available, but it is estimated to be 15 percent of the market premium.

The non-life market in Samoa is composed of four local insurers. While this would normally be classified as a small market, insurance industry sources judge it to be very competitive. Non-life premium per capita is estimated at US$ 90.00, which is consistent with other developing Pacific Island Countries.

There is legislation in place that regulates the local insurance industry (the 2007 Insurance Act), and the Central Bank of Samoa (CBS) acts as the insurance regulator. The CBS collects information to ensure that solvency margins are met. It also monitors accumulations for all classes and requests information on reinsurance protection.

International insurance companies registered in Samoa are regulated by a separate body, the Samoa International Finance Authority (SIFA). SIFA is a member of the International Association of Insurance Supervisors and the Group of International Insurance Center Supervisors.

The Public Finance Management Act (2001), Section 54, requires the government to establish an insurance fund and to pay insurance premiums out of this fund. The premiums for the existing property insurance program are paid out of this fund.

The main catastrophe hazard in Samoa is tropical cyclone. Insurers will insure only those properties that meet the cyclone standard set out in the building code. Cyclone insurance is available as an extension to property policies only after the engineer's certification of compliance with the cyclone code has been received. The average premium rate for cyclone extension is 0.20 percent of the total insured value. Based on estimates of insured-to-total losses in prior major cyclone events, it is estimated that only 20 percent of businesses and 10 percent of residential premises have cyclone insurance. Earthquake as a peril is normally offered automatically on the full sum insured. The average premium rate for the earthquake peril is 0.10 percent of total insured value, although there is some variation among insurers. Tsunami is included as an earthquake peril.

The government has a property insurance program in place for major public buildings on an indemnity value basis. At present there is no insurance of key infrastructure assets, such as bridges or roads.

Public trading bodies make their own insurance arrangements, including property insurance for key assets. These property insurance programs insure earthquake, but the cyclone insurance extension is not always taken.

Table A.1— General Insurers Operating in Samoa 2012

COMPANY	COUNTRY OF INCORPORATION	STATUS	FINANCIAL SECURITY
National Pacific Insurance Limited	Samoa	Local company	Local solvency
Federal Pacific Insurance Company Limited	Samoa	Local company	Local solvency
Apia Insurance Company Limited.	Samoa	Local company	Local solvency
Progressive Insurance Co. Limited	Samoa	Local company	Local solvency

Source: Central Bank of Samoa; World Bank

Insurance Market Overview

Samoa has a small non-life (general) insurance market with four local insurers operating. These four insurers are detailed in table 1. Insurance industry sources indicated that National Pacific Insurance (NPI) and Federal Pacific are the most active in the property insurance class.

The non-life market has an estimated total premium income of SAT 41 million (US$17 million). This includes an estimate of premiums for risks placed with offshore insurers by licensed agents and brokers operating in the market, which insurance industry sources believe to be around 15 percent of the market premium.

Of the four companies, only NPI has a multinational affiliation; it is 71 percent owned by Tower Insurance Limited, a New Zealand–registered company. This affiliation gives NPI access to regional reinsurance programs and expertise, which in turn allows the Samoa insurance market to insure larger risks than would otherwise be possible.

Offshore market

Insurance industry sources suggest the main offshore insurers used for placement of risks in Samoa are Lloyds and the London market arranged by locally registered international brokers Aon and Marsh. There is no review of these placements by CBS and no collection of data on the amount of premium remitted to offshore insurers.

Distribution channels

All insurers in Samoa offer insurance products on a direct basis, but none of these insurers offer products online.

Samoa has three licensed international insurance brokers, Aon, Marsh, and Willis. None of these brokers have local offices; they visit Samoa from Fiji and New Zealand only as necessary to manage client accounts. There is one local insurance broker, Platinum Insurance Consultants Limited.

Both ANZ Bank and Westpac Bank have insurance agency licenses, allowing them to transact insurance business.

Table A.2— Pacific Non-life Insurance Premium per Capita 2012 (US$)

MARKET	GDP MILLIONS	POPULATION	GDP PER CAPITA	MARKET PREMIUM	PREMIUM PER CAPITA
Cook Islands	$305	19,300	$15,823	$6,600,000	$342
Fiji	$3,908	874,700	$4,467	$97,500,000	$111
Marshall Islands	$182	52,560	$3,470	$3,000,000	$57
Samoa	$683	188,900	$3,619	$17,000,000	$90
Solomon Islands	$1,008	549,600	$1,130	$13,000,000	$24
Tonga	$471	104,900	$4,495	$4,400,000	$42
Vanuatu	$781	247,300	$3,182	$16,500,000	$67

Source: World Bank 2014

Market penetration per capita

The general insurance penetration for Samoa, estimated on a premium per capita basis, was US$90.00 for 2012. This estimate is based on information obtained from the CBS and insurance industry sources, and includes the 15 percent of business estimated to be placed offshore. Table 2 compares Pacific Island Countries and shows that the insurance premium per capita in Samoa is close to the average of the Pacific countries sampled.

Catastrophe Risk Exposure and Capacity

Catastrophe risk insurance represents a particular challenge to insurers' exposure management, because unlike other types of insurance, it presents the possibility of large correlated losses. Insurers need to use a combination of reinsurance, reserves, and diversification within their portfolio to ensure that they can withstand large disaster shock losses without threatening their solvency.

The main catastrophe hazard in Samoa is tropical cyclone. Insurers are aware of the exposure and insure only those properties that meet the cyclone standard set out in the building code. In order to better underwrite the cyclone peril, local insurers require that buildings be inspected and certified by local structural engineers as complying with the cyclone code. Cyclone insurance is available as an extension to property policies only after the engineer's certification has been received; this certificate is then valid for seven years.

The average premium rate for cyclone extension is 0.20 percent of the total insured value, with deductibles ranging between 5.00 percent and 10.00 percent of loss, or 2 percent of the sum insured. Sea surge caused by cyclones is normally an excluded peril, even when the cyclone extension is given.

Earthquake as a peril is normally offered as an automatic peril on the full sum insured. The average premium rate for the earthquake peril is 0.10 percent of total insured value, although there is some variation among insurers. Deductible for earthquake varies between insurers, ranging between 5.00 percent and 10.00 percent of loss, or 2 percent of the sum insured, with a minimum of SAT 2,000. Tsunami is included as an earthquake peril.

A comparison of cyclone and earthquake rates across the Pacific is detailed in table 3. Samoa has below average rates for both perils, which insurance industry sources suggested was due to the high level of competition in the market.

There are a number of limitations with this comparison, such as variation in property insurance rating due to the location of premises, construction, occupation, fire protection, frequency of expected losses, and the amount and type of deductible on policies. It is not possible to use average rating data as an exact basis for a specific company or individual risk. It is possible, however, to carry out a general comparison of the property insurance rates in respective markets.

The main property risk accumulations are within the capital, Apia. Insurers report these accumulations to CBS as part of their quarterly and annual returns.

Major commercial properties are insured on a replacement basis under Industrial Special Risks (ISR) policies. One local insurer advised that it was offering property insurance on an indemnity value only, meaning that coverage would be based on the current value of the item as determined by age and condition, rather than on the replacement cost to rebuild. This approach suggests that there are some property capacity acceptance limitations in the market, which could be due to reinsurer limitations.

Another of the local insurers, NPI, appears to have adequate capacity for local large property accumulations, due to its regional reinsurance capacity. If needed, further additional capacity is available by way of offshore placements. Anecdotal market information suggests that most of these offshore placements are to the Lloyd's and London market and are arranged by the international insurance broker Aon.

Products

There are no special catastrophe insurance products available in Samoa, but the following property and engineering insurance products include catastrophe perils.

ISR policies are used for property insurance on most major commercial, government, and government public trading bodies accounts. The majority of ISR policies in Samoa are issued by NPI, using a wording based on the Papua New Guinea insurance industry policy. A major limitation of the ISR wording for governments is that infrastructure assets such as roads, bridges, and wharves are excluded by the policy. Insurers in Samoa do not include infrastructure items in the ISR schedule. Insurers reported that infrastructure items would need to be insured under a Completed Contract Works policy.

Commercial Package or Business Protection policies are used for small to medium enterprises and are offered as either a Multi-Risks policy (accidental damage including earthquake and cyclone by extension) or as a Specified Risks policy (fire and basic perils). These generally follow the perils insured under the ISR wording, but the coverage tends to be more restrictive.

Contract Works insurance is available for property under construction and may be extended to insure construction of infrastructure assets.

Completed civil works insurance for infrastructure assets is not a commonly available product in Samoa. Insurers indicated that they could, with the support of international reinsurers, provide terms under such a product for infrastructure assets.

Reinsurance

In 2011, the natural catastrophe insured losses suffered by the global reinsurance market were the second-largest ever, at over US$110 billion (Swiss Re 2012). What made this year significant for insurers (and reinsurers) in the Pacific was the number of events that occurred in the Asia Pacific region. These included earthquakes in New Zealand and Japan, floods in Australia and

Table A.3— Pacific Commercial Property Insurance Rate and Deductible Comparison

MARKET	AVERAGE EARTHQUAKE RATE	GENERAL EARTHQUAKE DEDUCTIBLE	AVERAGE CYCLONE RATE	GENERAL CYCLONE DEDUCTIBLE
Cook Islands	0.12%	2% of sum insured	0.45%	20% of sum insured
Fiji	0.08%	10% of sum insured	0.30%	20% of loss
Samoa	0.12%	2% of sum insured or 5% of loss	0.20%	2% of sum insured or 5% of loss
Solomon Islands	0.17%	1% or 5% of sum insured	0.13%	5% of loss
Tonga	0.15%	5% of sum insured	0.25%	5% of sum insured
Vanuatu	0.30%	5% of loss	0.17%	20% of loss

Source: World Bank 2013

Note: Average market rate percentage of value based on insurance industry sources.

Thailand, and a cyclone in Australia. The Global Insurance Market Report (IAIS 2012) advised that these Asia Pacific events accounted for 61 percent of the insured losses from natural catastrophes in 2011, compared to a 30-year average of 18 percent. As a consequence, IAIS said, adjustments were made in reinsurance capacity and risk premiums were increased. In 2012, the natural disaster losses dropped to US$77 million (Swiss Re 2013), but this was still the third-highest year for natural catastrophe insured losses since 1970. In December 2012, Evan caused estimated insured losses of SAT 28.3 million in Samoa and insured losses of FJ$57 million in Fiji (Reserve Bank of Fiji 2012).

NPI (Samoa) indicated that its operation is included in the group reinsurance program arranged by Tower Insurance Limited for all Pacific subsidiaries, including the NPI companies. In its 2011 annual report, Tower Insurance Limited specifically advised that its event excess (net retention) had increased to $NZ 6.7 million and that it had protection for two catastrophe events within the program for the 2011–2012 period (Tower Limited/Tower Capital Limited 2011). Although the reinsurance program is not detailed in the 2012 report, it would be expected to follow the previous arrangements.

Insurers throughout the Pacific have expressed concern at the significant increase in recent years in reinsurance premiums, especially premiums for catastrophe reinsurance. Insurers have limited ability to pass the full costs of these increases onto insured clients due to the small size and economic constraints in those markets. In Samoa, insurers complained about the lack of reinsurance capacity for catastrophe accumulations.

Access to catastrophe insurance

Public access to catastrophe insurance is limited in Samoa, particularly for the cyclone peril. The price of cyclone cover (currently 0.20 percent of insured value) and the requirement to obtain an engineer's certificate confirming compliance with cyclone standards are factors that may be putting off consumers. It is likely that only 20 percent of businesses and 10 percent of residential premises have cyclone insurance, based on the ratio of insured losses to total losses found in two prior cyclone events, Ofa and Val.

Box 1— Past Catastrophe Events

Cyclone

In December 2012, Cyclone Evan caused significant damage in Samoa. The total damage to all sectors caused by Evan has been estimated at SAT 235.7 million (US$103.3 million) (GoS 2013). Total insurance claims associated with Evan have been estimated at SAT 28.3 million. CBS advised that they do not collect claims numbers and gross claims from local insurers for any catastrophe events.

According to local engineers, following Cyclone Evan it was determined that some comparatively new government buildings, constructed with aid funding, did not comply with the building code for cyclone and suffered structural failures.

Cyclone Ofa in 1990 is estimated to have caused damage and economic loss of SAT$300 million (US$120 million) (South Pacific Disaster Reduction Programme 1997), with local insurer losses of over SAT$15 million (National Business Review 1992).

Cyclone Val in 1991 was the most significant catastrophe event ever to impact Samoa. The total economic cost of the cyclone was estimated at SAT$713 million (US$287) (South Pacific Disaster Reduction Programme 1997), with damage to private businesses and residential properties estimated at SAT$330 million (US$132 million) and damage to government buildings at SAT$16 million (US$6.4 million). Insurance company gross losses from this cyclone were SAT$33 million (National Business Review 1992), and offshore insurer losses were estimated at a further SAT$20 million. Insured losses from this event were just over 15 percent of the total building damage.

Earthquake and tsunami

On the September 30, 2009, a magnitude 8.1 earthquake occurred to the south of Samoa, in the neighboring country of Tonga. The tsunami from this earthquake caused major property damage on the south coast of Samoa and in American Samoa. The total damage in Samoa from the event was estimated at SAT 211.96 million (GoS 2009). Insurance industry sources suggest that in Samoa approximately 150 claims were lodged, with gross insured losses estimated at SAT 10 million. These sources advised that the majority of these claims were in the tourism and transportation sectors.

Catastrophe event insurance impact

Following Cyclones Ofa and Val in 1990 and 1991, NPI reportedly imposed the strict condition of cyclone engineering compliance and increased cyclone rates from 0.16 percent to 0.50 percent (National Business Review 1992). NPI advised that it had considerable difficulty in obtaining catastrophe reinsurance in the years following these significant losses. It was estimated that prior to these two cyclones, only 20 percent of buildings in Samoa were constructed to basic cyclone standards. After Cyclone Val, one American insurer, Travellers Insurance Company, withdrew from the neighboring American Samoa insurance market.

The tsunami in 2009 and Cyclone Evan have had a limited impact on local insurers, but they are likely to further restrict reinsurance capacity and increase costs for property catastrophe reinsurance, which in turn will lead to an increase in property insurance rates in Samoa over the next few years.

Insurance Law and Regulation

Samoa's current insurance legislation is the Insurance Act (2007), with the Central Bank of Samoa (CBS) as regulator. CBS accepted that no local on-site reviews of licensed insurers, agents, or brokers had been completed since 2007, when it assumed the regulation of local insurers. Staff from CBS had participated in an on-site review in Fiji in order to gain experience in undertaking reviews, but considered they required additional expertise for the actual reviews in Samoa. CBS also advised that its focus in recent years has been on banks rather than insurance.

Local general insurers are required to maintain a minimum solvency ratio of no less than SAT 1 million, or 20 percent of net premium, or 15 percent of the outstanding claims provision in the last 12 months. CBS requires local insurers to complete quarterly and annual returns. With no on-site reviews carried out by CBS, the adequacy of insurer capital, solvency, and reinsurance programs has not been tested. Testing would ensure that local insurers had adequate financial resources to provide for their clients in event of a major catastrophe in Samoa.

Box 2— Electric Power Corporation

Electric Power Corporation (EPC) is responsible for the provision of electrical supply within Samoa. Management of EPC reported that though EPC has no formal risk management plan in place, it has undertaken a self-assessment of risks at each location. Earthquake, tsunami, and cyclone are included in the property insurance program; however, the assets are insured for indemnity value only. The EPC assets were last valued 10 years ago, but EPC has started an asset revaluation process to determine both fair market value and insurance replacement value, a process that it expects to complete in 2014. Transmission and distribution lines were not insured under the program, and EPC is aware of this gap in coverage. In the future some transmission lines may be put underground to reduce their exposure to cyclone damage.

Following Cyclone Evan in December 2012, EPC suffered significant damage to property assets. An insurance claim was lodged, but the amount offered in settlement was significantly lower than the amount claimed, due to deductions for excess and indemnity value adjustments. This claim was in dispute, and EPC engaged a public adjuster to review its claim and assist with the settlement negotiations.

A public tender process was used each year for the insurance program renewal due to the amount of premium involved—over SAT $800,000. The total property sum insured now at risk is over SAT $100 million.

Samoa is listed as a member of the International Association of Insurance Supervisors (IAIS), but the Samoa International Finance Authority (SIFA) is listed as the member organization. SIFA is responsible for regulating international insurers and captives under the International Insurance Act (1988), not for regulating local insurance companies. SIFA is also a member of the Group of International Insurance Center Supervisors (GIICS).

There may be a duplication of resources within Samoa with regard to supervision of insurers, since international insurers and local insurers are regulated by different agencies. It may be worthwhile for CBS to cooperate with SIFA on insurance supervision matters, particularly because SIFA is a member of both IAIS and GIICS and therefore able to access the expertise of both bodies.

Building Control and Standards

According to local engineers, there is a draft building code, developed in 1992, that is used in designing structures; but no specific building legislation is in place to enforce the code. There are two acts that provide a general review process for building consents, the Building Alignment Ordnance (1932) and the Planning and Urban Management Act (2004). The engineers noted that discussions were underway to review and if necessary update the old draft building code.

Insurers have taken proactive steps to ensure cyclone building standard compliance by requiring engineering certificates for insured properties, rather than relying on government enforcement of the building code.

Insurance of Public Assets

Existing risk financing policy

The government of Samoa has allowed for insurance of public assets under Section 54 of the Public Finance Management Act (2001). This section establishes an insurance fund, which may include payment of premiums to insure against damage to public property caused by fire, earthquake, or other perils.

While not a comprehensive risk financing policy, this section does provide flexibility to the government either to self-retain some risks

Box 3— Concession Assets

The government of Samoa owns the fuel facility assets that are operated under a concession agreement. Under that agreement, the property insurance of those assets is arranged by the government. Every three years the government tenders the property insurance on a three-year, but annually renewable, contract basis. The last tender was in July 2012, and a local insurer was successful in that tender. The policy is required to insure, at a minimum, the perils of fire, cyclone, earthquake, tsunami, and flood. The estimated market value of those assets is SAT $40 million, with a further SAT $15.75 million in new assets to be added over the tender period. It is the standard practice within the insurance industry to offer a long-term-agreement discount of between 2.5 percent and 5 percent for insurance periods of three years.

The government may wish to consider asking the concession holder to provide quotes for insuring those government property assets at the end of the current insurance tender period. If the concession holder has other property insurance in place around the Pacific for similar fuel facilities, it may be able to obtain more favorable property insurance rates. At a minimum the government should require the assets to be insured under an Industrial Special Risks (material damage) policy for replacement value.

within the insurance fund or to insure those risks with private insurers. This fund is used by the government to insure public assets, as detailed below.

Insurance of government assets

There is a comprehensive property insurance program in place to insure key government property assets against material damage, including damage caused by the catastrophe perils of earthquake and cyclone. Multiple policies are arranged by the Ministry of Finance (MOF) for assets of ministries and departments. There is no agreed upon wording, and assets are variously insured under wordings for ISR, Business Assets Protection, and Fire, although the ISR wording is the most common. It would be preferable for the government to agree with insurers on a standard ISR wording for all government property insurances.

The MoF was able to provide copies of schedules for the property insurance program with details of coverage. The properties are insured for indemnity value only and contain small sub-limits for burglary, money, self-ignition (fusion of wiring), and plate glass. These small sub-limits for minor perils are expensive from a premium point of view. In most cases the small value of claims for these perils could be handled as retained losses within government.

The insured buildings are currently insured on an indemnity value basis only. Indemnity value is based on the cost to rebuild, less a deduction for age and wear and tear. In event of a major claim, there may be a significant shortfall between the indemnity value and the actual cost to repair or reinstate the property, particularly for older buildings. It would be more appropriate to insure the properties for replacement value and take a higher retained excess on all insured perils within the insurance program.

Insurance of public trading body assets

According to the MoF, public trading bodies make their own insurance arrangements, including property insurance for key assets. The MoF offered the Electric Power Corporation (EPC) as an example of a public trading body that had insurance for key public assets (see box 2), and indicated that there were concession assets (see box 3) for the fuel facility insured by MoF.

Options for Consideration

Recommendation 1: The existing insurance fund provided for under the Public Finance Management Act should be incorporated into a wider disaster risk financing and insurance (DRFI) strategy. The DFRI strategy should identify key public assets and provide agreed-upon retention limits for individual departments and public trading bodies. It should review existing and new risk financing and transfer options, such as captive insurance, regional risk pooling, and both parametric and indemnity insurance, to ensure that the best coverage at the lowest possible cost is being obtained.

Recommendation 2: Develop a central insurance register as part of the DFRI strategy and update the register as insurance contracts fall due. Currently, no central register of insurance held by government in respect of property insurance is in place for government and public trading bodies. The register should contain details on the class of business, reason for placement, and gross premium remitted.

Recommendation 3: The Central Bank of Samoa should cooperate with the SIFA to access information from the IAIS. This would allow the CBS to access international best practice information on insurance company regulation and supervision, which could provide further guidance and help to build its capacity as a regulator.

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Agent	Someone who acts for the insurance company in arranging insurance contracts. There are two main types of agents: tied agents, who act for one insurer only, and general agents, who act for multiple insurance companies.
Broker	Someone who acts as an agent for the insured in arranging an insurance or reinsurance program with a provider of capacity.
Capacity	The ability of an insurance company to provide insurance protection to clients, which is limited by its own financial strength and the reinsurance protection it has in place.
Captive insurer	An insurance company wholly owned by a company or entity that insures the risks of the parent entity and subsidiaries.
Indemnity insurance	Insurance that reimburses individuals or entities for loss or damage to a financial position as close as possible to the position they were in prior to the event, in the context of the financial terms of the coverage (such as deductible/excess and limit).
Intermediaries	The general term given to insurance agents and brokers.
Net retention	The amount that an insurance company retains on a reinsurance contract and in particular an excess of loss of contract.
Parametric insurance	A type of insurance that is triggered by the occurrence of a specific measured hazard event, such as a certain magnitude of earthquake or category of cyclone.
Probable maximum loss (PML)	The maximum value of a claim from a large or catastrophe event. May also be called MPL.
Property insurance	The insurance of physical assets such as buildings, plant and equipment, stock, and machinery. The products used for this insurance are variously named as fire and perils, commercial or business package, industrial special risks, or material damage insurance.
Reinsurance	A risk transfer method used by insurance companies to transfer part of a single large risk or an accumulation of similar risks and so increase their capacity. Reinsurance helps to smooth the extreme results and effects of specific perils (such as catastrophe events) and therefore to reduce the volatility of an insurance portfolio.
Solvency margin	The extent by which an insurer's assets exceed its liabilities. Minimum statutory solvency requirements are normally included in insurance acts or regulations.

Annex 4

Country Risk Profile

PACIFIC CATASTROPHE RISK ASSESSMENT AND FINANCING INITIATIVE

SEPTEMBER 2011

COUNTRY RISK PROFILE: SAMOA

Samoa is expected to incur, on average, 10 million USD per year in losses due to earthquakes and tropical cyclones. In the next 50 years, Samoa has a 50% chance of experiencing a loss exceeding 130 million USD and casualties larger than 325 people, and a 10% chance of experiencing a loss exceeding 350 million USD and casualties larger than 560 people.

POPULATION, BUILDINGS, INFRASTRUCTURE AND CROPS EXPOSED TO NATURAL PERILS

An extensive study has been conducted to assemble a comprehensive inventory of population and properties at risk. Properties include residential, commercial, public and industrial buildings; infrastructure assets such as major ports, airports, power plants, bridges, and roads; and major crops, such as coconut, banana, taro, sugarcane, papaya and many others.

TABLE 1:
Summary of Exposure in Samoa (2010)

General Information:	
Total Population:	183,000
GDP Per Capita (USD):	3,090
Total GDP (million USD):	565.2
Asset Counts:	
Residential Buildings:	41,960
Public Buildings:	1,720
Commercial, Industrial, and Other Buildings:	5,151
All Buildings:	48,831
Hectares of Major Crops:	35,553
Cost of Replacing Assets (million USD):	
Buildings:	2,148
Infrastructure:	465
Crops:	25
Total:	2,638
Government Revenue and Expenditure:	
Total Government Revenue	
(Million USD):	170.8
(% GDP):	30.2%
Total Government Expenditure	
(Million USD):	224.4
(% GDP):	39.7%

[1] Data assembled from various references including WB, ADB, IMF and The Secretariat of the Pacific Community (SPC).
[2] The projected 2010 population was trended from the 2006 census using estimated growth rates provided by SPC.

Table 1 summarizes population and the inventory of buildings, infrastructure assets, and major crops (or "exposure") at risk as well as key economic values for Samoa. It is estimated that the ***replacement value of all the assets in Samoa is 2.6 billion USD*** of which about 81% represents buildings and 18% represents infrastructure.

Figures 1 and 2 illustrate the building exposure location and replacement cost distribution, respectively. The footprints of all the approximately 49,000 buildings shown in Figure 1 were digitized from high-resolution satellite imagery. More than

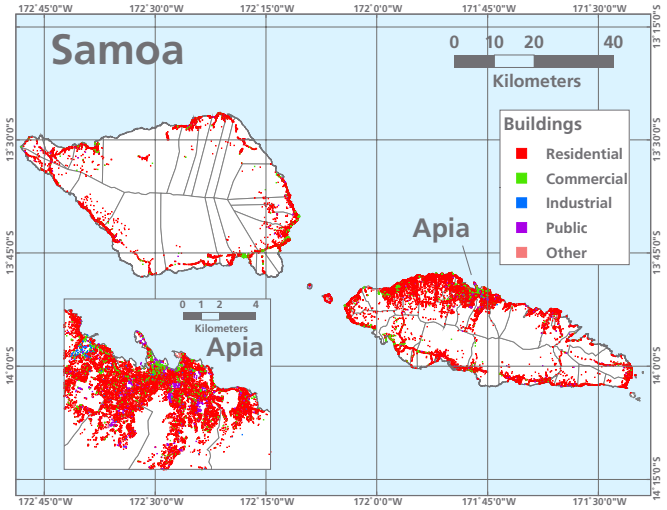


Figure 1: Building locations.

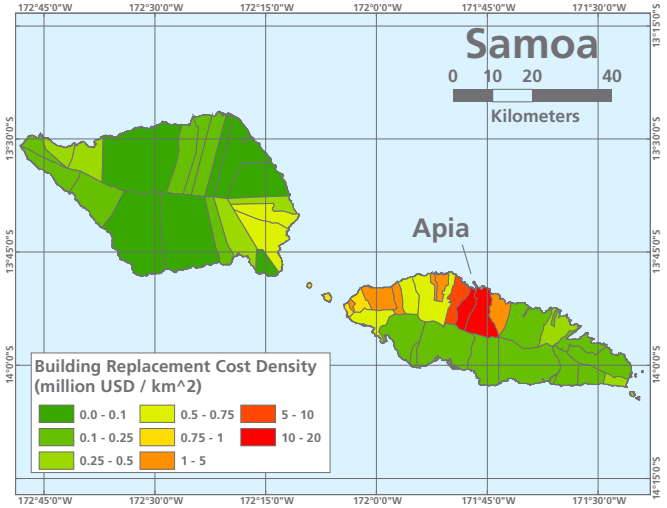


Figure 2: Building replacement cost density by district.

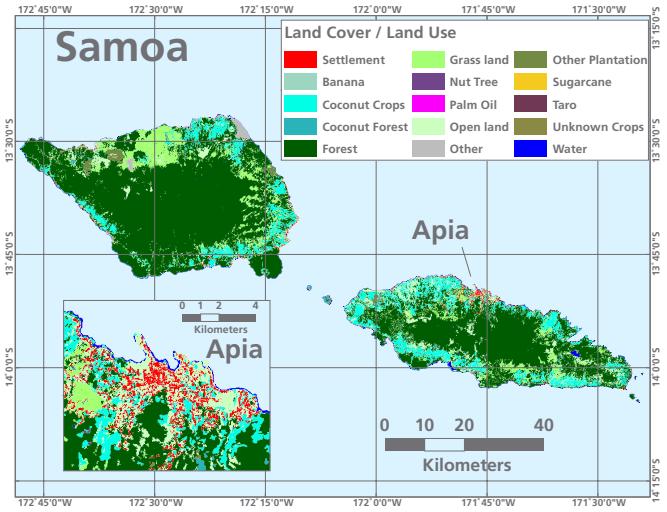


Figure 3: Land cover/land use map.

6,500 of such buildings, most of them in Apia, were also field surveyed and photographed by a team of inspectors deployed for this purpose. Figure 3 displays the land cover/land use map that includes the location of major crops. The data utilized for these exhibits was assembled, organized and, when unavailable, produced in this study.

TROPICAL CYCLONE AND EARTHQUAKE HAZARDS IN SAMOA

The Pacific islands region is prone to natural hazards. Samoa is located south of the equator in an area known for the frequent occurrence of tropical cyclones with damaging winds, rains and storm surge between the months of October and May. In the South Pacific region from the equator to New Zealand in latitude and from Indonesia to east of Hawaii in longitude almost 1,000 tropical cyclones with hurricane-force winds spawned in the last 60 years, with an average of about 16 tropical storms per year. Samoa was affected by devastating cyclones multiple times in the last few decades. For example, tropical cyclones Ofa and Val, in 1990 and 1991, caused 21 fatalities and widespread destruction with total economic losses between 300 and 500 million USD that crippled the local economy. Figure 4 shows the levels of wind speed due to tropical cyclones that have about a 40% chance to be exceeded at least once in the next 50 years (100-year mean return period). These wind speeds, if they were to occur, are capable of generating severe damage to buildings, infrastructure and crops with consequent large economic losses.

Samoa is situated in a relatively quiet seismic area but is surrounded by the Pacific "ring of fire," which aligns with the boundaries of the tectonic plates. These boundaries are extremely active seismic zones capable of generating large

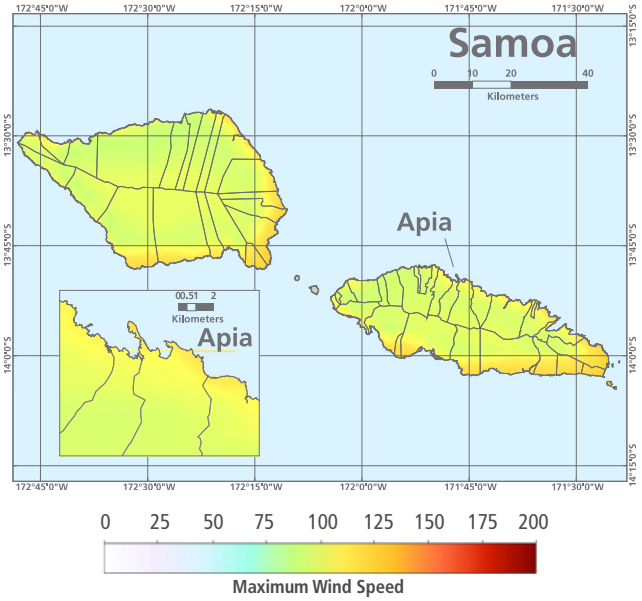
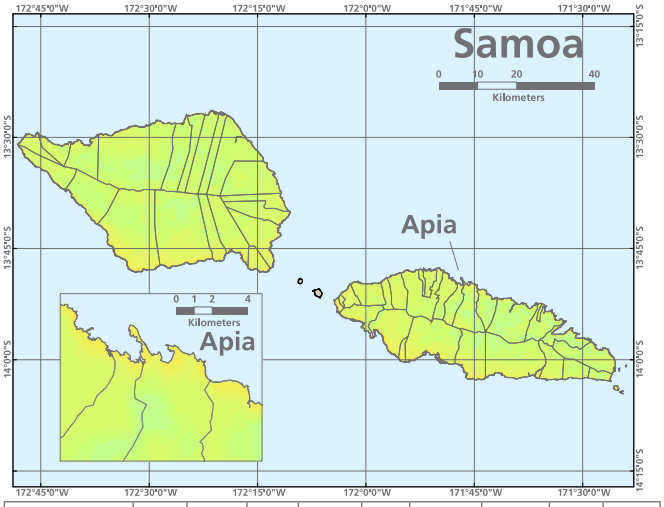


Figure 4: Maximum 1-minute sustained wind speed (in miles per hour) with a 40% chance to be exceeded at least once in the next 50 years.

earthquakes and, in some cases, major tsunamis that can travel great distances. The 2009 magnitude 8.1 earthquake, which generated a devastating tsunami destroying many villages on the island of Upolu, is a recent and tragic example. Figure 5 shows that Samoa has a 40% chance in the next 50 years of experiencing, at least once, moderate to very strong levels of ground shaking. These levels of shaking are expected to cause damage, ranging from light to moderate, to well-engineered buildings and even more severe damage to structures built with less stringent criteria.



Perceived Shaking	Not Felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
Potential Damage	none	none	none	Very light	light	Moderate	Moderate/ Heavy	Heavy	Very Heavy
Peak ACC. (%g)	<0.17	0.17-1.4	1.4-4.0	4.0-9	9-17	17-32	32-61	61-114	>114
Peak Vel. (cm/s)	<0.12	0.12-1.1	1.1-3.4	3.4-8	8-16	16-31	31-59	59-115	>115
Instrumental Intensity	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Wald. et al: 1999

Figure 5: Peak horizontal acceleration of the ground (Note: 1g is equal to the acceleration of gravity) that has about a 40% chance to be exceeded at least once in the next 50 years.

RISK ANALYSIS RESULTS

To estimate the risk profile for Samoa posed by tropical cyclones and earthquakes, a simulation model of potential storms and earthquakes that may affect the country in the future was constructed. This model, based on historical data, simulates more than 400,000 tropical cyclones and about 7.6 million earthquakes, grouped in 10,000 potential realizations of the next year's activity in the entire Pacific Basin. The catalog of simulated earthquakes also includes large magnitude events in South and North America, Japan and the Philippines, which could generate tsunamis that may affect Samoa's shores.

The country's earthquake and tropical cyclone risk profiles are derived from an estimation of the direct losses to buildings infrastructure assets and major crops caused by all the simulated potential future events. The direct losses comprise the cost of repairing or replacing the damaged assets but do

not include other losses such as contents losses, business interruption losses and losses to primary industries other than agriculture. The direct losses for tropical cyclones are caused by wind and flooding due to rain and storm surge, while losses for earthquakes are caused by ground shaking and tsunami inundation. After assessing the cost of repairing or rebuilding the damaged assets due to the impact of all the simulated potential future events, it is possible to estimate in a probabilistic sense the severity of losses for future catastrophes.

The simulations of possible next-year tropical cyclone and earthquake activity show that some years will see no storms or earthquakes affecting Samoa, while other years may see one or more events affecting the islands, similar to what has happened historically. The annual losses averaged over the many realizations of next-year activity are shown in Figure 6 separately for tropical cyclone and for earthquake and tsunami, while the contributions to the average annual loss from the different districts are displayed in absolute terms in Figure 7 and normalized by the total asset values in each district in Figure 8. Figure 8 shows how the relative risk varies by district across the country.

The same risk assessment carried out for Samoa was also performed for the 14 other Pacific Island Countries. The values of the average annual loss of Samoa and of the other 14 countries are compared in Figure 9.

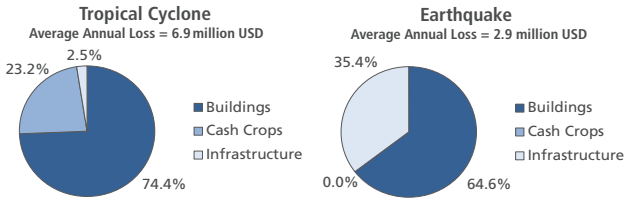


Figure 6: Average annual loss due to tropical cyclones and earthquakes (ground shaking and tsunami) and its contribution from the three types of assets.

In addition to estimating average risk per calendar year, another way of assessing risk is to examine large and rather infrequent but possible future tropical cyclone and earthquake losses. Table 2 summarizes the risk profile for Samoa in terms of both direct losses and emergency losses. The former are the expenditures needed to repair or replace the damaged assets while the latter are the expenditures that the Samoan government may need to incur in the aftermath of a natural catastrophe to provide necessary relief and conduct activities such as debris removal, setting up shelters for homeless or supplying medicine and food. The emergency losses are estimated as a percentage of the direct losses.

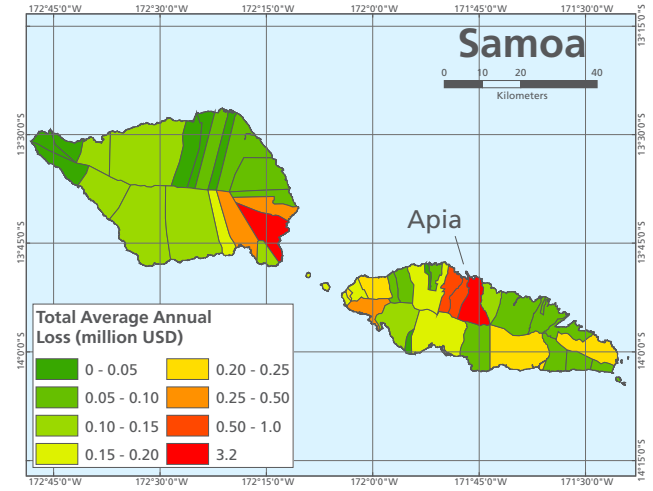


Figure 7: Contribution from the different districts to the average annual loss for tropical cyclone and earthquake (ground shaking and tsunami).

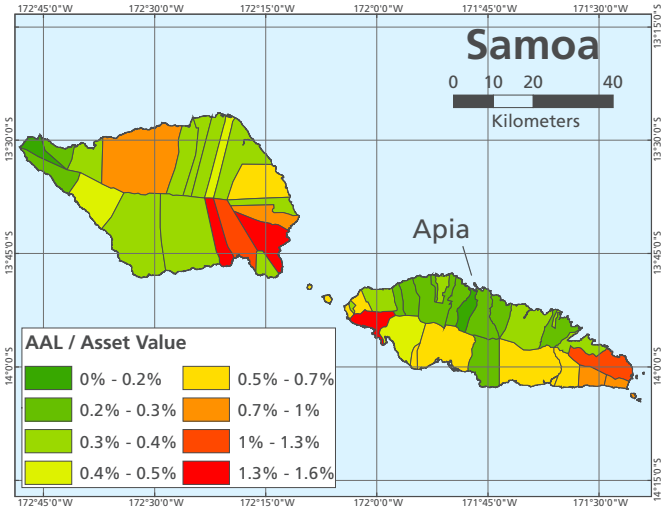


Figure 8: Contribution from the different districts to the tropical cyclone and earthquake (ground shaking and tsunami) average annual loss divided by the replacement cost of the assets in each district.

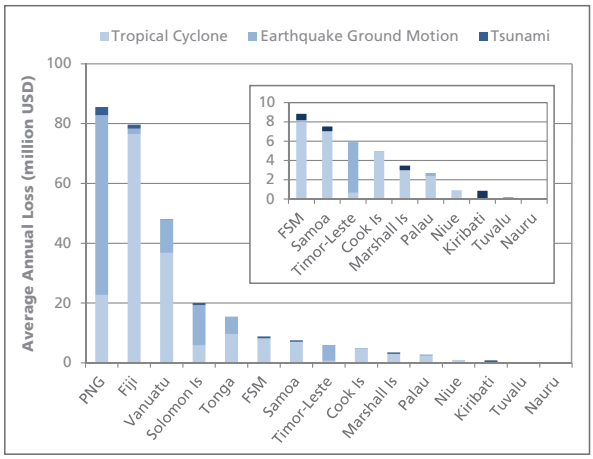


Figure 9: Average annual loss for all the 15 Pacific Island Countries considered in this study.

Table 2 includes the losses that are expected to be exceeded, on average, once every 50, 100, and 250 years. For example, ***a tropical cyclone loss exceeding 134 million USD, which is equivalent to about 24% of Samoa's GDP, is to be expected on average once every 100 years***. In Samoa, tropical cyclone losses are expected to be substantially more frequent and severe than losses due to earthquake ground shaking and tsunami. The latter, however, remain potentially catastrophic events.

A more complete picture of the risk can be found in Figure 10, which shows the mean return period of direct losses in million USD generated by earthquake, tsunami and tropical cyclones combined. The 50, 100, and 250 year mean return period losses in Table 2 can also be determined from the curves in this figure. The direct losses are expressed both in absolute terms and as a percent of the national GDP.

In addition to causing damage and losses to the built environment and crops, future earthquakes and tropical cyclones will also have an impact on population. The same probabilistic procedure described above for losses has been adopted to estimate the likelihood that different levels of casualties (i.e., fatalities and injuries) may result from the future occurrence of these events. As shown in Table 2, our model estimates, for example, that there is a ***40% chance in the next fifty years (100 year mean return period) that one or more events in a calendar year will cause casualties exceeding 370 people in Samoa.*** Events causing approximately 1,000 casualties are also possible but have much lower likelihood of occurring.

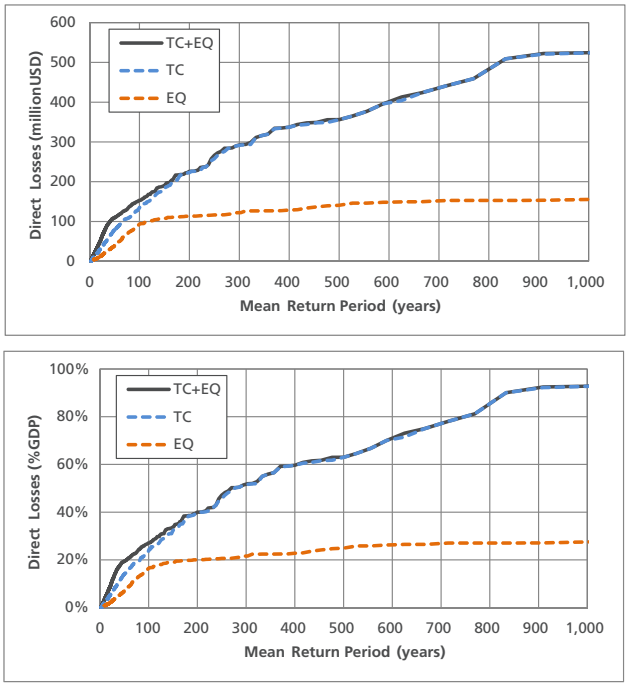


Figure 10: Direct losses (in absolute terms and normalized by GDP) caused by either tropical storms or earthquakes that are expected to be exceeded, on average, once in the time period indicated.

TABLE 2: Estimated Losses and Casualties Caused by Natural Perils				
Mean Return Period (years)	AAL	50	100	250
Risk Profile: Tropical Cyclone				
Direct Losses				
(Million USD)	6.9	78.6	134.1	257.8
(% GDP)	1.2%	13.9%	23.7%	45.6%
Emergency Losses				
(Million USD)	1.6	18.1	30.9	59.2
(% of total government expenditures)	0.7%	8.1%	13.7%	26.4%
Casualties	11	131	212	383
Risk Profile: Earthquake and Tsunami				
Direct Losses				
(Million USD)	2.9	39.1	93.1	116.3
(% GDP)	0.5%	6.9%	16.5%	20.6%
Emergency Losses				
(Million USD)	0.0	8.9	21.4	26.6
(% of total government expenditures)	0.0%	3.9%	9.5%	11.9%
Casualties	8	145	302	410
Risk Profile: Tropical Cyclone, Earthquake, and Tsunami				
Direct Losses				
(Million USD)	9.9	109.8	152.9	266.1
(% GDP)	1.7%	19.4%	27.0%	47.1%
Emergency Losses				
(Million USD)	2.3	25.2	35.1	61.2
(% of total government expenditures)	1.0%	11.2%	15.7%	27.3%
Casualties	19	254	374	469

[1]Casualties include fatalities and injuries.

PCRAFI 2015

Country Note

SAMOA

This note on Samoa forms part of a series of country Disaster Risk Finance and Insurance (DRFI) notes that were developed to build understanding of the existing DRFI tools in use in each country and to identify gaps future engagements in DRFI that could further improve financial resilience. These notes were developed as part of the technical assistance provided to countries under the Pacific DRFI program jointly implemented by the World Bank and the Secretariat of the Pacific Community financed by the Government of Japan. The technical assistance builds on the underlying principles of the three-tiered disaster risk financing strategy and focuses on three core aspects: (i) the development of a public financial management strategy for natural disasters, recognizing the need for ex-ante and ex-post financial tools; (ii) the post-disaster budget execution process, to ensure that funds can be accessed and disbursed easily post-disaster; and (iii) the insurance of key public assets, to resource the much larger funding requirements of recovery and reconstruction needs. The Pacific DRFI Program is one of the many applications of PCRAFI. It is designed to increase the financial resilience of PICs by improving their capacity to meet post-disaster financing needs without compromising their fiscal balance.

Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) is a joint initiative of SOPAC/SPC, World Bank, and the Asian Development Bank with the financial support of the Government of Japan, the Global Facility for Disaster Reduction and Recovery (GFDRR) and the ACP-EU Natural Disaster Risk Reduction Programme, and technical support from AIR Worldwide, New Zealand GNS Science, Geoscience Australia, Pacific Disaster Center (PDC), OpenGeo and GFDRR Lab