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Report No:

PROJECT APPRAISAL DOCUMENT

ON

PROPOSED IDA, PPCR AND SCCF GRANTS AND CREDITS

IN AN AMOUNT OF SDR X MILLION (US$13.8 MILLION EQUIVALENT IDA) TO SAMOA;

IN AN AMOUNT OF SDR X MILLION (US$10.5 MILLION EQUIVALENT IDA, US$4.579 MILLION EQUIVALENT SCCF AND US$1.5 MILLION EQUIVALENT GFDRR/JAPAN) TO THE KINGDOM OF TONGA;

IN AN AMOUNT OF SDR X MILLION (US$1.5 MILLION EQUIVALENT IDA) TO THE REPUBLIC OF MARSHALL ISLANDS;

IN AN AMOUNT OF SDR X MILLION (US$1.5 MILLION EQUIVALENT IDA) TO THE REPUBLIC OF VANUATU

IN AN AMOUNT OF SDR X MILLION (US$ 3.7 MILLION EQUIVALENT REGIONAL IDA AND US$5.794 MILLION EQUIVALENT PPCR) TO THE SECRETARY OF THE PACIFIC COMMUNITY

IN AN AMOUNT OF SDR X MILLION (US$ 1.3 MILLION EQUIVALENT REGIONAL IDA AND US$0.9 MILLION EQUIVALENT SCCF) TO THE PACIFIC ISLANDS FORUM SECRETARIAT; RESPECTIVELY
AND

IN SUPPORT OF FIVE PROJECTS UNDER A SERIES OF OPERATIONS

PACIFIC RESILIENCE PROGRAM **(PREP)**
(P147839)
IN AN AMOUNT OF SDR X MILLION (US$45 MILLION EQUIVALENT)

March 30, 2015

CURRENCY EQUIVALENTS

Currency Unit = SDR
x SDR = US$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
CAS	Country Assistance Strategy
CERC	Contingency Emergency Response Component
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CRICU	Climate Resilience Investment and Coordination Unit
DMO	Disaster Management Office in Samoa
DRM	Disaster Risk Management
EEZ	Exclusive Economic Zone
ESMF	Environmental and social management framework
EWS	Early Warning System
FM	Financial Management
FSM	Federated States of Micronesia
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNI	Gross National Income
GoS	Government of Samoa
GoT	Government of Tonga
GoV	Government of Vanuatu
IA	Implementing Agency
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFR	Interim Financial Report
LDCF	Least Developed Countries Fund
M&E	Monitoring and Evaluation
MFEM	Ministry of Finance and Economic Management in Vanuatu
MFNP	Ministry of Finance and National Planning in Tonga
MEIDECC	Ministry of Meteorology, Information, Energy, Disaster Management, Climate Change and Communications in Tonga
MHEWS	Multi-Hazard Early Warning System
MNRE	Ministry of Natural Resources and Environment in Samoa
MoF	Ministry of Finance, Samoa
MWTI	Ministry of Works, Transport and Infrastructure in Samoa
NDMO	National Disaster Management Office in Vanuatu

NDMOs	National Disaster Management Offices
NEMO	National Emergency Management Office in Tonga
NEOC	National Emergency Operations Centre in Samoa
NGO	Non-Government Organization
NMHSs	National Meteorological and Hydrological Services
NRD	National Resources Department in Tonga
O&M	Operations and Maintenance
ORAF	Operational Risk Assessment Framework
PacRIS	Pacific Risk Information System
PAD	Project Appraisal Document
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PDO	Project Development Objective
PIC	Pacific Island Countries
PIFS	Pacific Islands Forum Secretariat
POM	Project Operations Manual
PPCR	Pilot Program for Climate Resilience
PPN	Policy and Practice Note
PREP	Pacific Resilience Program
PRP	Pacific Resilience Partnership
PSU	Program Support Unit
QER	Quality Enhancement Review
RMI	Republic of Marshall Islands
RCU	Regional Coordination Unit
RPEC	Regional Procurement Evaluation Committee
RTEC	Regional Technical Committee
SCCF	Special Climate Change Fund
SISRI	Small Island States Resilience Initiative
SMD	Samoa Meteorological Division
SOPs	Standard Operating Procedures
SORT	Systematic Operations Risk-Rating Tool
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of Pacific Regional Environmental Program
SRDP	Strategy for Climate and Disaster Resilient Development in the Pacific
TA	Technical Assistance
TAF/OFDA	USAID Office of US Foreign Disaster Assistance
TC	Tropical Cyclone
TCE	Tropical Cyclone Evan
TCI	Tropical Cyclone Ian
TEC	Technical Committee
TMD	Tonga Meteorological Department
VMDG	Vanuatu Meteorology and Geohazards Department
WIS	World Meteorology Organization Information System
WMO	World Meteorological Organization
WRD	Water Resources Division in Samoa

Vice President:	Axel van Trotsenburg
Country Director:	Franz Drees-Gross
Senior Global Practice Director:	Ede Ijjasz-Vasquez/Paula Caballero
Practice Manager:	Abhas Jha/Iain Shuker
Task Team Leader:	Denis Jordy
Co-Task Team Leader:	Michael Bonte-Grapentin

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PAD DATA SHEET

Pacific Islands

Pacific Resilience Program (P147839)

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

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Report No.: PAD1095

Basic Information			
Project ID P147839	EA Category B - Partial Assessment		Team Leader(s) Denis Jean-Jacques Jordy, Michael Bonte-Grapentin
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [X]		
Project Implementation Start Date 30-Oct-2015	Project Implementation End Date 30-June 2020		
Expected Effectiveness Date 30-Oct-2015	Expected Closing Date 31-Dec-2020		
Joint IFC No			
Practice Manager/Manager Abhas Kumar Jha	Senior Global Practice Director Ede Jorge Ijjasz-Vasquez	Country Director Franz R. Drees-Gross	Regional Vice President Axel van Trotsenburg

Borrower:
- Independent State of Samoa
- Kingdom of Tonga
- Republic of Marshall Islands
- Republic of the Vanuatu
- Secretariat of the Pacific Community (SPC)
- Pacific Islands Forum Secretariat (PIFS)

Responsible Agency:
- Ministry of Finance (Samoa)
- Ministries of Finance and National Planning (Tonga)
- Ministry of Finance and Economic Management (Vanuatu)
- Ministry of Finance (RMI)
- Secretariat of the Pacific Community (SPC)

- Pacific Islands Forum Secretariat (PIFS)	
Contact:	Title:
Telephone No.:	Email:

Project Financing Data(in USD Million)					
[ ]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[X]	Credit	[X]	Grant	[ ]	Other

Total Project Cost:	45.065	Total Bank Financing:	32.293
Financing Gap:	0.00		

Financing Source	Amount
BORROWER/RECIPIENT	0.00
International Development Association (IDA)	32.293
Special Climate Change Fund (SCCF)	5.479
Pilot Program in Climate Resilience (PPCR)	5.794
Global Facility for Disaster Reduction and Recover (GFDRR/Japan)	1.500
Total	45.065

Expected Disbursements for IDA, SCCF, PPCR, JICA (in USD Million)						
Fiscal Year	2016	2017	2018	2019	2020	2021
Annual	8.8	16.2	15.9	3.5	0.6	0
Cumulative	8.8	25.0	40.9	44.4	45.5	45.0

PPCR Expected Disbursements (in USD Million)						
Fiscal Year	2016	2017	2018	2019	2020	2021
Annual	0.55	0.8	1.15	1.35	1.2	0.744
Cumulative	0.55	1.35	2.5	3.85	5.05	5.794

Institutional Data

Practice Area (Lead)

Social, Urban, Rural and Resilience Global Practice

Contributing Practice Areas

Environment and Natural Resources Global Practice

Cross Cutting Areas

[X] Climate Change
[ ] Fragile, Conflict & Violence
[ ] Gender
[ ] Jobs

[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Water, sanitation and flood protection	Flood protection	60	100	100
Public Administration, Law, and Justice	Public administration-Financial Sector	40	100	100
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Social protection and risk management	Natural disaster management	60
Environment and natural resources management	Climate change	40
Total		100

Proposed Development Objective(s)

The objective of the Program is to strengthen early warning, resilient investment planning and financial protection capacity of participating countries.

Components

Component Name	**Cost (USD Millions)**
Component 1: Strengthening Early Warning and Preparedness	22.998
Component 2: Risk Reduction and Resilient Investments	8.587
Component 3: Disaster Risk Financing	8.750
Component 4: Project and Program Management	4.730

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial

6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	Substantial
OVERALL	Substantial

Compliance		
Policy		
Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04	**X**	
Forests OP/BP 4.36	**X**	
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10	**X**	
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

Legal Covenants	
Name	**Due Date**
An MOU is to be signed between PIFS and SPC	No longer than 120 days after effectiveness.
The Recipient (Samoa and Tonga) shall allocate or ensure that funds are allocated for the necessary operational and maintenance	During implementation

requirements to ensure the sustainability of the MHEWS.	

Description of Covenant

Conditions

Source Of Fund	Name	Type

Description of Condition

Team Composition

Bank Staff

Name	Role	Title	Unit
Denis Jean-Jacques Jordy	Team Leader (ADM Responsible)	Senior Environmental Specialist	GENDR
Michael Bonte-Grapentin	Team Leader	Senior Disaster Risk Management Specialist	GSURR
Habiba Gitay	Climate Resilience	Senior Environmental Specialist	CCSA-GCC
Cristiano Costa e Silva Nunes	Procurement Specialist	Senior Procurement Specialist	GGODR
David Bruce Whitehead	Financial Management Specialist	Financial Management Specialist	GGODR
Marjorie Mpundu	Counsel	Senior Counsel	LEGES
Nathan Hale	Team Member	Program Assistant	EACNF
Nicholas John Valentine	Safeguards Specialist	Consultant	GSURR
Ross James Butler	Safeguards Specialist	E T Consultant	GSURR
Simone Lillian Esler	Operational	E T Consultant	GSURR
Tevi Obed	Operational	Disaster Risk Management Specialist	GSURR
Samantha Jane Cook	Disaster Risk Financing and Insurance Specialist	E T Consultant	GFMDR
Philippe Jacobé de Naurois	Strategic and Implementation Adviser	Consultant	GSURR

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments

Tonga			**X**		
Samoa			**X**		
Fiji			**X**		

Consultants (Will be disclosed in the Monthly Operational Summary)	
Consultants Required ?	Consulting services to be determined

I. STRATEGIC CONTEXT

A. Regional Context

1. The Pacific Island Countries (PICs) lie in the midst of the world's largest ocean and include some of the world's smallest nations. There are three sub-regions, Melanesia, Micronesia and Polynesia. Melanesia is the most populous and consists mainly of high islands which generally have fertile soils. Micronesia and Polynesia, which consist mainly of reefs or atolls, are relatively small with predominantly infertile soils (although this does vary – for example, Tonga is known to be quite fertile) and some high islands. Many PICs are dispersed over a large area, with small and remote populations. Economic growth in PICs is low; the small and scattered island "sea-locked" countries have small domestic markets and are characterized by low economic density as a result of their extreme remoteness, as well as their high transportation and transaction costs of linking to international markets. Although absolute poverty in the region is limited, real per capita income has remained virtually unchanged since the mid-1990s and economic progress tends to be volatile and vulnerable to external shocks. Most economies are largely reliant on remittances, fishing licenses, agriculture, some limited natural resources, tourism and foreign aid flows.

2. PICs are also among the most physically vulnerable nations in the world. They are highly exposed to adverse effects from climate change and natural hazards (including floods, droughts, tropical cyclones, storm surges, earthquakes, volcanic eruptions, and tsunamis), which can result in disasters that affect their entire economies, human and physical capital, and impact their long-term development agenda. Since 1950, natural disasters have affected approximately 9.2 million[1] people in the Pacific region, causing 9,811 reported deaths. This has cost the PICs around US$3.2 billion (in nominal terms) in associated damage costs (EM-DAT, 2010)[2].

3. Disasters, climate and weather extremes and projected changes in climate, are increasingly recognized as a core development challenge, as they adversely impact social and economic development. Changes in increasing mean ocean and land temperatures, changes in the seasonality and duration of rainfall and increasing sea level (IPCC 2014)[3] are affecting agriculture, food security, fisheries, water resources and thus the lives, livelihoods and economies. Furthermore, poor populations tend to live on low value land, in higher-risk areas such as close to flood prone waterways and the coastline, making them vulnerable and more likely to be adversely affected by climate-related and natural events. More importantly, the vulnerability of the poor to natural disasters and the effects of climate change are expected to increase due to pressures including increased population, and constrained land availability, which will force larger numbers of the poor to live in more hazard prone areas. Hence, there is widespread acceptance of the need to strengthen disaster early warning and preparedness, and to mainstream disaster risk and climate change into development planning and financing.

[1] SPC Pocket Handbook 2010.
[2] Source: Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI). Countries covered by PCRAFI are Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Timor-Leste is also included.
[3] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers and Chapter 29: Small Islands.

B. Sectoral and Institutional Context

4. The Pacific Resilience Program (PREP) is a 'Series of Projects' articulated in two Phases at this stage, with the potential of a third and/or fourth phase in the future. The initial participants for Phase I are Samoa, Tonga, the Republic of Marshal Islands (RMI), Vanuatu, the Pacific Islands Forum Secretariat (PIFS) and the Secretariat of the Pacific Community (SPC). There has been previous World Bank engagement within the Phase I countries of Samoa, Tonga and Vanuatu in the areas of disaster risk management (DRM) and climate resilience. Potential participants in Phase II include the Federated States of Micronesia (FSM), Fiji, and the Solomon Islands. The participating Phase I countries and potential Phase II countries all have a high risk profile and are subject to frequent rapid onset disasters, and all (apart from FSM & Fiji) have been part of the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) scheme, on which the PREP will build.

5. While all of these countries have expressed an interest in participating in the PREP, Tonga and Samoa will participate in Component 1 (Strengthening Early Warning and Preparedness), Component 2 (Risk Reduction and Resilient Investments) and Component 3 (Disaster Risk Financing) during the first phase because they have demonstrated strong commitment to: (i) continue to participate in the PCRAFI catastrophe risk insurance scheme beyond 2015; (ii) have developed and/or will develop a prioritized climate and disaster resilient investment plan as set out under Sub-component 2.1.2; and (iii) mobilize International Development Association (IDA) funds for disaster risk financing, insurance, and resilient investment. RMI and Vanuatu will join Phase I of the Program for Sub-component 3.1.2 only, in order to finance the yearly premium for the catastrophe risk insurance. This would ensure there is no gap in catastrophe risk insurance coverage for RMI and Vanuatu, allow at least 4 countries to join the regional insurance pool, result in significant cost savings in insurance premium, and provide scope for their involvement in other components during Phase II. Given the capacity constraints in the participating Phase I countries and the need to improve tools and data that can be used by all PICs in coming years, PREP will also provide support to regional organizations that have a critical role in technical, policy and information areas, namely Pacific Islands Forum Secretariat (PIFS) and the Secretariat of the Pacific Community (SPC). The PREP will also build on the Pilot Program for Climate Resilience (PPCR) supported regional activities that are administered by ADB and implemented by SPREP to avoid duplication of efforts and will establish synergies and build on the country level activities supported by PPCR in Samoa and Tonga.

6. The participating countries are exposed to a range of hydro-meteorological and geo-hazards, including tropical cyclones and associated storm surges and flooding, earthquakes and tsunamis, the impacts of which are summarized in the risk profile table below. Most recently, on the evening of 13 March 2015, severe Tropical Cyclone (TC) Pam struck 22 islands of Vanuatu as an extremely destructive category 5 cyclone. A state of emergency was officially declared on March 15 for Shefa Province (which includes the capital of Port Vila). In April 2014, TC Evan struck Tonga, resulting in US$ 50 million in damages, and in 2012, TC Evan struck Samoa, resulting in US$210 in damages. In the cases of TC Evan and TC Ian, the World Bank was able to provide crisis funding for both countries through the Crisis Response Window. Climate change is exacerbating the vulnerabilities of PICs through increased frequency and possibly the increased intensity of climate-related events. Apart from changing extreme weather events, climate change is adding pressure on fragile island systems. Changes in increasing mean ocean and land

temperatures, changes in the seasonality and duration of rainfall and increasing sea level (IPCC 2014)[4] are affecting agriculture, fisheries, water resources and thus lives, livelihoods and economies.

Table 1: Risk Profile for Tropical Cyclone (TC), Earthquake and Tsunami for Phase I countries

		Samoa	**Tonga**	**RMI**	**Vanuatu**
	Average annual loss (% GDP)[5]	1.7%	4.3%	2.0%	6.6%
Last disaster and impact	Name Date Cost % GDP	TC Evan Dec 2012 US$210.4 m 30%	TC Ian Jan 2014 US$50 m 11%	Typhoon Gay Nov 1992	TC Pam Mar 2015 Currently unknown
Impact of 1/50 year return period [3]	Cost % GDP Casualties (injuries and fatalities)	US$110 m 19.4% 254	US$140 m 39.2% 299	US$34 m 21.9% 38	US$285 m 39.1% 577
Impact of 1/100 year return period[3]	Cost % GDP Casualties (injuries and fatalities)	US$153 m 27.0% 374	US$225 m 63.0% 600	US$67 m 43.3% 76	US$370 m 43.6% 901

7. Existing technical knowledge and financial capacity in participating countries is insufficient in many cases to fully address these vulnerabilities and reduce risks. The key challenges include limited: (i) capabilities for early warning and major gaps in preparedness; (ii) human resources and capacity to engage across multiple sectors; (iii) access to end-user-friendly data and risk assessment tools for disaster risk reduction and resilient investments; (iv) access to fiscal cash flows to better respond to disasters; (v) access to affordable market based insurance solutions for key-public assets due to the small size of the portfolio and frequency of events; and (vi) institutional capacity and limited coordination between national and regional DRM and climate change agencies. Most of the countries have low implementation and absorptive capacities, which is a common constraint for the small island countries. In most countries, the effectiveness of early warning and response is also influenced by the expansive geographical spread of the country and the limitations and high costs of communication systems.

8. Despite recent progress in terms of national level plans or policy to respond to disaster and climate risks, translating national climate and disaster resilient policies into sector policies and investments has been a significant challenge due to weak technical and fiduciary capacity, limited institutional coordination, resource constraints, and limited higher level political support to enforce risk reduction regulations (e.g., building codes). In addition, local institutions, civil society groups,

[4] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers and Chapter 29: Small Islands.
[5] PCRAFI Country Risk Profiles, September 2011

village communities, community volunteers and urban resident welfare associations are not properly trained in DRM and climate resilience.

9. There has also been a fragmentation of donor support for climate and disaster resilience, with PICs being challenged with having to manage multiple projects, fragmenting their limited institutional capacity. The fragmentation is due in part to the multiplicity of adaptation and disaster risk management funds at the global level but also due to most donors, including the World Bank, operating on a country by country and project by project basis in DRM and climate resilient development[6] and not consolidating this effort. For example, in recent years the World Bank has supported various projects which combine policy support, improved preparedness and response, and investments for risk reduction in various sectors (e.g., transport, agriculture, water and coastal management) and has gained important experience in tackling natural hazards and climate change in the Pacific region, particularly in Samoa, Vanuatu, Tonga, Kiribati and Solomon Islands. In Samoa, the World Bank, with support from the Pilot Program for Climate Resilience (PPCR) has helped set up the Climate Resilience Investment Coordination Unit (CRICU) under the Ministry of Finance to oversee various climate and disaster resilience efforts. At the regional level, PCRAFI has developed a region-wide disaster risk information system and has launched a risk insurance pilot to increase financial resilience against natural hazards and provide immediate liquidity when a major disaster hits a country. The problem of fragmentation and country-by-country approach is only likely to increase as the PICs get more support[7] to address their increasing vulnerability to climate and disaster risks.

10. The PREP will seek to consolidate the results of these on-going national and regional initiatives, and to this end, consultation has been undertaken with key donor partners during the preparation of the Program (including the Australian Department of Foreign Affairs and Trade, New Zealand Aid, the European Union, and JICA). The regional approach aims to help PICs to: (i) strengthen early warning and preparedness; (ii) create a framework for stronger and prioritized investments in resilience and retrofitting of key-public assets to meet international recognized resilience standards; and (iii) improve the post-disaster response capacity of the countries through strengthened financial resilience to disaster events. These objectives are critical, given the increasing frequency and severity of disasters in the region. Furthermore, the need to address these objectives has been reflected in the national and regional climate change and DRM policies of most PICs and regional organizations as a high priority. Importantly, the regional approach will allow for economies of scale, standardized approaches to save costs, improved coordination of climate resilience and DRM efforts, and spreading risk across the region. The regional approach would promote a more integrated and comprehensive strategy to address the acknowledged existing fragmentation and poor coordination of climate resilience projects and initiatives and leverage additional resources, including IDA and various global climate funds including the Green

[6] Climate and disaster resilient development refers to a set of institutional arrangements, processes and instruments that help identify the risks from disasters, climate extremes, gradual and long-term climatic changes, and their associated impacts, and the design of measures to reduce, transfer and prepare for such risks. Climate and disaster resilient development combines development benefits with reductions in vulnerability over the short and longer term, using a development planning, multi-sectoral and multi-stakeholder approach (*World Bank 2013 :Building Resilience: Integrating climate and disaster risk into development*)

[7] Financing for climate and disaster resilience to Small Island States has increased in recent years and currently receive an estimated US$684 million a year in climate and disaster resilience assistance (World Bank analysis). About 46 percent is provided through bilateral sources and about half through multilateral development banks.

Climate Fund. The PREP will reinforce and scale up on-going efforts by participating PICs to maintain strong levels of cooperation in relation to regional disaster monitoring and early warning, and promote a regional framework for the collection, analysis and dissemination of data to support more effective risk reduction and early warnings.

C. Higher Level Objectives to which the Program Contributes

11. The PREP aims to contribute to the resilient and sustainable economic and social development of the participating countries and of the region as a whole. As outlined below, the Program is aligned with the strategic documents and frameworks that identify needs and priorities to respond to the extreme vulnerability to the effects of climate change and natural hazards for the relevant Phase I country Governments, the World Bank and the region.

12. The PREP is in line with regional strategies, and will contribute to the achievement of the Hyogo Framework for Action. It addresses key priorities of the Pacific Regional Framework for Action on Disaster Risk Management, 2005-2015[8] and its proposed successor, the Strategy for Climate and Disaster Resilient Development in the Pacific[9] (SRDP), as well as key priorities of the Pacific Islands Meteorological Strategy 2012–2021 on '*Improved end-to-end Multi-Hazard Early Warning Systems*'. Pacific leaders, recognizing the importance of early warning and preparedness, developed a Regional Early Warning Strategy in 2007, to which the PREP will also contribute.

13. The PREP is aligned with the following government documents for the four participating Phase I countries:

a) Samoa: The Government of Samoa (GoS) National Action Plan for Disaster Management (2011-2016), the GoS Strategy for the Development of Samoa (2012–2016) and the Samoa Climate Resilience Investment Program (CRIP) developed as part of the support from PPCR.
b) Tonga: The Government of Tonga (GoT) Joint National Action Plan on Climate Change and Disaster Risk Management (2010-2015) and the National Infrastructure Investment Plan (under the Pacific Region Infrastructure Facility). In addition, PREP compliments and builds on the themes in Tonga's Strategic Program on Climate Resilience (SPCR) for PPCR, including mainstreaming of climate resilience in key strategies, policies and infrastructure, as well as strengthening civil society and community engagement
c) RMI: The Government of RMI's (GoRMI) National Action Plan for Disaster Risk Management (2008-2018) and the National Climate Change Policy Framework (2011).
d) Vanuatu: The Government of Vanuatu (GoV) Disaster Risk Reduction and Disaster Management National Action Plan (2006-2016), and the Strategic Infrastructure Investment Plan (under the Pacific Region Infrastructure Facility).

14. The PREP is also consistent with the Samoa Country Partnership Strategy (CPS), the Tonga Country Assistance Strategy (CAS) and the RMI CPS. One of the primary themes running through the World Bank engagement with all four countries is "Building resilience against shocks".

[8] Theme 4: '*Planning for Effective Preparedness, Response and Recovery*', and theme 5: '*Effective, Integrated and People-Focused Early Warning Systems*'.
[9] Action 2.10.7: '*Strengthened capacity to anticipate, resist, plan and prepare for, respond to and recover from the consequences of disasters and climate change*'.

The key pillars of this engagement are identified as: (i) "Building Resilience to Natural Disasters and Climate Change" in the case of the Samoa CPS; (ii) "Building Resilience to Natural Disasters" in the case of the Tonga CAS; and (iii) "Building Resilience to economic shocks, natural disasters and climate change" in the case of the RMI CPS. This PREP aligns with the Bank's engagement with Samoa, Tonga, RMI and Vanuatu by supporting efforts to reduce the countries' vulnerability to climate change and exogenous environmental shocks (such as natural disasters), by improving early warning systems and providing mechanisms for financing recovery activities in the wake of a disaster.

15. The PREP is also in line with recently finalized Bank planning and policy documents, including the World Bank Engagement Note for Disaster and Climate Resilient Development Programming in the Pacific Islands Region (August, 2014), and the Policy and Practice Note (PPN) "Acting Today for Tomorrow" (2012). The PREP will be a practical tool to implement the PPN, which has been developed in close collaboration with donors and regional organizations and has been very well received. PREP is also an integral part of the Small Island States Resilience Initiative (SISRI), which builds on Bank's engagement and provides coherence for climate and disaster resilient development in small island states in the Caribbean, Indian ocean and off the coast of West Africa. PREP also contributes to the transformative goals of mainstreaming climate change adaptation and disaster risk reduction into national/sectoral/local development programs of PICs as articulated in the Pacific Regional Strategic Program for Climate Resilience (SPCR).

16. The PREP lies at the heart of poverty reduction and shared prosperity, given the extreme vulnerability of the participating countries to natural disasters, economic shocks, and climate change. Reducing the risk of natural disaster will be crucial for improving living conditions in participating countries, which is an important, non-monetary dimension of poverty reduction and shared prosperity. Furthermore, as the economic impacts of disasters reduce the pace of economic development, the PREP is central to the fulfillment of the twin goals (Refer to Annex 10 for more information on how the PREP addresses the twin Goals).

II. PROGRAM DEVELOPMENT OBJECTIVES PDO

A. PDO

17. The objective of the Program is to strengthen early warning, resilient investments[10] and financial protection of participating countries[11].

[10] For the purpose of the PDO, resilient investments include those in: (i) early warning and preparedness; (ii) risk identification and reduction; (iii) resilient reconstruction and investments through improved codes and standards; (iv) enhancing or enabling policies and planning for that considered to be short and long-term risks; and (v) financial instruments that allow access to timely financing post disaster.

[11] For country specific PDOs, refer to Annex 3 for Samoa, Annex 4 for Tonga, Annex 5 for RMI and Annex 6 for Vanuatu (Note: as the projects for RMI and Vanuatu include an abridged Project design encompassing only Sub-component 3.1.2, these countries have a simplified PDO). The PDO for regionally implemented activities (Annex 7) is the same as for the Program PDO.

B. Program beneficiaries

18. The Program beneficiaries include communities in the participating PICs that are particularly vulnerable to climate and disaster risk, government agencies in charge of disaster and climate resilient planning and response, resilient investment and disaster risk financing, and regional organizations that support efforts in climate and disaster risk management and development.

Direct Beneficiaries

19. Local communities, including women and children will benefit through increased awareness and clearer messages and warnings in regards to disaster events, which will enable people to make better informed decisions about what to do to protect themselves from hazard impacts.

20. The government agencies in Samoa and Tonga that are in charge of Multi-Hazard Early Warning and Preparedness will also benefit (i.e., Ministries in charge of Environment, National Meteorological and Hydrological Services, Geohazards Departments, National Disaster Management Offices). The Program will be able to enhance the effectiveness of these beneficiary organizations, ensuring they are able to provide reliable, useful and timely information on weather, climate, hydrological and geophysical hazards and events.

21. The Finance Ministries of Samoa, Tonga, RMI and Vanuatu will also directly benefit from the financial instruments provided under Component 3.

22. Regional organizations (mainly the PIFS and SPC) will benefit directly from strengthened capacity in early warning, preparedness, risk assessment, climate finance and climate and disaster resilient planning.

Indirect beneficiaries

23. The Ministries in planning and aid coordination, infrastructure, and local government, will all benefit indirectly from the PREP, as will the range of weather and water dependent sectors including agriculture, tourism, aviation, water resources, health and energy.

C. PDO-Level Results Indicators

24. The key results will be monitored through the following indicators:

(i) Direct project beneficiaries, of which 40% are female[12];
(ii) Increased coverage of hazard forecast and warning messages to population at risk;
(iii) Percentage of short term priority projects of the resilient investment plan developed under the Program included in the Medium Term Expenditure Framework (MTEF)[13];

[12] Contributes to PPCR Core Indicator #5 ("Number of people supported by the PPCR to cope with the effects of climate change")
[13] Contributes to PPCR Core Indicator #3 ("Quality and extent to which climate responsive instruments/investment models are developed and tested)

(iv) Participating PICs have received payment within a month of the occurrence of a covered (insured) event; and
(v) Time taken to commit funds from the contingency emergency component requested by Government for an eligible emergency.

III. PROGRAM DESCRIPTION

A. Series of Projects

25. The Program will include a combination of activities and investments at the country level (Project) and activities at the Regional level which benefit the region as a whole (Program). At this stage, the Program will include a first phase (Phase I) which will include a series of Projects for countries which are ready to join the program (i.e., Samoa, Tonga), regional organizations (SPC and PIFS) for Components 1, 2, 3 and 4, and RMI and Vanuatu for Component 3.1.2/Insurance Premium Financing. It is envisaged there will also be a second phase (Phase II) which will include additional investments for the Phase I countries (to be prepared at the beginning of Phase I) and additional countries that are ready to join the Program (potentially FSM, Fiji and Solomon Islands).

26. A detailed generalized Program Description can be found in Annex 2. A description of the country Projects is included in Annex 3 for Samoa, Annex 4 for Tonga, Annex 5 for RMI[14], Annex 6 for Vanuatu[9] and Annex 7 for the Regional Activities.

B. Program Components

27. The Program will comprise a combination of nationally implemented activities and regional implemented activities as described in the matrix below:

	National implemented activities	Regional Implemented Activities
Recipients	✓ Phase I countries: Samoa and Tonga, with RMI and Vanuatu for premium financing under sub-component 3.1.2.	✓ SPC for Component 1.2, 2.2 and 4.2 ✓ PIFS for component 3.2 and 4.2
Component 1: Strengthening early warning and preparedness	✓ 1.1 Investments in early warning and preparedness	✓ 1.2 Regional TA to strengthen impact forecasting and preparedness
Component 2: Risk Reduction and Resilient Investments	✓ 2.1 Risk reduction and resilient investment planning and preparation (including entry level investments)	✓ 2.2. Regional platform to support risk reduction and resilient investment planning
Component 3: Disaster Risk Financing	✓ 3.1. Disaster risk financing instruments	✓ 3.2 Development of Mutual Insurance Fund
Component 4: Project and Program Management.	✓ 4.1 Project Management	✓ 4.2 Regional Program Management and Coordination

[14] Includes an abridged Project design encompassing only Sub-component 3.1.2

28. The Program will comprise the following four components:

Component 1: Strengthening Early Warning and Preparedness (estimated cost including contingencies: US$23.0 million)

29. The objective of this component is to increase the resilience of the participating Phase I countries and the Pacific region as a whole to natural hazards such as cyclones, coastal/riverine flooding, volcanic eruptions, tsunamis and earthquakes by improving the quality of forecasting and warning services as well as disaster preparedness.

Component 2: Risk Reduction and Resilient Investments (estimated cost including contingencies: US$8.6 million)

30. This Component will finance entry level resilient investments, such as the retrofitting of public buildings (e.g., schools, health centers) to meet internationally accepted building standards for resilience (including appropriate consideration of gender requirements). It will also support and enhance a multi-sectoral planning process for integrating climate and disaster risk and resilience into development. This will help reduce existing funding fragmentation, allocate incoming resources more efficiently to existing needs and support alignment with the development and budgetary process of the countries.

Component 3: Disaster Risk Financing (estimated cost including contingencies: US$8.8 million)

31. The objective of this component is to strengthen the financial resilience of the participating PICs to disaster events by enabling them to secure access to immediate liquidity post disaster for low, medium and high risk events. Accordingly, this component will support the development and implementation of an integrated disaster risk financing strategy that provides an optimal combination of risk retention (for high frequency, low severity events) and risk transfer (for low frequency, high severity events) for participating countries (see Figure 1, Annex 2). This will include both national instruments and regional instruments, and will build on the PCRAFI pilot insurance scheme, which is reaching the third and final year and has previously been funded by Japan with some funding also contributed by the beneficiary governments.

Component 4: Project and Program Management (estimated cost including contingencies: US$4.7 million)

32. The objective of this component is to provide efficient and effective implementation support to the Projects in each country, including staff, operating costs, monitoring and evaluation, and the cost of audits. It will support integrated planning efforts, and strengthen fiduciary and safeguards capacity. It will also provide efficient regional coordination of the different country Projects and the implementation of activities that will be executed at the regional level as well as high level coordination of climate and disaster resilient projects and initiatives in the Pacific.

C. Program Financing

33. The PREP is a program of Investment Project Financing – a Series of Projects. More specifically, the PREP is a series of interdependent and overlapping Projects to multiple beneficiaries, who are facing a common set of development issues and share common development goals. Each of the country Projects are self-standing and will finance a different group of eligible beneficiaries, and each is expected to last approximately five years. This PAD describes the first five projects in the series (collectively referred to as PREP Phase I), for the countries of Samoa, Tonga, RMI and Vanuatu and the regional organizations PIFS and SPC. It is envisaged that Phase I of the Program would provide a strong foundation to leverage additional donor financing for subsequent phases (i.e., through the preparation of resilient investment plans developed under Component 2). Preparation for subsequent operations is envisaged to start during World Bank Financial Year 2016/17 for additional countries, under what is being termed as Phase II of the PREP. Taken together, Phase I and Phase II is expected to span at least 8 to 9 years. It is envisaged that other phases could potentially follow in the future (i.e., Phase III and Phase IV), which could overlap with Phase I and/or Phase II. Three to four Phases of the program would be expected to span a timeframe of 10 to 15 years.

34. The PREP has a shared development objective and approach, meaning that each country Project in the series has the same design features, which are applied to different countries and include some different activities for each country. This PAD includes the standard design for the Program (provided in Annex 2), to be replicated for the Phase I country Projects (see Annex 3 for Samoa, Annex 4 for Tonga, and Annex 7 for regional activities). An abridged Project design has been adopted for RMI (Annex 5) and Vanuatu (Annex 6), as they will only participate in Component 3.1.2 in PREP Phase I. Using a standard design addresses the following three key considerations: (i) encouraging regional collaboration in the management of the region's disaster and climate risks; (ii) offering long-term support (up to 10 to 15 years) to implement actions aimed at strengthening collaborative efforts to manage shared risks; and (iii) giving flexibility to groups of countries to participate in the PREP when they are ready (according to agreed eligibility criteria).

35. In order to implement the shared objective and approach, each Project in the series will finance activities that will be implemented nationally in each participating country, as well as some activities that will be better implemented at the regional level. Each Project will include investments for both 'physical' goods and works, as well as 'soft' activities such as technical assistance, capacity building, consulting services and training. The majority of the physical investments will be made at the national level, while 'soft' activities will be implemented at both the national and regional level.

36. ***Rationale for regional IDA:*** The Project meets the regional funding eligibility criteria as follows: (i) Phase I includes four countries and more countries are expected to participate in future phases; (ii) the Program will build a regional Early Warning System under Component 1, with harmonized national and local components with data exchanges and analysis at all levels, including systems that draw on common operating and maintenance schemes; (iii) the Program is expected to generate significant cross-boundary benefits through common risk transfer mechanisms (such as catastrophic risk insurance), and possibly in Phase II the establishment of a regional pool of funds for disaster risk financing and response; (iv) based on the PCRAFI experience, there is clear evidence of regional commitment, with the PIFS, SPC and many PICs potentially interested in

participating; and (v) the Program will also provide a platform for harmonization and building common approaches for DRM and climate resilient policies and institutional set up, sharing, demonstrating and improving capacity for disaster and climate risk information and decision support tools.

37. ***Program Cost and Financing:*** the total cost of the PREP Phase I is estimated to amount to US$45.07 million over 5 years, including aggregate IDA grant and credit financing of US$32.3 million (National IDA: US$ 10.5 million and regional IDA: US$21.8 million), US$ 5.48 million from GEF/Special Climate Change Fund (SCCF), US$ 5.794 million from Pilot Program for Climate Resilience (PPCR), and US$ 1.50 million from the Global Facility for Disaster Reduction and Recovery (GFDRR/Japan).

Table 2: Program Cost, Phase I

Component and/or Activity	Program Cost (US$M)	Regional Cost (US$M)	Samoa Project (US$M)	Tonga Project (US$M)	RMI Project (US$M)	Vanuatu Project (US$M)
1. Strengthening Early warning and preparedness	**22.998**	**2.185**	**9.250**	**11.461**		
1.1. Investments in early warning and preparedness	20.711		9.250	11.461		
1.2. Regional TA to strengthen impact forecasting and preparedness	2.287	2.287				
2. Risk Reduction and Resilient Investments	**8.587**	**5.712**	**1.150**	**1.725**		
2.1. Risk reduction and resilient investment planning and preparation	2.875		1.150	1.725		
2.2 Regional platform to support risk reduction and resilient investment planning	5.714	5.712				
3. Disaster Risk Financing	**8.750**	**0.750**	**2.500**	**2.500**	**1.500**	**1.500**
3.1 Disaster risk financing instruments	8.000	-	2.500	2.500	1.500	1.500
3.2 Development of Mutual Insurance Fund	0.750	0.750				
4. Project and Program Management	**4.730**	**2.945**	**0.893**	**0.893**		
4.1. Project management	1.785		0.893	0.893		
4.2. Regional Program Management and Coordination	2.945	2.945				
TOTAL COSTS	**45.066**	**11.694**	**13.793**	**16.579**	**1.500**	**1.500**

Note: Figures may not add up due to rounding

Table 3: Program Financing, Phase I

Recipient	National IDA (US$ M)	Regional IDA (US$ M)	Regional IDA Grant (US$ M)	SCCF* (US$ M)	PPCR (US$ M)	GFDRR/ Japan (US$ M)	Total (US$ M)
Samoa	5.000	8.793					**13.793**
Tonga**	4.500	6.000		4.579		1.500	**16.579**
RMI	0.500	1.000					**1.500**
Vanuatu	0.500	1.000					**1.500**
PIFS			1.320	0.900			**2.220**
SPC			3.680		5.794		**9.474**
Total	**10.500**	**16.793**	**5.000**	**5.479**	**5.794**		**45.065**

*Funding requested, but commitment to be confirmed.

D. Lessons learned and Reflected in the Project Design

38. The design of the PREP components has taken into consideration lessons learnt from other World Bank projects in the Pacific Region. These lessons are outlined in Annex 11 of this PAD.

IV. IMPLEMENTATION

39. The implementation period for the four countries (Samoa, Tonga, RMI and Vanuatu) in Phase I is planned to take up to five years[15]. For the first countries, for which World Bank Board approval is scheduled for June 2015, effectiveness is foreseen in the fourth quarter of 2015. Completion of Program activities is foreseen at this stage for June 30, 2020 and the closing date is proposed to be December 31, 2020.

A. Institutional and Implementation Arrangements

40. Although both the approach and coordination of the PREP are regional, most of the implementation will take place on the ground at the national level via relevant implementing agencies, with support and coordination from the SPC and PIFS, respectively. As such, the PREP aims to demonstrate concrete results early in implementation in each country, in order to encourage further local ownership, in addition to taking advantage of economies of scale at the regional level where possible.

41. The proposed Program will directly support current Pacific regional efforts which are aimed at ensuring that climate change and disaster risk issues are given prominence in the sustainable development agenda. Among other things, the PREP will directly support the establishment of the Pacific Resilience Partnership (PRP), as proposed in the draft Strategy for Climate and Disaster Resilient Development in the Pacific (SRDP). The Council of the Regional Organizations of the Pacific (CROP) heads agreed at their meeting in February, 2015, that PIFS would host the PRP.

[15] For RMI and Vanuatu, their participation in Component 3.2.1 will be three years, as there will be three premiums financed over a three year period.

42. The detailed PREP institutional framework is attached in Annex 8. This annex also includes an organizational flow chart for Phase I of the Program, which helps to identify responsibilities in relation to coordination, technical and fiduciary support and donor funding.

National Arrangements

43. Each country will be responsible for implementing its respective Project. Specific national coordination and implementation arrangements by country are described in Annex 8. For each of the participating countries, the guiding implementation principles will be that the PREP's activities and investments, wherever possible, will: (i) build on the already existing institutional arrangements; and (ii) use existing implementation arrangements (without impairing their efficiency). The implementation arrangements for the PREP will strengthen coherence; create synergies and mainstream coordination between the relevant agencies and donors that are providing funding resources for projects on climate resilience.

44. Implementation arrangements will be built around existing Government structures and processes, and will provide opportunities for additional institutional strengthening and capacity building as well as streamlining of procedures. Any capacity constraints of implementing agencies will be specifically addressed through both short-term arrangements, and the provision of longer-term capacity building. The regional activities within the PREP could specifically support this approach.

45. The institutional framework for Samoa and Tonga, who are participating in Components 1, 2, 3 and 4 during Phase I of the PREP, will include a National Steering Committee (NSC), headed by a Chairperson. The NSC will provide Project oversight and guidance at the national level. A NSC will not be required for RMI or Vanuatu during Phase I, due to the abridged nature of their Phase I Project design (i.e., incorporating only Component 3.1.2).

46. Projects for Samoa and Tonga will be implemented and coordinated through Project Management Units (PMUs) or similar project implementation support arrangements. The national arrangements will be headed by a National Coordinator (NC) who will act as the secretariat of the NSC and will coordinate with the regional level through the Regional Coordination Unit (RCU) and Program Support Unit (PSU). A PMU and NC will not be required for RMI or Vanuatu during Phase I, due to the abridged nature of their Phase I Project design (i.e., incorporating only Component 3.1.2).

Regional Arrangements

47. Detailed information on the regional implementation and institutional arrangements is provided in Annex 8. The overall regional program oversight will be ensured by a Regional Steering Committee (RSC). The role of the RSC will be to provide oversight and advice, as well as guidance towards achieving Project and Program objectives and a better regional integration. It will also allow the "resilience agenda" to be dealt with at the highest level of the decision making process. The role of the RSC will become essential in identifying the appropriate short, medium and long term strategy for strengthening resilience in the region. It will also be essential to coordinate issues and activities that are relevant to the Program at the regional level. The RSC will include representatives from the highest level of decision making both at the country and

regional level. The chairs of the National Steering Committees (NSCs) will be members of the RSC.

48. PIFS will be responsible for the overall regional coordination of the Program under Sub-component 4.2.1. PIFS is the prime regional political and policy body on economic development in the Pacific and is responsible for the organization of the annual Forum Leader's, Forum Economic Minister's and related meetings. PIFS engages in, and monitors, the region's efforts to access climate change finance to combat climate change and its impacts. This work has largely involved advocacy of the region's needs for increased support from the international community to assist in efforts to overcome the challenges posed by climate change. A Regional Coordination Unit (RCU) will be created and housed in PIFS. This will ensure strategic alignment between the PREP and the preeminent organization for Pacific leaders and will provide PIFS with ownership of the PREP. The RCU will act as the Secretariat of the RSC.

49. SPC will provide technical, fiduciary, monitoring and evaluation support to countries under Sub-component 4.2.2. SPC is a technical regional organization in the Pacific and is a key player in the resilience space, with the aim to: (i) develop the technical, professional, scientific, research, planning and management capability of Pacific Island people; and (ii) directly provide information and advice, to enable them to make informed decisions about their future development and well-being. SPC has been mandated to develop capacity of PICs in disaster risk management and approaches to climate change as a broad-based development issue cutting across all sectors, from food and water security, health, economic development, and coastal zone management. A Program Support Unit (PSU) will be established within SPC and will provide technical and fiduciary support for the implementation and monitoring and evaluation of regional activities as well as support for the implementation and monitoring and evaluation of country Projects. The PSU will undertake the procurement process on behalf of participating countries for joint procurement processes, as well as support the day to day implementation and financial reporting and support the capacity of recipient countries fiduciary roles where required.

B. Results Monitoring and Evaluation

50. The monitoring and evaluation (M&E) plan of the PREP is based on the key indicators detailed in the Program's Results Framework in Annex 1. Overall achievement of the PDO will be measured through a combination of indicators including: (i) Direct project beneficiaries, of which 40% are female; (ii) Increased coverage of hazard forecast and warning messages to population at risk; (iii) Percentage of short term priority projects of the resilient investment plan developed under the Program included in the Medium Term Expenditure Framework (MTEF); (iv) Participating PICs have received payment within a month of the occurrence of a covered (insured) event; and (v) Time taken to commit funds from the contingency emergency component requested by Government for an eligible emergency.

51. The key indicators have been chosen taking into account the information they provide, as well as the costs and feasibility for any additional data gathering. The baselines for these indicators have been established on the best available data, but will in some cases be re-measured/refined over the first two years of implementation. Results indicators will be gender dis-aggregated when feasible.

52. Responsibility for overall monitoring and evaluation of progress towards the Program and country Project objectives and outcomes will be the responsibility of the implementing agencies in each country, (with support from the PSU) and the PIFS at the regional level. The PREP will support monitoring and evaluation training and expertise as part of the implementation in each country, ensuring that a focal point is assigned to oversee and be responsible for M&E for the country Projects. Furthermore, the PREP will directly support the actual costs of data collection and analysis, as part of each of the three technical components. PIFS will have SPC to collect the data from each country as the basis of an M&E report submitted annually to the World Bank, together with an updated Project work program and budget. PIFS will support SPREP to report on the five PPCR core indicators at the regional level.

53. A midterm review will be carried out within 24 months after Phase 1 Projects and Program effectiveness and no later than December 31, 2017 to assess: (i) progress under the Phase 1 of the Program; (ii) coherence in the implementation of Phase I and preparation of Phase II; (iii) achievement of overall objectives; (iv) the role of the different partners; and (v) to eventually reorient the Projects and Program if needed to ensure that the Program achieves its objectives. At the same time, it will allow the incorporation of lessons learned in the design of Phase II. As appropriate, PIFS will contract a consultant (under project finance) to review and assess progress in implementing the Projects and the Program and to assist in preparing the necessary documentation for the review. The Regional Steering Committee through the RCU will be responsible for preparing the necessary documentation for the review and for planning the midterm review meeting. The midterm review will evaluate progress in reaching the PREP Phase I Project and Program objectives, and will identify measures to improve performance if needed. Careful attention will be paid to the performance of the involved entities at the national and regional level in regards to: (i) addressing DRM issues; and (ii) designing and implementing the various activities. The goal will be to identify all necessary lessons to be taken into account for the finalization of the preparation of PREP Phase II.

C. Sustainability

54. The PREP will invest significantly in strengthening capacity and existing institutions in charge of early warning, preparedness and response to hydro-meteorological and geophysical hazards (e.g National Disaster Management Offices, National Meteorological Services, etc.). Technical operations staff including meteorologists, hydrologists and seismologists will be trained to ensure that staff skills and knowledge is current, and to introduce new techniques to improve forecast and warnings. Tools will be developed to monitor and observe, analyse and forecast, and to communicate and disseminate information. The legal framework of warning and response will also be improved, in order to facilitate data and information sharing among the key stakeholders. At the community level, existing community organizations will be trained and equipped to increase the capacity of the public to respond to emergencies appropriately.

55. Maintenance of existing equipment for warning and forecasting services is limited (e.g lack of spare parts, inadequate budget for operations and maintenance etc.). The project will provide guidance to the key Ministries (Finance, Environment) to amend the budget allocation for the maintenance of critical warning and forecasting equipment, for both existing infrastructure and new infrastructure that will be introduced via the PREP. Regional procurement of goods and

equipment will ensure technical specifications are harmonized across the region, and will facilitate the management of spare parts.

56. The Program will also strengthen regional cooperation among countries and regional organizations and create a pool of expertise that will be critical to ensure the sustainability of the PREP. PIFS and SPC, in close collaboration with other regional organizations (e.g. Fiji Tropical Cyclone Warning Center, the Pacific Tsunami Warning Center in Hawaii, Secretariat of Pacific Regional Environment Program, the Oceania Regional Seismic Monitoring Network, the UN Office for the Coordination of Humanitarian Affairs etc.) will provide technical and policy guidance to the countries. These regional organizations will also be able to provide support for the countries with limited capacity.

V. KEY RISKS AND MITIGATION MEASURES

A. Overall Risk Rating and Explanation of Risks

Overall Risk Rating

57. Based on the application of the Systematic Operations Risk-Rating Tool (SORT), the overall risk rating is Substantial.

B. Systematic Operations Risk-Rating Tool (SORT)

58. A SORT has been prepared for the PREP, and is set out below, along with more detail on the risk categories that have been rated as substantial.

Table 4: Systematic Operations Risk-Rating Tool for the PREP

Risk Categories	Rating (H, S, M, L)
1. Political and governance	M
2. Macroeconomic	M
3. Sector strategies and policies	S
4. Technical design of project or program	S
5. Institutional capacity for implementation and sustainability	S
6. Fiduciary	S
7. Environment and social	M
8. Stakeholders	M
9. Other (external shocks, such as disasters)	S
Overall	S

Sector Strategies and Policies

59. While climate and disaster resilience is being increasingly recognized as a key development challenge in PICs, integration of risk sensitive approaches into sectoral policies is still widely lacking. The sectoral context is complex because: (i) the resilience agenda cuts across multiple sectors; (ii) coordination across sectors is in early stages; and (iii) the capacity of DRM/climate resilience institutions is generally weak and lacking political support. To manage this risk, the Program recognizes the key role of the Ministry of Finance for each participating country and in particular, aims to strengthen the interface between the respective Ministries of

Finance and the key DRM/climate resilience agencies for each country. The Program will also foster the development of comprehensive and multi-sectoral planning frameworks for investments in resilience.

Technical design of Project or Program

60. The Program is technically and operationally complex, with a large number of stakeholders, including technically specialised agencies within each participating country. To manage this risk, Phase I of the PREP is limited to four countries. There has already been previous World Bank engagement in the areas of disaster risk management and climate change adaptation/resilience for Samoa, Tonga and Vanuatu, and there has also been some engagement with RMI through PCRAFI. Technical support will be provided at a regional level by SPC, and will be focused around a core set of activities that have been reduced primarily to: (i) investment in early warning/preparedness; and (ii) TA in resilient planning. Where possible, activities for each country will draw from lessons and experience from other participating countries, and activities will be packaged together in larger contracts wherever it is feasible to do so.

Institutional capacity for implementation and sustainability

61. There is relatively weak implementation capacity for some of the implementation agencies in the Phase I countries, in particular due to limited human resources. This risk will be mitigated through SPCs participation in the Program. SPC has demonstrated capacity, and will provide real-time support to backstop participating countries. The country level project leads/coordinators will also be supported by the PSU, and significant training and human development will be provided to relevant staff through various aspects of the Program. The World Bank will maintain a close dialogue with the regional coordinator and country level leads/coordinators and ensure regular and intensive implementation support missions to provide support in the implementation of the Program, and to identify what works well, along with areas for further improvement that require additional capacity building.

Fiduciary

62. There is relatively weak fiduciary capacity for some of the implementation agencies in the Phase I countries. Primary fiduciary functions will need to be performed by each implementing agency. For Samoa and Tonga, with roles centrally located at MoF and little financial management typically performed by implementing agencies, a Project Accountant may be required to be employed at each implementing agency to perform the FM functions, with additional fiduciary support to these implementing agencies to be provided by the PSU located at SPC. Fiduciary support will be provided for the country Projects by the PSU located at SPC. Mitigation measures agreed as a result of FM and procurement assessments will be implemented, including technical assistance. Implementing agencies will comply with World Bank Procurement and FM requirements, including strong internal financial controls and regular independent audits. The World Bank will monitor this through implementation support missions which will include reviewing the effectiveness and compliance with internal financial controls, review of interim financial reports for accuracy and following up on issues raised in audit reports.

Other (external shocks, such as disasters)

63. The Pacific region is hazard-prone and in particular the Phase I countries are renowned for the frequent occurrence of disasters. Most recently, on the evening of 13 March severe Tropical Cyclone (TC) Pam struck 22 islands of Vanuatu as an extremely destructive category 5 cyclone. A state of emergency was officially declared on March 15 for Shefa Province (which includes the capital of Port Vila). Should a significant disaster event occur during implementation of the PREP, there is the potential that the attention of the implementing agencies could easily be diverted from the long-term resilience agenda advocated by the PREP, to the immediate disaster response and recovery needs of the country. In order to mitigate this, a CERC has been incorporated into the project design in addition to the ex-ante disaster risk financing and insurance mechanism supported by the PREP. This should provide flexibility to the participating countries and minimize disruption to the Program in the event of a disaster occurring.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

64. Although the foreseen climate change effects are documented, their quantitative impacts and climate adaptation benefits are hard to measure due to the limited baseline of historic climatological events and the limitations of global climate models (GCMs) when applied to the Pacific. Despite this, there is clear evidence that economic returns from activities similar to those proposed within Component 1 are very high. Typically, the economic benefits of early warning vary from 1:4 to as high as 1:40[16]. Annex 9 presents the major benefits anticipated.

65. In addition to all the benefits presented in Annex 9 which could not be quantified, an economic analysis was carried out for PREP and based on the only quantifiable benefits accruing under Components 1 and 2 combined (as they are self-reinforcing) while the other benefits are not quantifiable. As for Component 3, a financial analysis will need to be conducted during project implementation to determine the insurance premium rate acceptable to Pacific Islanders. Component 1 and Component 2 are meant to improve the islanders' preparedness to face natural disasters and their aftermath, and would translate into fewer casualties and injuries, as well as reduced damages and economic opportunity losses. These were estimated based on a probabilistic model on annual average recurrent losses in the Pacific Islands, in particular Samoa and Tonga.

66. Economic analysis was performed by using a 10% social discount rate over 20 years based on the opportunity cost of capital and country risk. A sensitivity analysis was performed under a pessimistic scenario (a 15% increase in economic costs over the base case, coupled with a reduction in casualties, injuries and GDP to 15% compared to 20% considered under the base case) and an *optimistic scenario* (with a 15% reduction of the economic investment costs over the base case, along with a reduction of casualties, injuries and GDP to 25%). In addition, project viability switch-off points for equal cost increment and benefit decrement, cost increment and benefit decrement were computed.

[16] Rogers, David P., and Vladimir V. Tsirkunov. 2013. *Weather and Climate Resilience: Effective Preparedness through National Meteorological and Hydrological Services.* Directions in Development. Washington, DC: World Bank.

67. Table 5 summarizes the results of the economic analysis. PREP under all three scenarios is viable, with positive net present value (NPVs) as well as acceptable economic rate of returns (ERRs) and positive Present Value benefit-cost ratios. PREP under all three scenarios is more sensitive to a decrease in benefits than an increase in costs. In all cases, the switch-off points require either significant increases in costs or significant decreases in benefits. See Annex 9 for more details.

Table 5: PREP Cost/Benefit, Sensitivity and Scenario Analysis Summary

Key Economic Indicator	**PREP**		
	20 years discounted at 10%		
Scenario	***Pessimistic***	**Base Case**	***Optimistic***
Cost/Benefit Analysis			
NPV (US$ million)	7.7	**21.1**	34.6
ERR (%)	13%	**19%**	23%
PV benefit/cost ratio	1.2	**1.6**	2.1
Viability	**Yes**	**Yes**	**Yes**
Sensitivity Analysis			
NPV (US$ million)	0.4	**0.4**	0.6
ERR (%)	10%	**10%**	10%
PV benefit/cost ratio	1.0	**1.0**	1.0
Switch-off point			
>cost = <benefit (±%)	±10%	**±24%**	±34%
>cost (±%)	+23%	**+64%**	+105%
<benefit (±%)	-19%	**-39%**	-51%

B. Technical

68. The technical quality and relevance of the Program activities will be insured through a number of measures, as set out below:

a) Investments in strengthening early warning and preparedness systems (Sub-component 1.1) are based on a needs assessment and modernization plan developed for the participating countries and the region in September 2014 by a an international and regional team of experts, in partnership with the Global Facility for Disaster Reduction and Recovery Hydromet team. The proposed investments follow current good practice and WMO recommendations for providing early warning services and disaster impact forecasting.

b) The methodology to be developed for prioritizing and developing resilient investment frameworks (Sub-component 2.1) will be closely aligned and build on analytical work undertaken under the Small Islands States Resilience Initiative (SISRI).

c) The activities related to risk reduction and climate resilient planning (Component 2.2) will be based on reporting and recommendations from seasoned regional sector experts hired by SPC.

d) The activities on Disaster Risk Financing (Component 3) will build on the World Bank flagship PCRAFI initiative, which successfully piloted market based catastrophe risk insurance and developed fully probabilistic country risk profiles for the major perils affecting the region. These activities have been developed in close partnership with the World Bank's Disaster Risk Financing and Insurance team.

e) Finally, regional level technical, fiduciary and implementation support for the countries will be provided by SPC (Sub-components 1.2, 2.2 and 4.2.2) and technical support and overall coordination will be provided by PIFS (Sub-components 3.2 and 4.2.1 respectively).

C. Financial Management

69. A financial management assessment was carried out for each of the implementing agencies in accordance with the *"Principles Based Financial Management Practice Manual"* issued by the World Bank Board on March 1, 2010. On the basis of this assessment, the overall financial management risk for this Program before the mitigation measures is **Moderate,** remaining at **Moderate** with successful implementation of the mitigating risks. The financial management (FM) risk for each individual Project and each individual implementing agency is also **Moderate**. The main FM risk for each implementing agency is the possible lack of FM staff to perform the FM functions, or lack of sufficient FM staff to absorb the increased work volume arising from the project. PIFS has the additional risk of no previous experience in managing and implementing World Bank funded projects. To further strengthen financial management and mitigate the risk, it is likely each implementing agency will need to have a Project Accountant, while the PSU to be established in SPC will provide additional FM support to these agencies. A project Operation Manual will also include FM and Disbursement Arrangements, in particular on the financial documentation requirements for the acquittal funds received through the Disaster Risk Financing in Component 3. For the four Phase I country recipients, the initial budget will require approval from the Bank. Further details of the financial management arrangements for the program are included in Annex 8.

70. In regards to Component 3.1.2, due to the specifics of the proposed implementation arrangements (i.e. the World Bank will act on behalf of the recipient and enter into a contract with the re-insurance company and pay them directly), many standard fiduciary requirements and procedures do not apply to this sub component. As the only contracts to be financed will be with IDA, there will be no need for the procurement plan to cover this component. The recipient countries' participation in the project's financial management is also limited, as the funds drawn down from the Grant/Credit will be paid to World Bank Treasury, in order to pay the reinsurer for the contract premiums. Thus with no funds flow for this, no FM systems will be required by the recipient to manage the funds for this sub-component, the Interim Financial Reports (IFRs) will not need to report this sub-component and disbursement category amount, and no audit of the funds for this sub-component and disbursement category will be required (or can be obtained). To help facilitate, control and provide the exceptions to this sub-component funds, a separate disbursement category will be required for the insurance funds under sub-component 3.1.2, titled "Premia for Disaster Risk Financing or Transfer Products", and with any requisite wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums.

D. Procurement

71. An assessment of the capacity of SPC, PIFS, The Ministry of Natural Resources and Environment in Samoa (MNRE) and the Ministry of Meteorology, Information, Energy, Disaster Management, Climate Change and Communications in Tonga (MEIDECC) to implement procurement actions for the project was conducted and identified the following main risks: (i)

program coordination of several projects in multiple countries; (ii) weak institutional arrangements and low capacity; (iii) market constraints due to geography; and (iv) procurement complexity. The Program's overall procurement risk is rated high. A key Program-level mitigation measure that addresses identified capacity constraints and supports regional harmonization includes establishment of a Program Support Unit (PSU) within SPC, which will be responsible for, among other aspects, coordinating and handling all procurement activities up to contract signing. The Regional Coordination Unit (RCU), which will be which will be established within the PIFS, and national Project Management Units (PMUs) within the other Implementing Agencies, will be responsible for managing all project activities within their jurisdictions including contract award and signature, monitoring implementation progress of their respective projects, providing authorization for contract payments and providing progress reports for consolidation by the PSU. Furthermore, a Regional Procurement Evaluation Committee (RPEC) with members from the PSU and support from the RTEC will foster stakeholder ownership in the process and outcomes. Procurement for the project will be carried out in accordance with: (i) the World Bank's "*Guidelines: Procurement under IBRD Loans and IDA Credits*" dated January 2011 (revised July 2014); (ii) "*Guidelines: Selection and Employment of Consultants by World Bank Borrowers*" dated January 2011 (revised July 2014); (iii) the provisions stipulated in the Financing Agreement; and (iv) the "*Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants*", dated October 15, 2006 (revised in January 2011). For each contract to be financed by the project, the different procurement methods or consultant selection methods, estimated costs, prior review requirements, and time frame are agreed in the Procurement Plan. This Plan will be updated at least annually or as required to reflect the project implementation needs and improvements in institutional capacity.

E. Environmental and Social Safeguards

72. The PREP has been classified as Environmental Category B, given the expected limited environmental and social impacts. The overall social and environmental impact of the PREP is expected to be positive and none of the eligible investments on the menu of options include activities that would generate significant risk or irreversible adverse environmental or social impacts. To ensure that this is the case and to guide implementing agencies on the: (i) environmental and social screening; and (ii) subsequent assessment of country-specific project activities during project preparation and implementation, an Environmental and Social Management Framework (ESMF) has been prepared, which was disclosed at the country and regional level, as well as via the World Bank Infoshop during March 2015, prior to the Appraisal of the Program. The ESMF sets out key principles and standards, as well as environment and social screening arrangements.

73. The overall environmental impact of the Program is expected to be positive, and none of the eligible investments on the menu of options include activities that would generate significant risk or irreversible adverse environmental impacts.

74. The overall social impact of the project is also expected to be highly positive, as the PREP will support poor and vulnerable communities to make informed decisions on disaster prevention and preparedness by: (i) supporting the provision of early warning mechanisms and improving disaster risk-awareness; and (ii) supporting risk-informed planning and investments to reduce disaster impacts on societies, manage residual risk and uncertainties, and strengthen the capacity

of people and institutions to prepare for and respond to disasters. As such, prevention of the social impacts created by natural disasters and climate change underlies the purpose of the Program.

75. The overarching safeguards document for the Program is the *Environmental and Social Safeguards Instruments for the Pacific Island Countries* (ESSIP) (October 2014). It is proposed to trigger the following World Bank safeguard policies for both TA and investment components. No other Safeguard policies are triggered.

Table 5: World Bank Safeguard Policies Triggered by PREP

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	**Yes**	This policy is triggered because sub-projects involving civil works (Component 1) and entry level investments in resilience such as retrofitting public buildings (Component 2) may generate negative environmental or social impacts. Similarly, future subprojects developed under Components 3 (i.e., the CERC) may have environmental and social interactions. An ESMF will be the key safeguard instrument and will contain guidance on preparation of environmental and social impact assessments and associated safeguards documents. To this end, an ESMF has been prepared in accordance with the PIC guidelines and templates. The ESMF will be disclosed locally and at the Infoshop prior to appraisal of the Program.
Natural Habitats OP/BP 4.04	**Yes**	Program activities are not expected to involve significant loss or degradation of natural habitats, however this policy has been triggered as a precaution since specific sites and activities are not yet known.
Forests OP/BP 4.36	**Yes**	The Program will not support any civil works that encroach or adversely impact upon forests. However this policy is triggered as a precaution because limited incidental forest clearing may occur during civil works.
Physical Cultural Resources OP/BP 4.11	**Yes**	The Program is not expected to finance any civil works that could significantly affect Physical Cultural Resources (i.e. these subprojects will be screened out). However building refurbishment may include retrofitting of historical buildings, and civil works may involve chance finds of historically or culturally important resources.
Indigenous Peoples OP/BP 4.10	**Yes**	Of the 7 or more countries that have been identified for inclusion in Phase I and potential inclusion in Phase II (RMI, Samoa, Tonga and Vanuatu for Phase I and potentially Fiji, FSM, and the Solomon Islands for Phase II), only the Solomon Islands would ordinarily trigger OP 4.10. It is proposed to trigger OP 4.10 on a precautionary

		approach as it assists in informing SPC as the Regional Implementing Agency that IP issues may need to be managed during the course of project implementation. The ESSIP details the required approach to engage with IP on relevant subprojects
Involuntary Resettlement OP/BP 4.12	**Yes**	Although it is expected that the majority of Program activities will be undertaken on state-owned or Crown land, there is potential for certain project activities (e.g. construction of monitoring stations, post-disaster reconstruction) to encroach on customary or private lands. A Resettlement Policy Framework (RPF) has been incorporated into the Program's ESMF.

F. Gender

76. Women are more likely than men to be negatively impacted by climate change and natural disaster events (World Development Report, 2012). Studies have shown that disaster fatality rates are much higher for women than for men, primarily due to gendered differences in capacity to cope with such events and insufficient access to information and early warnings. For example, women accounted for 61 percent of fatalities caused by Cyclone Nargis in Myanmar in 2008, and 70–80 percent in the 2004 Indian Ocean tsunami (UNDP). There is a direct relationship between women's risk of being killed during disasters and their socio-economic status (UNDP).

77. This gendered asymmetry in vulnerability to disaster risk is primarily due to geographic, economic, social, educational/informational and political power imbalances across all levels, as (i) Women tend to live and work closely with the natural resources and geographical features that are most effected by disasters and shocks; (ii) socio-cultural norms may cause restrictions in movement to escape disasters (particularly water-related hazards); and (iii) women have lower levels of access to economic resources in general, and in particular, lower levels of education and information to access, read and act upon disaster warnings.[17]

78. While women have a higher vulnerability to natural disasters, the also play an important role in community level efforts to minimize the risks, including in community early warning and preparedness. For example, in Samoa, women tend to have higher secondary and tertiary education levels than do men and as such, offer a well-educated human resource that can be utilized for risk mitigation initiatives, and mobilized as part of the community awareness campaigns and contingency planning. Accordingly, women will play a critical role in disaster risk reduction strategies promoted by the project. Gender empowerment activities will be conducted in communities were women's voices within the decision-making process are to be heard. The PREP recognizes that traditional knowledge and practices in the Pacific are often gendered. While the participating PICs are not homogeneous, gender often dictates where women and men work and separates traditional knowledge into women's and men's knowledge. Traditional or local

[17] Aguilar, L. et al, 'Training Manual on Gender and Climate Change', published by the International Union for Conservation of Nature (IUCN), United Nations Development Programme (UNDP) and Global Gender and Climate Alliance (GGCA), San Jose, Costa Rica, 2009.

knowledge will therefore be important for understanding gender and gender roles and responsibilities within the PREP.

79. The PREP will also consider the way by which gendered divisions of labor can be relevant to disaster and climate risk management, while recognizing that roles and responsibilities, are not uniform across PICs, and rather are influenced by culture and community, in addition to gender. For example, in some communities, men take care of building and maintenance, while women clean and care for children. In other communities, men are primarily involved in deep-sea fishing and women gather from the nearshore areas.

80. The PREP aims to strengthen the ability of women in participating countries to make informed decisions about what to do to protect themselves and their families from hazards. Furthermore, the PREP will help emergency services to target limited resources towards where they are most needed, in order to maximize the impact of their response efforts. As women and children are often disproportionately impacted by natural hazard events (as was the case, for example, following the Solomon Islands flash flooding of April 2014), this approach is expected to benefit women in particular.

81. The PREP will make concerted efforts not only to ensure women's representation in decision making committees, but also to ensure that community facilitators are trained to effectively engage women in all processes related to the project. Separate sessions for women and men that include participatory learning techniques, transect walks and vulnerability assessments will be part of the community consultation process. As the traditional roles of women differ across the participating PICs, the community organizations engaged in the Program and the consultation process will pay specific attention to this. Monitoring indicators will be gender disaggregated where feasible.[18]

G. World Bank Grievance Redress

82. Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Banks Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

[18] Gender considerations will refer to the relevant literature, specific to the vulnerability of women during disaster events, including the World Bank documents *Making Women's Voices Count* (2012), *Girls in Disasters* (2013) and World Bank Country Gender Action Plans for Tonga and Samoa (2012-2016).

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Pacific Resilience Program (PREP)
ANNEX 1: RESULTS FRAMEWORK AND MONITORING

Note: the Cumulative Target Values are tentative and will be further discussed with participating countries and regional organization during the pre-appraisal mission

INTERMEDIATE RESULTS

***Project Development Objective**: The objective of the Program is to strengthen early warning, resilient investments[1] and financial protection of participating countries[2].*

Project Development Level Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Direct project beneficiaries, of which 40% are female[3]	☐	Number	Samoa 38,000	38,000	38,000	48,000	60,000	75,000	Annually	Survey	PMU, DMO, SMD	Project beneficiaries refers to people who are able to receive timely and actionable hazard forecast and warning messages, understand the meaning and know what actions to take.
		Number	Tonga 24,000	24,000	24,000	36,000	48,000	60,000			PMU, NEMO, TMD	
Increased coverage of hazard forecast and warning messages to population at risk		Percentage of population	Samoa 50%	50%	50%	60%	70%	80%				Coverage refers to the people who can receive hazard forecast and warning messages through a modernized warning system.
			Tonga 50%	30%	40%	50%	60%	70%				

[1] For the purpose of the PDO, resilient investments include those in: (i) early warning and preparedness; (ii) risk identification and reduction; (iii) resilient reconstruction and investments through improved codes and standards; (iv) enhancing or enabling policies and planning for that considered to be short and long-term risks; and (v) financial instruments that allow access to timely financing post disaster.

[2] For country specific PDOs, refer to Annex 3 for Samoa, Annex 4 for Tonga, Annex 5 for RMI and Annex 6 for Vanuatu (Note: as the projects for RMI and Vanuatu include an abridged Project design encompassing only Sub-component 3.1.2, these countries have a simplified PDO). The PDO for regionally implemented activities (Annex 7) is the same as for the Program PDO.

[3] Contributes to PPCR Regional Core Indicator #5 ("Number of people supported by the PPCR to cope with the effects of climate change")

***Project Development Objective**: The objective of the Program is to strengthen early warning, resilient investments[1] and financial protection of participating countries[2].*

Project Development Level Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Percentage of short term priority projects of the resilient investment plan developed under the Program included in the Medium Term Expenditure Framework [4]		%	Samoa Nil	0	0	20%	30%	40%	Annually	Project Reporting	PMU Samoa. Ministry of Finance	Short Term means a 5 year timeline
			Tonga Nil	0	0	20%	30%	40%			PMU Tonga, Ministry of Finance	
Participating PICs have received payment within a month of the occurrence of a covered (insured) event		%	No Catastrophe Risk Coverage without PREP	100%	100%	100%	(Phase II)	(Phase II)	`	Annual progress report	Ministries of Finance of Samoa, Tonga, RMI and Vanuatu /PIFS	Percentage of policy-triggering disaster events for which payouts have been provided within a month of the occurrence.
Time taken to commit funds from the contingency emergency component requested by Government for an eligible emergency.		Weeks	All countries	6 weeks	5 weeks	4 weeks	4 weeks	4 weeks	Annual	Annual progress report	Ministries of Finance	

INTERMEDIATE RESULTS

[4] Contributes to PPCR Regional Core Indicator #4 ("Extent to which PPCR pilot countries, non-pilot countries and regional organizations use improved PPCR supported tools, instruments, strategies, activities to respond to climate variability and climate change")

Intermediate Result (Component 1): Early Warning and Preparedness

Intermediate Level Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Nationally implemented activities												
Improved status of hazards observational network (Hydro, Meteorological and Seismic)[5]		% observation stations operating in line with Standard operating procedures (SOPs) in total network	Samoa: 30%	30%	30%	40%	50%	60%	Bi-annually	Survey	PMU, SPC, SMD	
			Tonga: 20% (Seismic only)	20%	20%	30%	40%	50%			PMU, SPC, TMD	
Multi Hazard Early warning systems are established and operating.[6]		y/n	Samoa, No	No	No	Yes	Yes	Yes	Annually	Survey	PMU, SPC, SMD	Existing hazard observing and warning systems are integrated into fully operational multi-hazard early warning platforms providing unified and consistent color-codes of threat levels
			Tonga, No	No	No	No	Yes	Yes			PMU, SPC, TMD	
Regionally implemented activities (SPC)												
Improved use of training opportunities		%. of MHEWS professional staff trained and/or re-trained	20%	20%	40%	60%	70%	80%	Annually	Project reporting	SPC	

[5] Contributes to PPCR Regional Core Indicator #3 ("Quality and extent to which climate responsive instruments/investment models are developed and tested")
[6] Contributes to PPCR Regional Core Indicator #3

Intermediate Result (Component 2): Risk Reduction and Resilient Investments												
Intermediate Level Results Indicators	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values**					**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description** (indicator definition etc.)
				YR 1	**YR 2**	**YR3**	**YR 4**	**YR5**				
Nationally implemented activities												
Multi-sectoral Resilient Investment Plan developed/updated based on the tools developed under Component 2.2[7]		y/n	Samoa	CRIP will be revised	CRIP updated and presented to stakeholders	Updated CRIP validated and resource mobilization ongoing	Resources mobilization ongoing	Resources mobilization ongoing	Annually	Project reports	Ministry of Finance	The program will support the preparation of a multi-sectoral investment plan in resilience which will set clear priorities (short, medium and long term) and progress indicators, and will be validated by the Government and donors.
			Tonga	Plan under development	Plan developed and presented to stakeholders	Plan developed and validated	Resources mobilization ongoing	Resources mobilization ongoing	Annually			
Regionally implemented activities (SPC)												
Satisfaction of users of the multi-hazard spatial risk data and information system[8]		Percentage	0	0	0	50%	60%	70%	Annually	Survey	SPC	Composite Satisfaction index expressed as a %, where 100% is completely satisfied. At least 40% of users surveyed to be women.
Percentage of updated risk exposure data for PREP countries[9]		Percentage	0	20%	40%	50%	60%	70%	Annually	Project reporting	PIFS/SPC	Percentage of risk exposure datasets for PREP countries (XYZ) within the Pacific Risk Information System (PACRIS), which have been updated to 2013 and younger baseline information
Percentage of public assets with risk information available to inform resilient planning in targeted areas[10]		% of public assets	0	0	0	30	40	60	Annually	Project reporting	SPC	Targeted areas include at least 2 targeted urban areas (e.g Apia, Port Vila)

[7] Contributes to PPCR Regional Core Indicator #1 ("Degree of Integration of climate change in national, including sector, planning")
[8] Contributes to PPCR Regional Core Indicator #4
[9] Contributes to PPCR Regional Core Indicator #3
[10] Contributes to PPCR Regional Core Indicator #3

Intermediate Result (Component 2): Risk Reduction and Resilient Investments												
Intermediate Level Results Indicators	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values**					**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description** (indicator definition etc.)
				YR 1	**YR 2**	**YR3**	**YR 4**	**YR5**				
Number of Community based DRM/climate resilience projects developed by the Program in targeted areas[11]		Number of projects	0	0	0	30	40	50	Annually	Project reporting	SPC	Projects will be informed by the 'integrated community resilience' toolkit developed under Component 2.2. Targeted areas include at least 2 Islands in Vanuatu
Intended beneficiaries that are aware of project information and project supported investments[12]		Percentage	0	0	0	20%	40%	60%	Annually	Survey	SPC	Intended beneficiaries refers to communities with Community based DRM/climate resilience projects developed by the Program in targeted areas

Intermediate Result (Component 3): Disaster Risk and Climate Financing												
Intermediate Level Results Indicators	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values**					**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description** (indicator definition etc.)
				YR 1	**YR 2**	**YR3**	**YR 4**	**YR5**				
Nationally implemented activities												
The premiums are lower than the simulated price for a comparable coverage purchased individually in the market.		Yes/no	No Catastrophe Risk Coverage without PREP	Yes	Yes		(Phase II)	(Phase II)	Annually	Project reporting	Ministry of Finance/	Percentage of savings, defined as the simulated individual market (obtained through the World Bank) vs the real price under PREP
Regionally implemented activities (PIFS)												
Concept of Mutual Insurance Fund/Facility developed[13]		Yes/no	No		Yes				Annually	Project reporting	PIFS	

[11] Contributes to PPCR Regional Core Indicator #2: ("Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience")

[12] Contributes to PPCR Regional Core Indicator #4

[13] Contributes to PPCR Regional Core Indicator #3

Intermediate Result (Component 4): Project and Program Management												
Intermediate Level Results Indicators	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values**					**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description** (indicator definition etc.)
				YR 1	**YR 2**	**YR3**	**YR 4**	**YR5**				
Project component are managed and monitored effectively		Annual rating	Samoa Nil	S or more	S or more	S or more	S or more	S or more	6 months	Project reporting/Supervision mission aide memoire	Samoa MoF	Rating = Unsatisfactory (U), Moderately Unsatisfactory (MU), Moderately Satisfactory (MS), Satisfactory (S), Highly Satisfactory (HS) based on Implementation Performance Rating
			Tonga Nil	S or more	S or more	S or more	S or more	S or more			Tonga PMU/PIFS	
Program is coordinated, managed and monitored effectively		Annual rating		S or more	S or more	S or more	S or more	S or more	6 months	Project reporting/Supervision mission aide memoir	SPC/PIFS	Rating = U, MU, MS, S, HS, based on Implementation Performance Rating

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Pacific Resilience Program (PREP)
ANNEX 2: DETAILED PROGRAM DESCRIPTION

1. The Program will include a combination of activities and investments at the country level (Project) and activities at the Regional level which benefit the region as a whole (Program). At this stage, the Program will include a first phase (Phase I) which will include a series of Projects for countries which are ready to join the program (i.e., Samoa, Tonga, SPC and PIFS for Components 1, 2, 3 and 4 and RMI and Vanuatu for Component 3.1.2) and a second phase (Phase II) which will include additional investments for the Phase I countries (to be prepared at the beginning of Phase I) and additional countries that are ready to join the Program (potentially FSM, Fiji and Solomon Islands).

A. Program components

2. The Program will comprise a combination of nationally implemented activities and regionally implemented activities as described in the matrix below:

	National implemented activities	Regional Implemented Activities
Recipients	✓ Phase I countries: Samoa and Tonga for all components, with RMI and Vanuatu for premium financing under sub-component 3.1.2	✓ SPC for Component 1.2, 2.2 and 4.2 ✓ PIFS for component 3.2 and 4.2
Component 1: Strengthening early warning and preparedness	✓ 1.1 Investments in early warning and preparedness	✓ 1.2 Regional TA to strengthen impact forecasting and preparedness
Component 2: Risk Reduction and Resilient Investments	✓ 2.1 Risk reduction and resilient investment planning and preparation (including entry level investments)	✓ 2.2. Regional platform to support risk reduction and resilient investment planning
Component 3: Disaster Risk Financing	✓ 3.1. Disaster risk financing instruments	✓ 3.2 Development of Mutual Insurance Fund
Component 4: Project and Program Management.	✓ 4.1 Project Management	✓ 4.2 Regional Program Management and Coordination

3. The Program will comprise the following four components:

Component 1: Strengthening Early Warning and Preparedness (estimated cost including contingencies: US$23.0 million)

4. The objective of this component is to increase the resilience of the participating Phase I countries and the Pacific region as a whole to natural hazards such as cyclones, coastal/riverine flooding, volcanic eruptions, tsunamis and earthquakes by improving the quality of forecasting and warning services as well as disaster preparedness. This component has two sub-components:

(i) Investments in Early Warning and Preparedness; and (ii) Regional TA to Support Impact Forecasting and Preparedness. .

Sub-Component 1.1: Investments in Early Warning and Preparedness

5. This sub-component will be *nationally implemented* (refer to Annex 3 for Samoa activities and Annex 4 for Tonga activities), and aims to strengthen the ability of participating countries to make warning information actionable by those at risk, in order to minimize adverse impacts to vulnerable communities and individuals, including women, children and other more vulnerable members of the population. It will enable people to make informed decisions about what to do to protect themselves from hazard impacts and help emergency services target limited resources to where they are most needed to maximize the impact of their response efforts.

6. Generally speaking, Sub-component 1.1 will strengthen: (i) detection, forecasting and warning of the impact of natural hazards; (ii) dissemination of timely warnings to the population, including last mile communication; and (iii) emergency preparedness and response mechanisms. This will involve the introduction of an impact forecast and warning system, which will build on existing capabilities in meteorological, hydrological and seismological monitoring, forecasting and warning, and the PCRAFI vulnerability assessments to establish a fully functioning MHEWS for each participating country. The design of Sub-component 1.1 will include adequate provision for the necessary ongoing operational and maintenance requirements to ensure the sustainability of the MHEWS.

7. Country investments under Sub-component 1.1 will strengthen both national and regional early warning systems, with priorities for each participating country and the region identified through a needs assessment that has been conducted by a team of technical experts, in consultation with the meteorological and seismological agencies and other relevant counterparts including those in climate sensitive sectors such as agriculture, food security, tourism, aviation, water resources, health, energy and infrastructure in the participating Phase I countries.

8. Sub-component 1.1 will also strengthen last mile connectivity, which is a particular priority for the PREP due to the specific challenges related to: (i) communicating disaster warnings to remote PIC locations prior to a natural disaster; and (ii) coordinating response and recovery efforts following a disaster. In order to ensure the PREP is successful in strengthening the disaster resilience of the most at risk communities, the provision of improved communication capabilities for the outer islands will be paramount, through, for example, strengthened mobile telecommunication capacity, and high and very high frequency radio systems.

9. Subcomponent 1.1 will be separated into the following three components:

10. *Sub-component 1.1.1: Institutional and regulatory strengthening, capacity building and implementation support,* is designed to strengthen the Institutional and regulatory framework for exchange of data and information which is critical for the implementation of impact forecast and warning services, including strengthened capacity to ensure the operability of the future systems.

11. *Sub-component 1.1.2: Modernization of the Observation Infrastructure, Data Management Systems, Forecasting and Warning Systems*, is designed to modernize the observation infrastructure, data management systems, forecasting and warning systems for the participating countries.

12. (iii) *Sub-component 1.1.3: Enhancement of the MHEWS Service and Preparedness Delivery System* will improve service delivery by enhancing the MHEWS to include impact forecast and warning services that deliver actionable information to the public at risk and to emergency services.

Sub-Component 1.2: Regional TA to strengthen impact forecasting and preparedness

13. This sub-component will be *regionally implemented* (by SPC) and will provide the Technical Assistance and advisory services required to support Early Warning and Preparedness activities under Component 1.1 for the participating countries. This will be done through regional technical assistance, development of a platform to provide access to the range of knowledge, training and education material as well as tools to strengthen capacity and improve understanding of early warning and preparedness in PICs. Additional information is provided in Annex 7 to this PAD. This component has the following three sub-components as specified below: (i) Sub-component 1.2.1: Impact Forecasting; (ii) Sub-component 1.2.2: Strengthening Preparedness for Response; and (iii) Sub-component 1.2.3: Post Disaster Recovery.

Sub-component 1.2.1: Impact Forecasting

14. The focus of this sub-component is to develop operational hazard models for forecasting of impacts of extreme events including tropical cyclone, storm surge, flooding at sub-national level, which will be integrated into the countries Multi-Hazard Warning Platforms. Such impact forecasting can then be used to produce just-in-time maps of potentially affected areas.

Sub-component 1.2.2: Strengthening Preparedness for Response

15. This sub-component will strengthen the preparedness and response capacity within each of the participating countries. This will allow them to better prepare for and respond to climate and disaster-related emergencies.

Sub-component 1.2.3: Post Disaster Recovery

16. With the increases in small and large disasters, there is an increasing demand for specialists for post disaster needs assessments (PDNA). This subcomponent will support: (i) SPC staff operating costs for staff who are increasingly expected to participate in the PDNAs and help bring their knowledge, tools and expertise in these time-sensitive assessments; and (ii) the hire of short term consultants for conducting PDNAs in PICs.

Component 2: Risk Reduction and Resilient Investments (estimated cost including contingencies: US$8.6 million)

17. The objective of this Component is to support a multi-sectoral planning process for integrating climate and disaster risk and resilience into development and prepare investments for phase II. This component is divided into two sub-components: (i) Risk reduction and resilient investment planning and preparation; and (ii) Regional tools and advisory services to support planning and investment.

Sub-component 2.1: Risk Reduction and Resilient Investment Planning and Preparation

This sub-component will be *nationally implemented* (refer to Annex 3 for Samoa activities and Annex 4 for Tonga activities). It includes the following two sub-components:

Sub-component 2.1.1: Investment planning and preparation

18. This sub-component will consist of support to the governments of participating Phase I countries for the preparation of multi-sectoral investment plans which will: (i) set clear priorities (short, medium and long term) and progress indicators; and (ii) prepare feasibility studies for selected priority investments that could be implemented during Phase II or which could also potentially be financed by other donors. It is anticipated that this will build the capacity of the participating countries to scale up risk reduction and resilient investments, access global climate and other donor funds and address the issue of the fragmentation of initiatives in this space. This sub-component will pave the way for scaling up investments which will be financed and implemented during Phase II[1].

Sub-component 2.1.2: Entry level investments to strengthen climate and disaster resilience

19. This sub-component will finance entry level resilient investments, such as the retrofitting of public buildings (e.g., schools, health centers) to meet new internationally accepted building resilience standards (including appropriate consideration of gender requirements). This will help to preserve life during disaster events, better protect the retrofitted assets, and lead to more affordable insurance premiums for catastrophic risk asset insurance. Specific facilities will be selected the first year of implementation in close collaboration with the Global Safe School Program.

Sub-Component 2.2: Regional Platform to Support Risk Reduction and Resilient Investment Planning

20. This sub-component will be *regionally implemented* (by SPC – refer to Annex 7 for detailed description of activities) and will: (i) support a multi-sectoral planning process for integrating climate and disaster risk and resilience into development; (ii) invest in data and tools to make risk information actionable, which will benefit the broader region, and (iii) support planning and preparation of national infrastructure and community resilient investments in participating countries to be funded and implemented in Phase II and/or by other Project Donors. For Samoa and Tonga, such work will be done in collaboration with the ongoing programs supported by the PPCR fund. There are four sub-components:

Sub-component 2.2.1: Strengthening multi-hazard spatial risk data and information systems and development of the decision tools

21. This sub-component will build on previous risk data and information initiatives, such as PCRAFI, but will be much more ambitious than hitherto in developing modern digital information

[1] Phase II Program costs estimate could amount to between US$50-60 million, with additional investments in Phase I countries and the potential for additional countries to join the Program.

and data decision support systems. The *risk for planners decision support tools* will contextualize the risk information for specific target audiences, who are not necessarily experts in risk, hazards or IT systems to interrogate the data and make informed decisions and/or develop evidence based policy. The applications will drive the development of the tools and systems development will be based on extensive consultation and engagement with target user groups, such as urban planners, infrastructure/investment planners and disaster managers in PREP countries and a thorough understanding of planning processes and work flows.

Sub-component 2.2.2: Testing applications and decision support systems for resilient planning and investments at the national level

22. This sub-component will test and apply the *risk for planner decision support tools* at the national level, with a particular focus on public infrastructure and urban centers (e.g Port Vila, Apia). These systems will be widely demonstrated to potential users and decision makers to visually display the power of the system and how it assists investment in infrastructure and climate and disaster resilient development.

Sub-component 2.2.3: Developing an Integrated Community Based Approach to Resilience for Disaster, Risk and Climate Change

23. This sub-component will develop decision making tools for 'integrated community resilience development'. Such tools will take account of already established methodologies that look at holistic development at a whole island or ridge to reef scale. Opportunities to collaborate with NGOs and other community organizations will be sought as appropriate.

Sub-component 2.3.4: Innovative knowledge sharing to strengthen current investments

24. This sub-component will develop effective/innovative processes to share knowledge generated from projects funded in the Pacific through PPCR, PREP and other donors projects. Examples include web-platforms and short videos, among others. In addition, demonstration areas associated with academia and education facilities in participating countries (e.g., schools/colleges) will be established, with the aim of educating decision-makers (e.g., community leaders, government officials, CSOs, private sector, NGOs etc.) on some of the simple solutions that are possible for reducing climate and disaster risks. This will build on ongoing work supported by countries and/or SPC.

Component 3: Disaster Risk Financing (estimated cost including contingencies: US$8.8 million)

25. The objective of this component is to strengthen the financial resilience of the participating PICs to disaster events by enabling them to secure access to immediate liquidity post disaster for low, medium and high risk events. Accordingly, this component will support the development and implementation of an integrated disaster risk financing strategy that provides an optimal combination of risk retention (for high frequency, low severity events) and risk transfer (for low frequency, high severity events) for participating countries (see Figure 1 below). This will include both national instruments and regional instruments, and will build on the PCRAFI pilot insurance scheme, which is reaching the third and final year and has

previously been funded by Japan with some funding also contributed by the beneficiary governments. This component is divided into two sub-components as follows: (i) Disaster risk financing instruments; and (ii) Development of Mutual Insurance Fund.

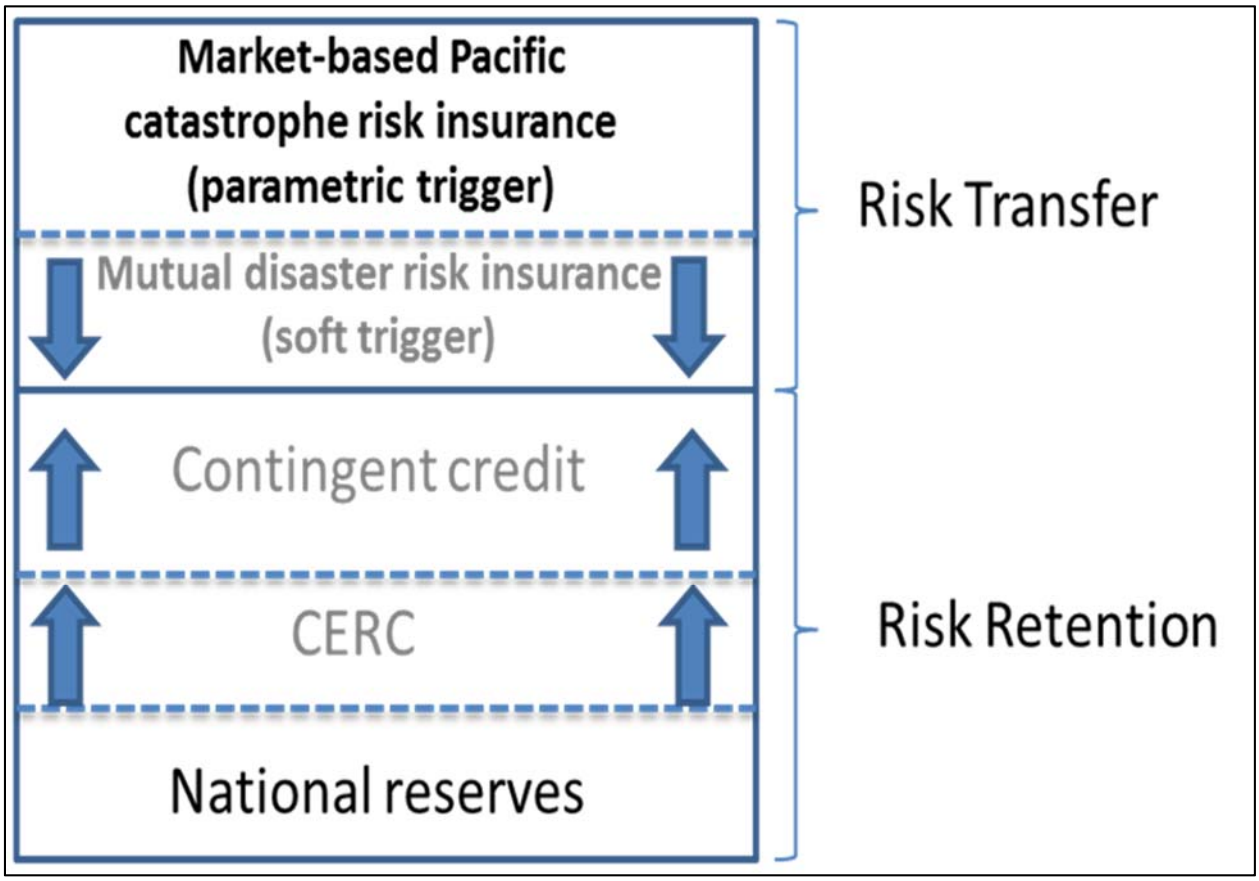

Figure 1: Integrated Disaster Risk Financing Strategy

Sub-component 3.1: Disaster risk financing instruments

26. This sub-component would be *nationally implemented* (refer to Annex 3 for Samoa, Annex 4 for Tonga, and Annex 5 for RMI and Annex 6 for Vanuatu who will be participating in Sub-component 3.1.2 only), and would complement existing national disaster risk financing instruments, such as national reserves and disaster funds used for immediate response. This sub-component would include: (i) a Contingency Emergency Response Sub-Component; (ii) Premiums financing which will allow the continuation of PCRAFI insurance scheme; and (iii) Capacity building for Disaster Risk Financing which will support finance ministries to oversee and administer disaster risk financing instruments, climate finance and implementation of the contingency emergency response sub-component (CERC – see below).

Sub-component 3.1.1: Contingency Emergency Response Sub-Component

27. Participating countries have been invited to include a Contingency Emergency Response Sub-Component (CERC) within their country level Project, which would be triggered following the declaration of a national disaster. The CERC would be intended to strengthen the emergency

preparedness and immediate response capacity for each country for low and medium disaster risk layers.

28. A CERC can either be fully funded, or serve as a contingent window. Following the triggering of a pre-agreed disbursement condition (e.g. the declaration of a national disaster), the CERC would be implemented in accordance with the rapid response procedures governed by the World Bank OP/BP 8.0 *Rapid Response to Crises and Emergencies.* The disbursement condition would define the circumstances under which the CERC would become available.

29. The Financial Agreement for each participating country defines the eligibility criteria and disbursement arrangements for triggering and financing activities under the CERC. The specific details of the proposed implementation arrangements and procedures governing the use of the CERC funds will be further detailed in a proposed standalone CERC annex within the proposed Project Operations Manual (POM) of each Phase I country.

30. The provisional estimate for this CERC Sub-component is up to US $0.5 million for each country. More information of the inclusion of a CERC is included in Annex 3 for Samoa and Annex 4 for Tonga.

Sub-component 3.1.2: Premiums financing

31. This sub-component provides a mechanism by which catastrophe risk insurance premiums are financed to enable the continuation of the Pacific Catastrophe Risk Insurance pilot. This tool provides catastrophe risk insurance coverage for high and medium risk layers to participating PICs (including Samoa, Tonga, RMI and Vanuatu) through a regional pooling mechanism. The pilot began its third season in November 2014 following the request of countries during the 2014 Forum Economic Ministers Meeting. Samoa, Tonga, RMI and Vanuatu all made a contribution towards the premiums of US$20,000 for the second season and US$40,000 in the third season. The remaining premium finance was kindly provided by the Government of Japan via premium subsidies.

32. The PREP will assist the governments of the participating countries to pay the catastrophe risk insurance premium through IDA after the third year of the ongoing pilot. The estimated cost of the premium for each of the four Phase I countries is US$0.5million/year for three years to provide insurance coverage against tropical cyclones and earthquakes/tsunamis until 31st October 2018. The participating governments will provide counterpart funding at a minimum in the amount of at least US$40,000 to partially finance the premium for year commencing November 2015, US$50,000 for the year commencing November 2016, and US$ 60,000 for the year commencing November 2017.

33. Due to the specifics of the proposed implementation arrangements (i.e. the World Bank will act on behalf of the recipient and enter into a contract with the re-insurance company and pay them directly), many standard fiduciary requirements and procedures do not apply to this sub component. To help facilitate, control and provide the exceptions to this sub-component funds, a separate disbursement category has been established for the insurance funds under sub-component 3.1.2, titled “Premia for Disaster Risk Financing or Transfer Products”, and with any requisite

wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums.

Sub-component 3.1.3: Capacity building for Disaster Risk Financing

34. This sub-component will build capacity at the national level for participating countries, through the establishment of resources within the respective Ministries of Finance for three years which would focus on: (i) support for the implementation of the CERC under sub-component 3.1.1; (ii) oversight for the national DRFI and climate finance strategy; (iii) ensuring insurance of key public assets provides adequate coverage against the relevant country's main disaster perils; (iv) mainstreaming risk reduction into the budgetary process to ensure swift budget mobilization and execution of funds in the event of a disaster; (v) strengthening the country capacity to access climate finance; and (vi) supporting representation of each participating country at any regional or international meeting on DRFI, ensuring that experiences and lessons learned in this area are shared.

Sub-component 3.2: Development of Mutual Insurance Fund

35. This sub-component will be *regionally implemented* (by PIFS – refer to Annex 7) and will provide Technical Assistance and finance the preparatory activities which will be required to better define a medium and long term disaster risk financing framework (e,g., mutual insurance fund), that it is envisaged would be financed and implemented in Phase II of the Program. It will also provide technical assistance to assess the country capacity and as needed help prepare them to access to global climate funds, especially the Green Climate Fund.

Sub-component 3.2.1: Regional Technical Assistance

36. This sub-component would provide targeted technical assistance that focuses on the regional coordination of DRFI to ensure that there is regular discussion among countries at the regional level. This would be done via three main activities: (i) providing opportunities for discussion on DRFI at the Ministerial level; (ii) coordination of contracts for the Pacific catastrophe risk insurance pilot; and (iii) convening dedicated regional peer exchange workshops on DRFI.

Sub-component 3.2.2: Development of a Mutual Insurance Fund for natural disasters

37. This sub-component seeks to address the need that has been identified by PICs to cover consequential losses such as transportation costs that are not currently covered by the catastrophe risk insurance pilot. Accordingly, this sub-component will finance the preparatory activities which will be required to better define a mutual insurance fund and explore the involvement of the private sector. The mutual insurance fund is a medium and long term framework and financial instrument that it is envisaged would be financed and implemented in Phase II of the Program. This financial tool will complement the catastrophe risk insurance and national financial instruments.

Component 4: Project and Program Management (estimated cost including contingencies: US$4.7 million)

38. The objective of this component is to provide efficient and effective implementation support to the Projects in each country, including staff, operating costs, monitoring and evaluation, and the cost of audits. It will also provide efficient regional coordination of the different country Projects and the implementation of activities that will be executed at the regional level.

Sub-component 4.1: Project Management

39. This sub-component will be *nationally implemented* (refer to Annex 3 for Samoa and Annex 4 for Tonga) and provides financing for the efficient implementation of the country Projects, including staff, operating costs, monitoring and evaluation, and the cost of audits.

Sub-component 4.2: Regional Program Management and Coordination

40. This sub-component will be *regionally implemented* (by both PIFS and SPC – refer to Annex 7). The objective of this sub-component is to provide efficient regional coordination of the different country Projects and the coordination and implementation of activities that will be executed at the regional level. This component includes the following two sub-components: (i) Regional Coordination Unit (RCU); (ii) Program Implementation Support (PSU).

Sub-component 4.2.1 Regional Coordination Unit (RCU)

41. This sub-component will be implemented by PIFS and will provide financing for high level coordination of climate and disaster resilient development projects and initiatives in the Pacific Islands Countries. This will be supported by the establishment of a Regional Coordination Unit (RCU) within PIFS.

Sub-component 4.2.2: Program Implementation Support (PSU)

42. This sub-component will be implemented by SPC and will provide financing for the efficient implementation of the Program, including staff, operating costs, monitoring and evaluation, and the cost of audits. This would be achieved through the establishment of a Program Support Unit (PSU) within SPC.

Project Appraisal Document
Pacific Resilience Program (PREP)
ANNEX 3: DETAILED PROJECT DESCRIPTION FOR SAMOA

(US$5.000 million national IDA, US$8.793 million regional IDA)

I. Strategic Context

1. Samoa is a lower middle-income country with a 2013 GDP of US$694 million, and a per capita GDP of US$3,647. The population of the country is 190,000, with about 75 percent living on the island of Upolu, where the capital city of Apia is located. Most of the remaining 25 percent live on the larger island of Savai'i. Samoa has historically been regarded as one of the best performing economies in the Pacific, with GDP growth averaging 4.3 percent annually between 1998 and 2008. However, similar to other small island countries, Samoa was greatly affected by the food and fuel price shocks of 2008 and the global economic crisis, with the economy contracting by more than 5 percent cumulatively during 2009 and 2010.

2. Economic instability has been compounded significantly by a number of recent natural disaster events, including the September 2009 earthquake and resultant tsunami, and Tropical Cyclone Evan (TCE), which struck the country in December, 2012, resulting in total damage and losses of approximately US$210 million (30% of annual GDP). The impacts of these disasters have been significant, and given the extreme vulnerability of Samoa to climate change and natural hazards including tropical cyclones and tsunamis, there is a risk that similar and possibly increasing losses will be experienced in the future. Catastrophic risk modelling indicates that Samoa is expected to incur, on average, US$10 million 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 US$130 million, and a 10% chance of experiencing a loss exceeding US$350 million[1]. These estimates do not take climate change into account, which contributes to key risks to loss of livelihoods, coastal settlements, infrastructure, ecosystem services and economic stability[2]. These risks are associated with current and future climate-related drivers, including sea-level rise, tropical and extra-tropical cyclones, increasing air and sea surface temperatures, and changing rainfall patterns. Mainstreaming climate and disaster resilience into development will help reduce some of the shocks from climate and disaster risks. Increasing the capacity of the country, stakeholders and investments implementation, will also contribute to the development outcomes and sustainable capacity outcomes, and will increase awareness of climate and disaster related risks in Samoa.

3. Despite recent progress in terms of national level plans or policy to respond to disaster and climate risk (i.e. the National Action Plan for Disaster Management 2011-2016, the Strategy for the Development of Samoa 2012–2016 and the Samoa Climate Resilience Investment Program),

[1] PCRAFI Country Risk Profiles, September 2011

[2] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers

translating national climate change and DRM policy into sector policies and resilient investments has been a significant challenge.

4. Currently, a Climate Resilience Investment and Coordination Unit (CRICU), which has an overarching focus on investments to strengthen climate resilience across different sectors, is housed in the Ministry of Finance. The Ministry of Natural Resources and Environment (MNRE) houses the three institutions that are responsible for providing early warnings and response to meteorological, hydrological and geophysical hazards: (i) The Samoa Meteorological Division (SMD), which provides weather services, climate services, monitoring of tsunamis, earthquakes and volcanic events and disseminates warnings for natural hazards; (ii) the Water Resources Division (WRD); and (iii) the Disaster Management Office (DMO), responsible for managing emergency situations. While there is a degree of cohesion between the institutions responsible for climate and disaster resilience, knowledge in these areas is not institutionalized in each sector and DRM, early warning and preparedness activities in Samoa are weakened by limits to technical and institutional capacity.

5. The PREP will build synergies with existing initiatives which aim to minimize the impact of climate change and natural hazards in Samoa. These include: (i) initiatives to strengthen climate resilience under the GEF Least Developed Countries Fund (LDCF); (ii) the Strategic Program for Climate Resilience, under the Samoa Pilot Program for Climate Resilience (PPCR), which prioritizes a shift from project-based interventions to a broader programmatic approach to building resilience and enhancing the resilience of communities, coastal resources and roads; and (iii) support from other donors such as the Climate and Oceans Monitoring Program for the Pacific (CoSPAC) from Australia and the Adaptation Fund; and (iv) the World Bank funded Samoa Agriculture and Fisheries Cyclone Response Project, which was developed following TC Evan to provide recovery assistance to cyclone-affected farmers and fishers, with the aim of restoring their lost production capacity, and enhancing the preparedness of the agriculture sector to better respond to future disasters.

II. Project Development Objective

6. The objective of the Project is to strengthen early warning, resilient investments[3] and financial protection of Samoa.

III. Project Components

A. Component 1: Strengthening Early Warning and Preparedness (estimated cost including contingencies: US$ 9.3 million)

7. The objective of this component is to increase the resilience of Samoa and the Pacific region as a whole to natural hazards such as cyclones, coastal/riverine flooding, volcanoes, tsunamis and earthquakes by improving the quality of forecasting and warning services. This component has two sub-components: (i) Investments in Early Warning and Preparedness

[3] For the purpose of the PDO, resilient investments include those in: (i) early warning and preparedness; (ii) risk identification and reduction; (iii) resilient reconstruction and investments through improved codes and standards; (iv) enhancing or enabling policies and planning for that considered to be short and long-term risks; and (v) financial instruments that allow access to timely financing post disaster.

(nationally implemented) and (ii) Regional TA to strengthen impact forecasting and preparedness for Response (regionally implemented by SPC). The design of this sub-component would include adequate provision for the necessary ongoing operational and maintenance (O&M) requirements to ensure the sustainability of the Multi Hazard Early Warning Systems (MHEWS_. This would be done through: (i) appropriate allocation of funds by the Ministry of Finance for O&M for PREP investments within their annual budgets in the future; and/or (ii) the inclusion of O&M provisions in the relevant supply contracts. Consideration would need to be given to: (i) ensuring such contracts would still be sufficiently attractive to the market; (ii) the appropriate duration of such contracts; and (iii) provision for handing over O&M responsibility to the relevant government entities at some time in the future (i.e. after the closing date of the project).

Sub-Component 1.1: Investments in Early Warning and Preparedness

8. This sub-component will improve the quality of forecasting and warning services in the following three areas: (i) institutional and regulatory strengthening, capacity building and implementation support; (ii) modernization of the observation infrastructure, data management systems, forecasting and warning systems; and (iii) enhancement of the MHEWS service and preparedness delivery system. Each of these three activities which are described in more detail below will be nationally implemented but will be part of a regional early warning system.

Sub-component 1.1.1: Institutional and regulatory strengthening, capacity building and implementation support

9. This sub-component will aim to strengthen the legal and regulatory framework of SMD and its partners to exchange data and information that is critical for the implementation of impact forecast and warning services as an integral part of a MHEWS.

10. Significant benefits will be realized through strengthened operational partnerships between the SMD (and it's relevant divisions and departments – i.e., the Seismological Department) and the DMO, that go beyond current institutional arrangements. This will include, among other benefits: (i) strengthened capacity through training on software modeling; (ii) use of open source software; and also (iii) parenting with the SMD, DMO WRD and other relevant international and regional stakeholders to ensure the interoperability of the future systems and to support project design and implementation.

Sub-component 1.1.2: Modernization of the Observation Infrastructure, Data Management Systems, Forecasting and Warning Systems

11. This sub-component will expand Samoa's observational networks to improve the SMD and WRD observational networks to support: (i) nowcasting, forecasting and warnings for flash flooding; (ii) the seismological network and seismic monitoring for earthquakes; (iii) coastal forecasting; (iv) drought monitoring; (v) hydro-metreological modeling; and (vi) enhancement of the MHEWS. Communication and data management systems, which will be upgraded and expanded to cover backup systems that offer a degree of redundancy and systems such as SMS for hydrological and geo-hazards, will be provided for the forecasting platforms in a more secure National Emergency Operations Centre (NEOC). This sub-component will also support the

reconstruction and refurbishment of facilities. These initiatives will be organized around the following activities:

a) *Technical modernization of the observation networks*, which includes: (i) expansion, rehabilitation and technical re-equipment of the hydrological network, including the field data communications network (i.e. telemetric systems); (ii) upgrade, expansion and rehabilitation of the surface and upper air meteorological observation network; and (iii) expansion of the seismic observation network, including GPS. The modernized observation networks will be capable of being fully integrated with any existing observing systems.

b) *Upgrade of data management, communication, and IT systems*, which includes: (i) communication and computer equipment to improve network communications within Samoa and through the WMO Information System (WIS); (ii) data management systems capable of fully integrating all sources of data, including existing and future national observing networks, and forecast products, and with backup capability within the NEOC; and (iii) a back-up operational forecasting platform available to SMD meteorologists and seismologists with NEOC.

c) *Improvement of nowcasting, coastal forecasting, seismic monitoring, drought monitoring and hydro-metreologicall modeling*, which includes: (i) the development of platforms for nowcasting, drought and flood monitoring, coastal inundation (storm surge) forecasting, ocean monitoring and hydro-metrological forecasting consisting of software, computers, and visualization tools for each platform with appropriate back up at the NEOC; (ii) Enhanced MHEWS including computers, software and visualization tools for computation of impact forecasts and warnings, including backup at the NEOC; and (iii) computers, software, furniture, and generators for the Seismic Operations Center with back up at the NEOC.

d) *Reconstruction and refurbishment of facilities*, including the NEOC and SMD Seismic Operations Center.

Sub-component 1.1.3: Enhancement of the MHEWS Service and Preparedness Delivery System

12. This sub-component will improve service delivery by enhancing the MHEWS to include impact forecast and warning services that deliver actionable information to the public at risk and to emergency services. There will be two main tasks to do this:

a) *Expansion of the MHEWS services to sectors*, which includes (i) developing, improving and operationalizing new information services, including advisory services and nowcasts; (ii) improving the means of delivering services to communities and individuals (including more vulnerable members of the population, such as women, children and the elderly), incorporating the development of new mobile applications including better and efficient community outreach strategies; and (iii) obtaining feedback from users on the quality of services through public and sector specific surveys.

b) *Strengthening of MHEWS, including impact forecasts and warnings,* which include: (i) developing and revising SOPs, warning protocols and signals, operational training and drills (agreed with all stakeholders, including communities); (ii) operational training and

drills with government stakeholders and communities; (iii) introducing, piloting and evaluating impact forecasting techniques and warnings; and (iv) stockpiling of emergency goods to enhance preparedness and response.

13. The Project will also strengthen regional early warning and preparedness initiatives, by helping to enhance the participation of Samoa in the WMO Severe Weather Forecasting Demonstration Project and the WMO Coastal Inundation Forecasting Demonstration. In addition, the Project will strengthen operational ties with the Pacific Tsunami Warning Center and the WMO Regional Specialized Meteorological Centers in Nadi and Wellington, with other regional bodies, such as Regional Association Five Working Group on Hydrological Services, that can assist with training and capacity building, and with other similar bodies as appropriate from outside the region.

Sub-Component 1.2: Regional TA to strengthen impact forecasting and preparedness

14. This sub-component will be regionally implemented by SPC, given that some supporting issues (e.g. multi—hazard spatial risk data) need to be conducted at the regional level to benefit multiple countries. More information on regionally implemented activities is included in Annex 7.

B. Component 2: Risk Reduction and Resilient Investments (estimated cost including contingencies: US $1.2 million)

15. The objective of this Component is to further support a multi-sectoral planning process for integrating climate and disaster risk and resilience into development. This component is divided into two sub-components: (i) Risk reduction and resilient investment planning and preparation (nationally implemented); and (ii) Regional Platform to Support Risk Reduction and Resilient Investment Planning (regionally implemented by SPC).

Sub-component 2.1: Risk Reduction and Resilient Investment Planning and Preparation

Sub-component 2.1.1: Investment planning and preparation

16. This sub-component will consist of technical assistance that will provide support to the GoS for further preparation of a multi-sectoral investment program in resilience which will: (i) set clear priorities (short, medium and long term) and progress indicators; and (ii) prepare feasibility studies for selected priority investments that could be financed and implemented during Phase II or which could also potentially be financed by other donors. This sub-component will be based on a sound analysis of risks and resilience needs, and will build on existing plans, such as the National Action Plan for Disaster Management 2011-2016, the Strategy for the Development of Samoa 2012–2016 and the Samoa Climate Resilience Investment Program (CRIP) that was supported by the PPCR. It is anticipated that this will address the issue of fragmentation of initiatives, enhance Samoa's capacity across sectors not covered by current support (including from the PPCR), assist Samoa to scale up resilient investments, support access to climate and donor funds and strengthen the necessary fiduciary, financial and safeguard capacities necessary to directly access such climate funds (e.g. the Green Climate Fund). This sub-component will pave the way for pilot resilient investments which will largely be financed and implemented during Phase II, and which could also potentially be financed by other donors.

Sub-component 2.1.2: Entry level investments to strengthen climate and disaster resilience

17. This sub-component will finance entry level resilient investments (such as the retrofitting of key public assets and services), to meet internationally accepted building standards for resilience, with a particular focus on strengthening school buildings. Some of these may also act as emergency evacuation centers (including appropriate consideration of gender and sanitation requirements). This will help to preserve life during disaster events, better protect the retrofitted assets, and through the improved design of public assets and services, it is envisaged that in the future, this sub-component could lead to more affordable insurance premiums for catastrophic risk asset insurance. Specific facilities will be selected the first year of implementation in close collaboration with the Education Sector Recovery Program.

Sub-Component 2.2: Regional Platform to Support Risk Reduction and Resilient Investment Planning

18. This sub-component will be regionally implemented by SPC, given that some supporting issues (e.g. good practices for agriculture and fisheries under changing climate) need to be conducted at the regional level to benefit multiple countries. More information on regionally implemented activities can be found in Annex 7.

C. Component 3: Disaster Risk Financing (estimated cost including contingencies: US$2.5 million)

19. This component will provide immediate, yet limited post-disaster support to help Samoa and the region as a whole improve their post-disaster financial response capacity. This will be done through the implementation of an integrated disaster risk financing and insurance strategy which builds on a cost-effective combination of national and regional financial instruments to address the liquidity needs of post-disaster response, following events of low, medium and high severity (Refer to Figure 1, Annex 2).

20. This component will build on the Pacific Catastrophe Risk Insurance pilot, which currently offers technical assistance on public financial management of natural disasters and parametric catastrophe risk insurance solutions in five participating PICs, including Samoa. This component is divided into two sub-components as follows: (i) Disaster risk financing instruments (nationally implemented); and (ii) Development of Mutual Insurance Fund (regionally implemented by PIFS).

Sub-component 3.1: Disaster risk financing instruments

21. This sub-component would complement existing national disaster risk financing instruments, such as national reserves and disaster funds used for immediate response. This sub-component includes: (i) a Contingency Emergency Response Sub-Component; (ii) Premiums financing which will allow the continuation of PCRAFI insurance scheme; and (iii) Capacity building for Disaster Risk Financing which will support MoF oversee and administer disaster risk financing instruments, climate finance and implementation of the contingency emergency response sub-component (CERC – see below).

Sub-component 3.1.1: Contingency Emergency Response Sub-Component

22. The Project will include a Contingency Emergency Response Component (CERC) that would be triggered following proclamation of a state of emergency or declaration of disaster. The CERC will strengthen Samoa's emergency preparedness and immediate response capacity.

23. A CERC will either be funded, or serve as a contingent window, and will provide a mechanism: (i) for quick disbursements to meet the immediate liquidity needs of Samoa following a disaster event in order to finance critical imports; or (ii) to finance emergency recovery and reconstruction works and associated services.

24. The CERC will establish ex-ante mechanisms by which the GoS can rapidly begin to fund post-disaster needs following a disaster event. This will be done through the allocation and/or reallocation of project financing for eligible critical imports and/or for eligible emergency works, goods or services such as the rehabilitation of critical infrastructure. By including a CERC in the PREP, Samoa benefits from having near immediate access to funds that will have the ability to partially finance recovery and reconstruction needs following a disaster event. This eliminates the need to go through a lengthy World Bank process of restructuring the Project should funding be needed to respond to post-disaster priorities.

25. Following the triggering of the agreed upon disbursement condition, the CERC would be implemented in accordance with the rapid response procedures governed by the World Bank OP/BP 8.0 *Rapid Response to Crises and Emergencies.* A disbursement condition has been developed to define the circumstances under which the CERC funds would become available to the GoS. The Financial Agreement defines the eligibility criteria and disbursement arrangements for triggering and financing activities under the CERC.

26. The specific details of the proposed implementation arrangements and procedures governing the use of the CERC funds will be further detailed in a standalone CERC annex within the Project Operations Manual (POM). This annex will provide specifics related to the procedural steps for triggering and disbursing against the CERC, in accordance with: (i) National Systems (i.e. proclamation of a state of emergency or declaration of disaster.; preparation of damage, loss and needs assessments; disaster response coordination); (ii) World Bank Policies and procedural requirements related to disbursement, procurement, financial management and safeguard compliance; and (iii) monitoring/evaluation and reporting arrangements. Following the Project effectiveness, the GoS will prepare and submit for preliminary approval an Action Plan of Activities framework, that details the implementation arrangements and procedures related to procurement, financial management, disbursement, safeguards, M&E and reporting of the activities to be financed under the CERC. This framework would then be adopted into the CERC Annex in the POM.

Sub-component 3.1.2: Premiums financing

27. The objective of this sub-component is to provide sustainable finance for insurance premiums to enable the continuation of the Pacific Catastrophe Risk Insurance Pilot. This tool provides catastrophe risk insurance coverage for events with a return period of 1 in 10 years and above to participating PICs (including Samoa) through a regional pooling mechanism. The pilot

began its third season in November 2014 following the request of countries during the 2014 Forum Economic Ministers Meeting. Samoa made a contribution towards the premiums of US$20,000 for the second season and US$40,000 in the third season. The remaining premium finance was provided by the Government of Japan via premium subsidies.

28. The Project will assist the GoS to pay the catastrophe insurance premium through IDA funds after the third year of the ongoing pilot. The estimated cost of the premium for Samoa is US$0.5million/year for three years to provide insurance coverage for Samoa against tropical cyclones and earthquakes/tsunamis until October 31, 2018. The GoS agreed to provide counterpart funding in the amount of US$40,000 to partially finance the premium for the year commencing November 2015, US$50,000 for the year commencing November 2016, and US$60,000 for the year commencing November 2017.

29. Due to the specifics of the proposed implementation arrangements (i.e. the World Bank will act on behalf of the recipient and enter into a contract with the re-insurance company and pay them directly), many standard fiduciary requirements and procedures do not apply to this sub-component. To help facilitate, control and provide the exceptions to this sub-component funds, a separate disbursement category has been established for the insurance funds under sub-component 3.1.2, titled "Premia for Disaster Risk Financing or Transfer Products", and with the requisite wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums.

Sub-component 3.1.3: Capacity building for Disaster Risk Financing

30. This sub-component will build capacity within Samoa, through the establishment of resources within the MoF for three to five years which would focus on: (i) support for the implementation of the CERC under sub-component 3.1.1; (ii) oversight for the national DRFI and climate finance strategy; (iii) ensuring insurance of key public assets provides adequate coverage against Samoa's main disaster perils; (iv) mainstreaming risk reduction into the budgetary process to ensure swift budget mobilization and execution of funds in the event of a disaster, with cost as well as quality-based considerations that adhere to emergency procurement procedures; (v) strengthening Samoa's capacity to access climate finance; and (vi) supporting representation at any regional or international meeting on DRFI, ensuring that experiences and lessons learned in this area are shared.

Sub-component 3.2: Development of Mutual Insurance Fund

31. This sub-component will be regionally implemented by PIFS. More information on regionally implemented activities can be found in Annex 7.

D. Component 4: Project and Program Management (estimated cost including contingencies: US$0.9 million)

32. The objective of this component is to provide efficient and effective implementation support to the Samoa Project, including staff, operating costs, monitoring and evaluation, and the cost of audits. It will also provide efficient regional coordination of the different country Projects and the implementation of activities that will be executed at the regional level.

Sub-component 4.1: Project Management

33. This component will provide financing for the efficient implementation of the Project, including staff, operating costs, monitoring and evaluation, and the cost of audits, as well as financing for efficient coordination of the different country Projects at the regional level.

Sub-component 4.2: Regional Program Management and Coordination

34. This sub-component will be regionally implemented. More information on regionally implemented activities can be found in Annex 7.

Table 1. Overview of Activities and budget for Samoa

	Source of Financing	Budget (US$M)
1. Strengthening Early warning and preparedness		**9.250**
1.1. Investments in early warning and preparedness		9.250
1.1.1 Institutional and regulatory strengthening	*IDA*	*1.035*
1.1.2 Modernization of the Observation Infrastructure	*IDA*	*6.547*
1.1.3 Enhancement of the MHEWS Service Delivery System	*IDA*	*1.668*
1.2. Regional TA to strengthen impact forecasting and preparedness	NA	NA
2. Risk Reduction and Resilient Investments		**1.150**
2.1. Risk reduction and resilient investment planning and preparation		1.150
i. Investment planning and preparation	*IDA*	*0.575*
ii. Entry level investments	*IDA*	*0.575*
2.2 Regional platform to support risk reduction and resilient investment planning	NA	NA
3. Disaster Risk Financing		**2.500**
3.1 Disaster risk financing instruments		2.500
3.1.1. Contingency Emergency Response Sub-Component	*IDA*	*0.500*
3.1.2. Premium Financing	*IDA*	*1.500*
3.1.3. Capacity Building in DRFI	*IDA*	*0.500*
3.2 Development of Mutual Insurance Fund	NA	NA
4. Project and Program Management		**0.893**
4.1. Project management	IDA	0.893
4.2. Regional Program Management and Coordination	NA	NA
TOTAL COSTS		**13.793**

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ANNEX 4: DETAILED PROJECT DESCRIPTION FOR THE KINGDOM OF TONGA

(US$4.500 million national IDA, US$6.00 million regional IDA, US$4.579 million SCCF, US$1.5 million GFDRR/Japan)

I. Strategic Context

1. The Kingdom of Tonga consists of 169 islands with a total population of around 120,000. The country lies in the South Pacific and stretches over a distance of about 800 kilometers from north to south, covering a total land area of 748 square kilometers with an Exclusive Economic Zone (EEZ) of about 700,000 square kilometers. The population is primarily Polynesian, with a literacy rate close to 99 per cent and a relatively low incidence of poverty. However, its small size, geographic dispersion and isolation, and limited natural resources provide a narrow economic base. Agriculture, fishing and tourism account for most export earnings and it has a high dependency on external aid (approximately 15 percent of Gross National Income, GNI).

2. Tonga was negatively impacted by the Global Economic Crisis through a substantial and prolonged decline in remittances from Tongans living abroad and tourism, and price spikes in imported food and fuel on which households are heavily dependent. Economic instability has been compounded significantly by a number of recent natural disaster events, including Tropical Cyclone Ian (TCI), which struck the country in January 2014, resulting in total damage and losses of approximately US$50 million (11% of annual GDP). The impacts of such disasters have been significant, and given the extreme vulnerability of Tonga to natural hazards, including tropical cyclones and tsunamis, there is a risk that similar losses will be experienced in the future. Catastrophic risk modeling indicates that Tonga is expected to incur, on average, US$15.5 million per year in losses due to earthquakes and tropical cyclones. In the next 50 years, Tonga has a 50 percent chance of experiencing a loss exceeding US$175 million and casualties higher than 440 people, and a 10 percent chance of experiencing a loss exceeding US$430 million and casualties higher than 1,700 people[1]. According to the World Risk Report 2012, globally Tonga is the second most at risk country from disasters out of 173 countries surveyed. These estimates do not take climate change into account which poses key risks to loss of livelihoods, coastal settlements, infrastructure, ecosystem services and economic stability[2]. These risks are associated with current and future climate-related drivers and include sea-level rise, tropical and extra-tropical cyclones, increasing air and sea surface temperatures, and changing rainfall patterns. Mainstreaming climate and disaster resilience into development will help reduce some of the shocks from climate and disaster risks. Increasing the capacity of the countries, stakeholders and investments implementation, will also contribute to the development outcomes, to sustainable capacity outcomes and increase awareness of climate and disaster related risks in Tonga.

[1] PCRAFI Country Risk Profiles, September 2011
[2] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers

3. Despite recent progress in terms of national level plans or policy to respond to disaster and climate risk (i.e. the Joint National Action Plan on Climate Change and Disaster Risk Management, 2010-2015, and the National Infrastructure Investment Plan, under the Pacific Region Infrastructure Facility), translating national resilience and disaster risk management policy into sector policies and resilient investments has been a significant challenge.

4. The newly created Ministry of Meteorology, Information, Energy, Disaster Management, Climate Change and Communications in Tonga (MEIDECC) has an overarching focus on, among other things, climate resilience and disaster risk management. MEIDECC houses the following key institutions that are responsible for providing early warnings and response to meteorological, hydrological and geophysical hazards: (i) The Tonga Meteorological Services (TMS), which provides weather services, climate services, and is the national authority for issuing meteorological and geophysical hazard warnings; and (ii) the National Emergency Management Office (NEMO), responsible for managing emergency situations. The National Resources Department (NRD), which is housed in the Ministry of Lands and Natural resources, is responsible for earthquake monitoring, mapping, vulnerability assessments and other related activities, along with a shared responsibility for hydrological and geophysical warning services with TMS. The TMS, NEMO and NRD form the core elements of Tonga's natural hazards forecast, warning and response system.

5. Challenges for all three departments include their relatively small size and number of professional staff. The operational facilities of each department also have limitations. While there is a good degree of cohesion between the institutions responsible for climate and disaster resilience, knowledge in CCA and DRM is not institutionalized in each sector and DRM, early warning and preparedness activities in Tonga are weakened by limits to technical and institutional capacity.

6. The PREP will build synergies with existing initiatives which aim to minimize the impact of climate change and natural hazards in Tonga. These include: (i) the Strategic Program for Climate Resilience, under the Tonga Pilot Program for Climate Resilience (PPCR), which prioritizes a shift from project-based interventions to a broader programmatic approach to building resilience; and (ii) the World Bank funded Tonga Cyclone Ian Recovery and Climate Resilience Program, which was developed following Tropical Cyclone Ian to provide recovery assistance to cyclone-affected communities and strengthen the resilience of the country.

II. Project Development Objective

7. The objective of the Project is to strengthen early warning, resilient investments[4] and financial protection of Tonga.

[4] For the purpose of the PDO, resilient investments include those in: (i) early warning and preparedness; (ii) risk identification and reduction; (iii) resilient reconstruction and investments through improved codes and standards; (iv) enhancing or enabling policies and planning for that considered to be short and long-term risks; and (v) financial instruments that allow access to timely financing post disaster.

II. Project Components

8. The Project will comprise the following four components:

A. Component 1: Strengthening Early Warning and Preparedness (estimated cost including contingencies: US $11.5 million)

9. The objective of this component is to increase the resilience of Tonga and the Pacific region as a whole to natural hazards such as cyclones, coastal/riverine flooding, volcanoes, tsunamis and earthquakes by improving the quality of forecasting and warning services. This component has two sub-components: (i) Investments in Early Warning and Preparedness (nationally implemented by SPC); and (ii) Regional TA to strengthen impact forecasting and preparedness for Response (regionally implemented). The design of this sub-component would include adequate provision for the necessary ongoing operational and maintenance (O&M) requirements to ensure the sustainability of the Multi Hazard Early Warning Systems (MHEWS). This would be done through: (i) appropriate allocation of funds by MEIDECC to O&M for PREP investments within their annual budgets in the future; and/or (ii) the inclusion of O&M provisions in the relevant supply contracts. Consideration would need to be given to: (i) ensuring such a contract would still be sufficiently attractive to the market; (ii) the appropriate duration of such a contract; and (iii) provision for handing over O&M responsibility to the Government of Tonga at some time in the future (i.e. after the closing date of the project).

Sub-Component 1.1: Investments in Early Warning and Preparedness

10. This sub-component will improve the quality of forecast and warning services by providing: (i) institutional and regulatory strengthening, capacity building and implementation support; (ii) modernization of the observation infrastructure, data management systems, forecasting and marning systems; and (iii) enhancement of the MHEWS service delivery system.

Sub-component 1.1.1: Institutional and regulatory strengthening, capacity building and implementation support

11. This sub-component aims to strengthen the legal and regulatory framework within which TMS, NRD, NEMO and their partners exchange data and information, which is critical for the implementation of impact forecast and warning services and is an integral part of a MHEWS. Significant benefits will be realized through strengthened operational partnerships between the TMS, NRD, NEMO and other relevant stakeholders that go beyond current institutional arrangements. This will include, among other things, strengthened capacity to ensure the operability of the future systems, and to support project design and implementation.

Sub-component 1.1.2: Modernization of the Observation Infrastructure, Data Management Systems, Forecasting and Warning Systems

12. This sub-component focuses on: (i) upgrading communication systems, data management, and providing a back-up system in the case of loss of one or more of the operational facilities; (ii) supporting enhancement of the MHEWS; and (iii) the reconstruction and refurbishment of facilities.

a) *Upgrade of observation infrastructure,* comprising upgrade of the seismic network, including GPS for volcano and earthquake monitoring.

b) *Upgrade of data management, communication, and ICT systems*, including: (i) Marine and community communication infrastructure and computer equipment to improve High Frequency and Very High Frequency radio network communications for TMD, NEMO and NRD; (ii) data management systems capable of fully integrating all sources of data, including existing and future national observing networks, and forecast products; (iii) strengthening of A3Z AM Radio Station (AM Radio - full coverage of Tonga) including a studio to transmitter link & remote control unit; and (iv) a dedicated fiber optic Communication link between Disaster Response agencies; and (v) a Studio to Transmitter Link & Remote control unit.

c) *Improvement of MHEWS*, which includes: (i) enhancing the MHEWS including computers, software and visualization tools for computation of impact forecasts and warnings, including backup at the NEOC and Operations center of NRD; and (ii) provision of computers and software for the Seismic Operations Center in the NRD with backup facilities at the TMS.

d) *Reconstruction/construction and refurbishment of facilities*, including the TMS; and NEMO's Emergency Operations Center/s (national and district level).

Sub-component 1.1.3: Enhancement of the MHEWS Service Delivery System

13. The objective of this sub-component is to improve service delivery by enhancing the existing early warning systems to include impact forecast and warning services that deliver actionable information to the public at risk and to emergency services. There will be two main tasks to do this:

a) *Expansion of the MHEWS services to sectors*, which includes: (i) developing, improving and operationalizing new public weather information services, such as nowcasts and drought advisory services, as well as services provided on a cost-recovery basis such as advisories to the aviation sector; (ii) improving the means of delivering services to communities and individuals (including more vulnerable members of the population, such as women, children and the elderly), incorporating the development of new mobile applications; and (iii) obtaining feedback from users on the quality of services through public and sector specific surveys.

b) *Strengthening of MHEWS, including impact forecasts and warnings*, which will include: (i) developing SOPs, warning protocols and signals, operational training and drills (agreed with all stakeholders, including communities); (ii) conducting vulnerability assessments for each identified hazard and for the entire country; (iii) introducing, piloting and evaluating impact forecasting techniques and warnings; and (iv) Stockpiling of emergency goods to enhance preparedness and response capacity.

14. The Project will also strengthen regional early warning and preparedness initiatives, by helping to enhance the participation of Tonga in the WMO Severe Weather Forecasting Demonstration Project and the WMO Coastal Inundation Forecasting Demonstration. In addition, the Project will strengthen operational ties with the Pacific Tsunami Warning Center and the WMO

Regional Specialized Meteorological Centers in Nadi and Wellington, with other regional bodies, such as Regional Association Five Working Group on Hydrological Services, that can assist with training and capacity building, and with other similar bodies as appropriate from outside the region.

Sub-Component 1.2: Regional TA to strengthen impact forecasting and preparedness

15. This sub-component will be regionally implemented by SPC, given that some supporting issues (e.g. multi—hazard spatial risk data) need to be conducted at the regional level to benefit multiple countries. More information on regionally implemented activities is included in Annex 7.

B. Component 2: Risk Reduction and Resilient Investments (estimated cost including contingencies: US $1.7 million)

16. The objective of this Component is to support a multi-sectoral planning process for integrating climate and disaster risk and resilience into development. This component is divided into two sub-components: (i) Risk reduction and resilient investment planning and preparation (nationally implemented); and (ii) Regional tools and advisory services to support planning and investment (regionally implemented by SPC).

Sub-component 2.1: Risk Reduction and Resilient Investment Planning and Preparation

Sub-component 2.1.1: Investment planning and preparation

17. This sub-component will consist of technical assistance that will provide support to the GoT for the preparation of a multi-sectoral investment program in resilience which will: (i) set clear priorities (short, medium and long term) and progress indicators; and (ii) prepare feasibility studies for selected priority investments (with public schools likely to be a key priority) that could be implemented during Phase II or which could also potentially be financed by other donors. This sub-component will be based on a sound analysis of risks and resilience needs, and will build on existing plans, such as the Joint National Action Plan on Climate Change and Disaster Risk Management, 2010-2015, and the National Infrastructure Investment Plan (under the Pacific Region Infrastructure Facility). It is anticipated that this will build Tonga's capacity to scale up resilient investments, access climate and donor funds and address the issue of fragmentation of initiatives. This sub-component will pave the way for pilot resilient investments which will largely be financed and implemented during Phase II, or potentially could be financed by other donors.

Sub-component 2.1.2: Entry level investments to strengthen climate and disaster resilience

18. This sub-component will finance entry level resilient investments (such as the retrofitting of key public assets), with a particular focus on public buildings (e.g., schools would be a priority, with the potential for other public buildings such health centers) to meet internationally accepted building standards for resilience, national building codes, health and safety standards (including appropriate consideration of gender requirements). This will help to preserve life during disaster events, better protect the retrofitted assets, and it is envisaged that in the future, this sub-component could lead to more affordable insurance premiums for catastrophic risk asset insurance. Specific

facilities will be selected the first year of implementation in close collaboration with the Global Safe School Program.

Sub-Component 2.2: Regional Platform to Support Risk Reduction and Resilient Investment Planning

19. This sub-component will be regionally implemented by SPC, given that some supporting issues (e.g. multi—hazard spatial risk data) need to be conducted at the regional level to benefit multiple countries. More information on regionally implemented activities can be found in Annex 7.

C. Component 3: Disaster Risk Financing (estimated cost including contingencies: US $ 2.5 million)

20. This component will provide immediate, yet limited post-disaster support to help Tonga and the region as a whole improve their post-disaster financial response capacity. This will be done through the implementation of an integrated disaster risk financing and insurance strategy which builds on a cost-effective combination of national and regional financial instruments to address the liquidity needs of post-disaster response, following events of low, medium and high severity (Refer to Figure 1, Annex 2).

21. This component will build on the Pacific Catastrophe Risk Insurance pilot, which currently offers technical assistance on public financial management of natural disasters and parametric catastrophe risk insurance solutions in five participating PICs, including Tonga. This component is divided into two sub-components as follows: (i) Disaster risk financing instruments (nationally implemented); and (ii) Development of Mutual Insurance Fund (regionally implemented by PIFS).

Sub-component 3.1: Disaster risk financing instruments

22. This sub-component would complement existing national disaster risk financing instruments, such as national reserves and disaster funds used for immediate response. This sub-component would include: (i) a Contingency Emergency Response Sub-Component; (ii) Premiums financing which will allow the continuation of PCRAFI insurance scheme; and (iii) Capacity building for Disaster Risk Financing which will support the Ministy of Finance and National Planning (MFNP) oversee and administer disaster risk financing instruments, climate finance and implementation of the contingency emergency response sub-component (CERC – see below).

Sub-component 3.1.1: Contingency Emergency Response Sub-component

23. The Project will include a Contingency Emergency Response Component (CERC) that would be triggered following the declaration of a national disaster. The CERC will strengthen Tonga's emergency preparedness and immediate response capacity.

24. A CERC will either be fully funded, or serve as a contingent window, and will provide a mechanism: (i) for quick disbursements to meet the immediate liquidity needs for Tonga following a disaster event in order to finance critical imports; or (ii) to finance emergency recovery and reconstruction works and associated services.

25. The CERC will establish ex-ante mechanisms by which GoT can rapidly begin to fund post-disaster needs following a disaster event. This will be done through the allocation and/or reallocation of project financing for eligible critical imports and/or for eligible emergency works, goods or services such as the rehabilitation of critical infrastructure. By including a CERC in the PREP, Tonga will benefit from having near immediate access to funds that will have the ability to partially finance recovery and reconstruction needs following a disaster event. This will eliminate the need to go through a lengthy process of restructuring the Project should funding be needed to respond to post-disaster priorities.

26. Following the triggering of the agreed upon disbursement condition, the CERC would be implemented in accordance with the rapid response procedures governed by the World Bank OP/BP 8.0 *Rapid Response to Crises and Emergencies.* A disbursement condition would be developed to define the circumstances under which the CERC funds would become available to the GoT. The Financial Agreement defines the eligibility criteria and disbursement arrangements for triggering and financing activities under the CERC.

27. The specific details of the proposed implementation arrangements and procedures governing the use of the CERC funds will be identified in a standalone CERC annex within the POM. This annex would provide specifics related to the procedural steps for triggering and disbursing against the CERC, in accordance with: (i) National Systems (i.e. declaration of a national emergency; preparation of damage, loss and needs assessments; disaster response coordination); (ii) World Bank Policies and procedural requirements related to disbursement, procurement, financial management and safeguard compliance; and (iii) monitoring/evaluation and reporting arrangements. Following the Project effectiveness, GoT would prepare and submit for preliminary approval an Action Plan of Activities framework, that details the implementation arrangements and procedures related to procurement, financial management, disbursement, safeguards, M&E and reporting of the activities to be financed under the CERC. This framework would then be adopted into the CERC Annex in the POM.

Sub-component 3.1.2: Premiums Financing

28. The objective of this sub-component is to provide sustainable finance for insurance premiums to enable the continuation of the Pacific catastrophe risk insurance pilot. This tool provides catastrophe risk insurance coverage for high and medium risk layers to participating PICs (including Tonga) through a regional pooling mechanism. The pilot began its third season in November 2014 following the request of countries during the 2014 Forum Economic Ministers Meeting. Tonga made a contribution towards the premiums of US$20,000 for the second season and U $40,000 in the third season. The remaining premium finance was kindly provided by the Government of Japan via premium subsidies.

29. The Project will assist the GoT to pay the catastrophe insurance premium through IDA after the third year of the ongoing pilot. The estimated cost of the premium for Tonga is US$0.5million/year for three years to provide insurance coverage for Tonga against tropical cyclones and earthquakes/tsunamis until 31st October 2018. The GoT will provide counterpart funding in the amount of US$50,000 to partially finance the premium for the year commencing

November 2015, US$60,000 for the year commencing November 2016, and US$ 70,000 for the year commencing November 2017. Should there be demand from PICs, a dedicated catastrophe risk insurance facility could be established and the Project could finance the associated entry fees for Tonga.

30. Due to the specifics of the proposed implementation arrangements (i.e. the World Bank will act on behalf of the recipient and enter into a contract with the re-insurance company and pay them directly), many standard fiduciary requirements and procedures do not apply to this sub component. To help facilitate, control and provide the exceptions to this sub-component funds, a separate disbursement category has been established for the insurance funds under sub-component 3.1.2, titled "Premia for Disaster Risk Financing or Transfer Products", and with requisite wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums.

Sub-component 3.1.3: Capacity building for Disaster Risk Financing

31. This sub-component will build capacity within Tonga, through the establishment of resources within the MFNP for three to five years which would focus on: (i) support for the implementation of the CERC under sub-component 3.1.1; (ii) oversight for the national DRFI and climate finance strategy; (iii) ensuring insurance of key public assets provides adequate coverage against Tonga's main disaster perils; (iv) mainstreaming risk reduction into the budgetary process to ensure swift budget mobilization and execution of funds in the event of a disaster; (v) strengthening Tonga's capacity to access climate finance; and (vi) supporting representation at any regional or international meeting on DRFI, ensuring that experiences and lessons learned in this area are shared.

Sub-component 3.2: Development of Mutual Insurance Fund

32. This sub-component will be regionally implemented by PIFS. More information on regionally implemented activities can be found in Annex 7.

D. Component 4: Project and Program Management (estimated cost including contingencies: US $0.9 million)

33. The objective of this component is to provide efficient and effective implementation support to the Tonga Project, including staff, operating costs, monitoring and evaluation, and the cost of audits. It will also provide efficient regional coordination of the different country Projects and the implementation of activities that will be executed at the regional level.

Sub-component 4.1: Project Management

34. This component will provide financing for the efficient implementation of the Project, including staff, operating costs, monitoring and evaluation, and the cost of audits.

Sub-component 4.2: Regional Program Management Coordination

35. This sub-component will be regionally implemented by PIFS and SPC. More information on regionally implemented activities can be found in Annex 7.

Table 1. Overview of Activities and budget for Tonga

	Source of Financing	**Budget (US$M)**
1. Strengthening Early warning and preparedness		**11.461**
1.1. Investments in early warning and preparedness		11.461
1.1.1 Institutional and regulatory strengthening	*IDA/SCCF*	*1.116*
1.1.2 Modernization of the Observation Infrastructure	*IDA/SCCF/* GFDRR/Japan	*9.029*
1.1.3 Enhancement of the MHEWS Service Delivery System	*IDA/SCCF*	*1. 317*
1.2. Regional TA to strengthen impact forecasting and preparedness	NA	NA
2. Risk Reduction and Resilient Investments		**1.725**
2.1. Risk reduction and resilient investment planning and preparation		1.725
2.1.1. Investment planning and preparation	*IDA/SCCF*	*0.575*
2.1.2. Entry level investments	*IDA/SCCF*	*1.150*
2.2 Regional platform to support risk reduction and resilient investment planning	NA	NA
3. Disaster Risk Financing		**2.500**
3.1 Disaster risk financing instruments		2.500
3.1.1. Contingency Emergency Response Sub-Component	IDA	*0.500*
3.1.2. Premium Financing	IDA	*1.500*
3.1.3. Capacity Building in DRFI	*IDA/SCCF*	*0.500*
3.2 Development of Mutual Insurance Fund	NA	**NA**
4. Project and Program Management		**0.893**
4.1. Project management	*IDA/SCCF*	0.893
4.2. Regional Program Management and Coordination	NA	NA
TOTAL COSTS		**16.579**

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ANNEX 5: DETAILED PROJECT DESTRIPTION FOR THE REPUBLIC OF THE MARSHALL ISLANDS

I. Strategic Context

1. The Republic of the Marshall Islands (RMI) is one of the world's smallest, most isolated and vulnerable nations. RMI is a lower middle-income country with a 2013 GDP of US$190 million, and a per capita GDP of US$3,627. GDP has grown at an average rate of less than 1% per annum in real per capita terms since independence in 1990. The country consists of 29 atolls and five isolated islands (24 of which are inhabited) and has a total land mass of just 181km^2, which is set in an ocean area of over 1.9 million km^2. The population of the Marshall Islands is estimated at about 53,000, of which over half are resident in the capital city of Majuro. The size and remoteness of RMI increase the costs of economic activity and make it unable to achieve economies of scale. Remoteness also imposes transport expenses that increase the costs of trade, and fundamentally constrains the competitiveness of exports of goods and services internationally. These same factors also push up the cost and complexity of providing public services and fulfilling the basic functions of Government. Exports are low, and the shallow domestic economy has brought high dependence on imports, which are funded largely by the sale of offshore fishing rights and high levels of foreign aid. Foreign aid funds a very large public sector that dominates the economy.

2. The population of RMI is concentrated on small, low-lying atolls, and this makes RMI vulnerable to natural disasters. The country is vulnerable to occasional typhoons and is already beginning to feel the effects of climate change. Like other low-lying Pacific nations, its 370km coastline (which is home to 99 percent of the population), renders it particularly susceptible to extreme waves and high tides. Catastrophic risk modelling indicates that RMI is expected to incur, on average, US$3 million per year in losses due to earthquakes and tropical cyclones. In the next 50 years, RMI has a 50% chance of experiencing a loss exceeding US$53 million, and a 10% chance of experiencing a loss exceeding US$160 million[1]. These estimates do not take climate change into account, which contributes to key risks to loss of livelihoods, coastal settlements, infrastructure, ecosystem services and economic stability[5].

3. Despite recent progress in terms of national level plans or policy to respond to disaster and climate risk (i.e. the National Action Plan for Disaster Risk Management, 2008-2018 and the National Climate Change Policy Framework, 2011), translating national climate resilience and DRM policy into sector policies and resilient investments has been a significant challenge.

4. The PREP will complement existing initiatives which aim to minimize the impact of climate change and natural hazards in across the Pacific Region, and in particular, support the

[1] PCRAFI Country Risk Profiles, September 2011

[5] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers

continuation and expansion of the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) pilot insurance program, of which RMI is a participant.

II. Project Development Objective

5. The objective of the Project is to strengthen the financial protection capacity for RMI.

III. Project Components

6. The Project will incorporate an abridged design incorporating only Component 3.1.2. For clarity, all Program components are included below, along with a description of their relevance to RMI during Phase I of the PREP.

A. Component 1: Strengthening Early Warning and Preparedness

7. RMI will not be participating in Component 1 Activities during Phase I of the Program.

B. Component 2: Risk Reduction and Resilient Investments

8. RMI will not be participating in Component 2 Activities during Phase I of the Program.

C. Component 3: Disaster Risk Financing (estimated cost: US $1.5 million)

9. This component will build on the Pacific Catastrophe Risk Insurance pilot, which currently offers technical assistance on public financial management of natural disasters to all PICs and a parametric catastrophe risk insurance pool of five participating PICs, including RMI. This component is divided into two sub-components as follows: (i) Disaster risk financing instruments (nationally implemented); and (ii) Development of Mutual Insurance Fund (regionally implemented by PIFS).

Sub-component 3.1: Disaster risk financing instruments

10. This sub-component is divided into three sub-components.

Sub-component 3.1.1: Contingency Emergency Response Sub-component

11. RMI will not be participating in Sub-component 3.1.1 during Phase I of the Program.

Sub-component 3.1.2: Insurance Premiums

12. The objective of this sub-component is to provide sustainable finance for insurance premiums to enable the continuation of the Pacific catastrophe risk insurance pilot. This tool provides catastrophe risk insurance coverage for high and medium risk layers to participating PICs (including RMI) through a regional pooling mechanism. The pilot began its third season in November 2014 following the request of countries during the 2014 Forum Economic Ministers Meeting. RMI made a contribution towards the premiums of US$20,000 for the second season and US$40,000 in the third season. The remaining premium finance was kindly provided by the Government of Japan via premium subsidies.

13. The Project will assist the Government of RMI to pay the catastrophe insurance premium through IDA after the third year of the ongoing pilot. The estimated cost of the premium for RMI is US$0.5million/year for three years to provide insurance coverage for RMI against tropical cyclones and earthquakes/tsunamis until 31st October 2018. The Government of RMI will provide counterpart funding in the amount of US$40,000 to partially finance the premium for the year commencing November 2015, US$50,000 for the year commencing November 2016, and US$ 60,000 for the year commencing November 2017

14. Due to the specifics of the proposed implementation arrangements (i.e. the World Bank will act on behalf of the recipient and enter into a contract with the re-insurance company and pay them directly), many standard fiduciary requirements and procedures do not apply to this sub component. To help facilitate, control and provide the exceptions to this sub-component funds, a separate disbursement category has been established for the insurance funds under sub-component 3.1.2, titled "Premia for Disaster Risk Financing or Transfer Products", and with any requisite wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums.

Sub-component 3.1.3: Capacity building for Disaster Risk Financing

15. RMI will not be participating in Sub-component 3.1.3 during Phase I of the Program.

Sub-component 3.2: Development of Mutual Insurance Fund

16. This sub-component will be regionally implemented by PIFS. More information on regionally implemented activities can be found in Annex 7.

D. Component 4: Project and Program Management

17. The objective of this component is to provide efficient and effective implementation support, including staff, operating costs, monitoring and evaluation, and the cost of audits. It will also provide efficient regional coordination of the different country Projects and the implementation of activities that will be executed at the regional level.

Sub-component 4.1: Project Management

18. RMI will not be participating in Sub-component 4.1 during Phase I of the Program.

Sub-component 4.2: Regional Program Management and Coordination

19. This sub-component will *be regionally implemented by SPC and PIFS.* More information on regionally implemented activities can be found in Annex 7.

Table 1. Overview of Activities and budget for RMI

	Source of Financing	Budget (US$M)
1. Strengthening Early warning and preparedness		**NA**
1.1. Investments in early warning and preparedness	NA	NA
1.2. Regional TA to strengthen impact forecasting and preparedness	NA	NA
2. Risk Reduction and Resilient Investments		**NA**
2.1. Risk reduction and resilient investment planning and preparation	NA	NA
2.2 Regional platform to support risk reduction and resilient investment planning	NA	NA
3. Disaster Risk Financing		**1.500**
3.1 Disaster risk financing instruments		1.500
3.1.1. Contingency Emergency Response Sub-Component	NA	NA
3.1.2. Premium Financing	IDA	1.500
3.1.3. Capacity Building in DRFI	NA	NA
3.2 Development of a Disaster Risk Financing framework	NA	NA
4. Project and Program Management		**NA**
4.1. Project management	NA	NA
4.2. Regional Program Management and Coordination	NA	NA
TOTAL COSTS		**1.500**

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ANNEX 6: DETAILED PROJECT DESCRIPTION FOR THE REPUBLIC OF VANUATU

(US$0.500 million national IDA, US$ 1.000 million regional IDA)

I. Strategic Context

1. The Republic of Vanuatu is an archipelago of 83 volcanic islands (65 of them inhabited) covering a total area of about 12,200 square kilometers, of which approximately a third is land. Vanuatu's population of approximately 253,000 people is almost evenly distributed among the six administrative provinces: Malampa, Penama, Sanma, Shefa, Tafea and Torba. Vanuatu has become one of the fastest growing economies of the Pacific region. The economy has experienced strong and sustained growth, mainly driven by tourism, construction, and aid inflows. The per capita Gross Domestic Product (GDP) is estimated at US$3,302, yet the cost of basic infrastructure services is high and affects the business environment in the country.

2. Geographically, it is located in the "Pacific ring of fire" and at the center of the Pacific "cyclone belt". This results in a relatively high frequency of volcanic eruptions, cyclones, earthquakes, tsunamis, storm surges, coastal and river flooding and landslides. For example, in 1987-88, three cyclones resulted in 50 deaths and over US$152 million in property damage, Cyclone Dani in 1999 caused over US$8 million in damage to heavy infrastructure and in 2004, cocoa exports declined by 50% as a result of damages caused by Cyclone Ivy that year. More recently, on the evening of 13 March 2015, severe Tropical Cyclone (TC) Pam struck 22 islands of Vanuatu as an extremely destructive category 5 cyclone. A state of emergency was officially declared on March 15 for Shefa Province (which includes the capital of Port Vila). Damages from TC Pam are yet to be quantified, however there has been widespread destruction of property, agriculture and infrastructure, in addition to loss of life. The country also suffers from extreme events associated with climate variability, including sea level and temperature extremes, and droughts.

3. Vanuatu has been assessed to be the world's most vulnerable country, based on the ranking of 111 countries using the Commonwealth Vulnerability Index. This is due to a combination of Vanuatu's exposure to both geophysical and hydrometorological hazards, and its limited financial and technical capacity to prepare for and respond to the associated risks. Consequently, Vanuatu is expected to incur, on average, US$48 million per year in losses due to earthquakes and tropical cyclones. In the next 50 years, Vanuatu has a 50% chance of experiencing a loss exceeding US$330 million, and a 10% chance of experiencing a loss exceeding US$540 million[1]. These estimates do not take climate change into account, which contributes to key risks to loss of livelihoods, coastal settlements, infrastructure, ecosystem services and economic stability[2].

[1] PCRAFI Country Risk Profiles, September 2011
[2] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers

4. Despite recent progress in terms of national level plans or policy to respond to disaster and climate risk (i.e. the Disaster Risk Reduction and Disaster Management National Action Plan, 2006-2016, and the Strategic Infrastructure Investment Plan, under the Pacific Region Infrastructure Facility), translating national climate resilience and DRM policy into sector policies and resilient investments has been a significant challenge.

5. The PREP will complement existing initiatives which aim to minimize the impact of climate change and natural hazards in Vanuatu, including the World Bank funded Increasing Resilience to Climate Change and Natural Hazards Projects and Mainstreaming Disaster Risk Reduction Project.

II. Project Development Objective

6. The objective of the Project is to strengthen the financial protection capacity for Vanuatu.

III. Project Components

7. The Project will incorporate an abridged design incorporating only Component 3.1.2. For clarity, all Program components are included below, along with a description of their relevance to Vanuatu during Phase I of the PREP.

A. Component 1: Strengthening Early Warning and Preparedness

8. Vanuatu will not be participating in Component 1 activities during Phase I of the Program.

B. Component 2: Risk Reduction and Resilient Investments

9. Vanuatu will not be participating in Component 2 activities during Phase I of the Program.

C. Component 3: Disaster Risk Financing (estimated cost: US $1.5 million)

10. This component will build on the Pacific Catastrophe Risk Insurance pilot, which currently offers technical assistance on public financial management of natural disasters to all PICs and a parametric catastrophe risk insurance pool of five participating PICs, including Vanuatu. This component is divided into two sub-components as follows: (i) Disaster risk financing instruments (nationally implemented); and (ii) Development of Mutual Insurance Fund (regionally implemented by PIFS).

Sub-component 3.1: Disaster risk financing instruments

11. This sub-component is divided into three sub-components.

Sub-component 3.1.1: Contingency Emergency Response Sub-component

12. Vanuatu will not be participating in Sub-component 3.1.1 during Phase I of the Program.

Sub-component 3.1.2: Insurance Premiums

13. The objective of this sub-component is to provide sustainable finance for insurance premiums to enable the continuation of the Pacific catastrophe risk insurance pilot. This tool provides catastrophe risk insurance coverage for high and medium risk layers to participating PICs (including Vanuatu) through a regional pooling mechanism. The pilot began its third season in November 2014 following the request of countries during the 2014 Forum Economic Ministers Meeting. Vanuatu made a contribution towards the premiums of US$20,000 for the second season and US$40,000 in the third season. The remaining premium finance was provided by the Government of Japan via premium subsidies.

14. The Project will assist the GoV to pay the catastrophe insurance premium through IDA after the third year of the ongoing pilot. The estimated cost of the premium for Vanuatu is US$0.5million/year for three years to provide insurance coverage for Vanuatu against tropical cyclones and earthquakes/tsunamis until 31st October 2018. The GoV will provide counterpart funding in the amount of US$40,000 to partially finance the premium for the year commencing November 2015, US$50,000 for the year commencing November 2016, and US$60,000 for the year commencing November 2017.

15. Due to the specifics of the proposed implementation arrangements (i.e. the World Bank will act on behalf of the recipient and enter into a contract with the re-insurance company and pay them directly), many standard fiduciary requirements and procedures do not apply to this sub component. To help facilitate, control and provide the exceptions to this sub-component funds, a separate disbursement category has been established for the insurance funds under sub-component 3.1.2, titled "Premia for Disaster Risk Financing or Transfer Products", and with requisite wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums.

Sub-component 3.1.3: Capacity building for Disaster Risk Financing

16. Vanuatu will not be participating in Sub-component 3.1.3 during Phase I of the Program.

Sub-component 3.2: Development of Mutual Insurance Fund

17. This sub-component will be regionally implemented by PIFS. More information on regionally implemented activities can be found in Annex 7.

D. Component 4: Project and Program Management

18. The objective of this component is to provide efficient and effective implementation support, including staff, operating costs, monitoring and evaluation, and the cost of audits. It will also provide efficient regional coordination of the different country Projects and the implementation of activities that will be executed at the regional level.

Sub-component 4.1: Project Management

19. Vanuatu will not be participating in Sub-component 4.1 during Phase I of the Program.

Sub-component 4.2: Regional Program Management and Coordination

20. This sub-component will be regionally implemented by SPC and PIFS. More information on regionally implemented activities can be found in Annex 7.

Table 1. Overview of Activities and budget for Vanuatu

	Source of Financing	Budget (US$M)
1. Strengthening Early warning and preparedness		**NA**
1.1. Investments in early warning and preparedness	NA	NA
1.2. Regional TA to strengthen impact forecasting and preparedness	NA	NA
2. Risk Reduction and Resilient Investments		**NA**
2.1. Risk reduction and resilient investment planning and preparation	NA	NA
2.2 Regional platform to support risk reduction and resilient investment planning	NA	NA
3. Disaster Risk Financing		**1.500**
3.1 Disaster risk financing instruments		1.500
3.1.1. Contingency Emergency Response Sub-Component	NA	NA
3.1.2. Premium Financing	IDA	1.500
3.1.3. Capacity Building in DRFI	NA	NA
3.2 Development of a Disaster Risk Financing Framework	NA	NA
4. Project and Program Management		**NA**
4.1. Project management	NA	NA
4.2. Regional Program Management and Coordination	NA	NA
TOTAL COSTS		**1.500**

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ANNEX 7: DETAILED PROJECT DESCRIPTION FOR REGIONAL ACTIVITIES

(US$5.0 million regional IDA; US$5.794 million PPCR and US$0.900 million SCCF)

I. STRATEGIC CONTEXT

1. The Pacific Island Countries (PICs) are among the most physically vulnerable nations in the world. They are highly exposed to adverse effects from climate change and natural hazards (including floods, droughts, tropical cyclones, storm surges, earthquakes, volcanic eruptions, and tsunamis), which can result in disasters that affect their entire economic, human, and physical environment and impact their long-term development agenda. Since 1950, natural disasters have affected approximately 9.2 million[1] people in the Pacific region, causing 9,811 reported deaths. This has cost the PICs around US$3.2 billion (in nominal terms) in associated damage costs (EM-DAT, 2010)[2].

2. Disasters, climate variability or extreme weather and projected changes in climate, are increasingly recognized as core development challenges, as they adversely impact social and economic development. Changes in the increase in mean ocean and land temperatures, the seasonality and duration of rainfall, the frequency and intensity of tropical cyclones and increasing sea level (IPCC 2014)[3] are affecting infrastructure, agriculture, food security, fisheries, water resources and thus the lives, livelihoods and economies. In addition, poor populations tend to live on low value land, often close to flood prone waterways and the coastline in higher-risk areas, making them vulnerable and more likely to be affected by adverse natural events. More importantly, the vulnerability of the poor to natural disasters and the effects of climate change are expected to increase due to increased population pressure within the constraints of limited land, pushing increased numbers of the poor to live in more hazard prone areas. Hence, there is widespread acceptance of the need to strengthen disaster early warning and preparedness, and to mainstream disaster risk and climate change into development planning and financing. A draft Strategy for Climate and Disaster Resilient Development (SRDP) has been prepared through a comprehensive and ongoing engagement process, and involves national and regional stakeholders representing a wide variety of interests across the Pacific Islands region.

3. The Pacific Islands Forum Secretariat (PIFS) is the prime regional political and policy body on economic development in the Pacific and is responsible for the organization of the annual Forum Leader's, Forum Economic Minister's and related meetings. PIFS is a political grouping of 16 independent and self-governing states[6], with a mission through the Framework for Pacific

[1] SPC Pocket Handbook 2010.
[2] Source: Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI)
[3] IPCC 2014: Fifth Assessment Report of the IPCC - Summary for Policy Makers and Chapter 29: Small Islands.
[6] Members include Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

Regionalism of ensuring the effective implementation of the Leaders' decisions for the benefit of the people of the Pacific. PIFS is chair of the Council of Regional Organizations (CROP) and co-chair of the CROP Executive Sub-Committee on Climate Change and Disaster Resilient Development and plays a key coordination role for the SRDP. PIFS engages in, and monitors, the region's efforts to combat climate change and its impacts and has thus been a strong advocate of the region's needs for increased support from the international community to assist in efforts to overcome the challenges posed by climate change.

4. The Secretariat of the Pacific Community (SPC) is a regional intergovernmental organization whose membership includes both nations and territories in the Pacific Ocean and their metropolitan powers[7]. SPC is a regional organization in the Pacific and is a key player in the resilience space, with the aim to: (i) develop the technical, professional, scientific, research, planning and management capability of Pacific Island people; and (ii) directly provide information and advice, to enable them to make informed decisions about their future development and well-being. SPC is mandated to develop the capacity of PICs in disaster risk management and approaches climate change as a broad-based development issue cutting across all sectors, from food and water security, health, economic development, and coastal zone management.

5. The specific activities that will be undertaken to strengthen the resilience of the PREP Phase I countries – Samoa, Tonga, RMI and Vanuatu - will have the added benefit of strengthening the resilience of the wider Pacific Region. The regional approach which is being adopted in the PREP will benefit the participating countries and the region as a whole by providing: (i) economies of scale; (ii) standardized approaches to climate resilience and Disaster Risk Management (DRM) where appropriate, which will result in reduced costs; and (iii) the pooling of financial and human resources to address risks across the region and benefit of regional risk diversification.

6. The PREP will facilitate current Pacific regional efforts which are aimed at ensuring that climate change and disaster risk issues are given prominence in the sustainable development agenda. In this regard, the PREP will directly support the implementation of the recently developed SRDP, which in turn, provides a strong framework for the PREP. The PREP will build capacity to strengthen community engagement and adaptive actions, and will build synergies with existing regional initiatives which aim to minimize the impact of climate change and natural hazards in the pacific region, including PCRAFI, the Pacific Disaster Risk Financing and Insurance (Pacific DRFI) scheme, and the initiatives of the 10th European Development Fund, which support strategic actions on adaptation for PICs across the region. The PREP will also build on the Pilot Program for Climate Resilience (PPCR) supported regional activities that are administered by ADB and implemented by SPREP and will establish synergies and/or build on the country level activities supported by PPCR in Samoa and Tonga. Furthermore, the integration of the Pacific Regional PPCR Component 2, as reflected in the Strategic Program for Climate Resilience (SPCR) of the Regional Pacific Program into the PREP, will reduce fragmentation, provide support to the countries through a program that includes early warning, preparedness and disaster risk financing in addition to the tools and information for decisions and actions on climate resilient development.

[7] Twenty-two Oacific Island countries and territories are served by SPC: American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna. SPC also includes the four founding countries of Australia, France, New Zealand and the United States of America.

In addition, as PREP includes considerable investments and the tools and the information that will be generated through the PPCR support will directly influence these investments.

II. Project Development Objective

7. The objective of the Program is to strengthen early warning, resilient investments[8] and financial protection of participating countries.

III. PROGRAM COMPONENTS

A. Component 1: Strengthening Early Warning and Preparedness (estimated cost including contingencies: US $ 2.3 million)

8. The objective of this component is to increase the resilience of participating countries and the Pacific region as a whole to natural hazards such as cyclones, coastal and riverine flooding, volcanic eruptions, tsunamis and earthquakes by improving the quality of forecasting and warning services as well as disaster preparedness. This component has two sub-components: (i) Investments in Early Warning and Preparedness (nationally implemented); and (ii) Regional TA to strengthen impact forecasting and preparedness for Response (regionally implemented).

Sub-Component 1.1: Investments in Early Warning and Preparedness

9. This sub-component will be nationally implemented. More information is available in Annex 3 for Samoa and Annex 4 for Tonga.

Sub-Component 1.2: Regional TA to strengthen impact forecasting and preparedness

10. This sub-component will be regionally implemented (by SPC) and will provide the technical assistance and advisory services required to support Early Warning and Preparedness activities under Component 1.1 for the participating countries. This will be done through regional technical assistance, development of a platform to provide access to a range of knowledge, training and education material as well as tools to strengthen capacity and improve understanding of early warning and preparedness in PICs. This component has three sub-components as specified below.

Sub-component 1.2.1: Impact Forecasting

11. The focus of this sub-component is to develop operational hazard models for forecasting the impacts of extreme events including tropical cyclone, storm surge, and flooding at sub-national level, which will be integrated into the countries Multi-Hazard Warning Platforms. Such impact forecasting can then be used to produce just-in-time maps of potentially affected areas. The activities supported under this sub-component will include: (i) acquisition of data: (ii) hazard modelling at sub-national level: (iii) development of spatial information to produce maps at sub-national level; and (iv) regional training to develop and use impact models and their outputs,

[8] For the purpose of the PDO, resilient investments include those in: (i) early warning and preparedness; (ii) risk identification and reduction; (iii) resilient reconstruction and investments through improved codes and standards; (iv) enhancing or enabling policies and planning for that considered to be short and long-term risks; and (v) financial instruments that allow access to timely financing post disaster.

which would support the nationally implemented activities under Component 1.1.3: Enhancement of the Service Delivery System

Sub-component 1.2.2: Strengthening Preparedness for Response

12. The focus of this sub-component is to strengthen the preparedness and response capacity within each of the participating countries. This will allow them to better prepare for and respond to climate and disaster-related emergencies. Two major sets of activities will be supported under this sub-component to establish:

a. *Core competencies.* The specific activities supported will include measures to: (i) identify the industry expectations of a competency framework for preparedness and response in PICs; (ii) modify and adopt the New Zealand and Australian disaster risk management competency framework for the PIC context; (iii) develop a preparedness and response competency framework for PICs from national to community level; (iv) apply/test the competency framework to the PREP Phase I countries; and (v) develop a "How to Guide" to map out the core competencies, skills, knowledge and response roles for various emergency management organizations so they can identify training, education and accreditation needs at national and community level.

b. *Technical and vocational education and training* that will contribute towards accreditation for preparedness and response. The specific activities supported will include: (i) an inventory and review of the disaster risk management courses and training available in the Pacific region to identify gaps, lessons learned and improvements/revisions; (ii) development of technical and vocational education and training (TVET)[9] aimed at a range of audiences including government agencies, civil society organizations (CSOs), communities and the private sector, which builds on their existing knowledge and develops a pathway for formal accreditation to a program for effective emergency management services at the national, sub-national and community level; (iii) delivery of a TVET course at regional and national level; (iv) training of trainers for preparedness response aimed at stakeholders, CSOs and community leaders; and (vi) conducting regular outreach on the core competencies, TVET and training of trainers at the margins of regional meetings and through the web-platforms supported by organizations including SPC, USP, PIFS, and SPREP.

Sub-component 1.2.3: Post Disaster Recovery

13. With the increases in small and large disasters, there is an increasing demand for specialists for post disaster needs assessments (PDNA). This subcomponent will support: (i) SPC staff operating costs for those staff who are increasingly expected to participate in the PDNAs to bring their knowledge, tools and expertise in these time-sensitive assessments; and (ii) hiring of short term consultants for conducting PDNAs in PICs.

[9] The TVET will draw on the findings of the review and will ensure due attention is given to gender, disability and protection considerations.

B. Component 2: Risk Reduction and Resilient Investments (estimated cost including contingencies: US $ 5.7 million)

14. The objective of this Component is to support a multi-sectoral planning process for integrating climate and disaster risk and resilience into development. This component is divided into two sub-components[10]: (i) Risk reduction and resilient investment planning and preparation (nationally implemented); and (ii) Regional platform to support risk reduction and resilient investment (regionally implemented).

Sub-component 2.1: Risk Reduction and Resilient Investment Planning and Preparation

15. This sub-component will be nationally implemented. More information is available in Annex 3 for Samoa and Annex 4 for Tonga.

Sub-Component 2.2: Regional Platform to support Risk Reduction and Resilient Investment

16. This sub-component will be *regionally implemented* (by SPC) and will: (i) support a multi-sectoral planning process for integrating short to long-term climate and disaster risk and resilience into development; (ii) invest in data and tools to make risk information actionable, and (iii) support planning and preparation of national infrastructure and community resilient investments in participating countries to be funded and implemented in Phase II and/or by other Project Donors. For Samoa and Tonga, such work will be done in collaboration with the ongoing programs supported by the PPCR fund. At the regional level, the PREP activities will build on the PPCR supported activities administered by ADB and implemented by SPREP. There are four sub-components:

Sub-component 2.2.1: Strengthening multi-hazard spatial risk data and information systems and development of the decision tools

17. This sub-component will build on previous risk data and information initiatives, such as PCRAFI, but will be much more ambitious than hitherto in developing modern digital information and data decision support systems. The *risk for planners decision support tools* will contextualize the risk information for specific target audiences, who are not necessarily experts in risk, hazards or IT systems to interrogate the data and make informed decisions and/or develop evidence based policy. The applications will drive the development of the tools and systems development will be based on extensive consultation and engagement with target user groups, such as urban planners, infrastructure/investment planners and disaster managers in PREP countries and a thorough understanding of planning processes and work flows.

18. Data needs will be identified and large-scale acquisition of relevant data-sets, such as topography, shallow water bathymetry and risk exposure, will be undertaken to allow economies of scale and making use of innovative and cost-efficient mapping systems, such as UAVs.

[10] The activities supported in this component encompass those in Component 2 of the Regional PPCR SPCR, approved by the PPCR sub-committee in 2012.

Sub-component 2.2.2: Testing applications and decision support systems for resilient planning and investments at the national level

19. This sub-component will test and apply the *risk for planner decision support tools* at the national level, with a particular focus on public infrastructure and urban centers (e.g Port Vila, Apia). These systems will be widely demonstrated to potential users and decision makers to visually display the power of the system and how it assists investment in infrastructure and climate and disaster resilient development. Particular attention will be given to: (i) the identification and preparation of investments in resilience for PREP Phase II; (ii) climate proofing of future sector investments and definition of priority investments to be included in national infrastructure plans; (iii) reducing risk and exposure through appropriate land-use/urban planning systems; and (iv) helping prioritization of near-term investments to reduce the risks to public assets and infrastructure (e.g. school buildings, health clinics/hospitals, transport, ports and wharfs, energy and water utilities). The spatially oriented outputs will also make it easier to communicate with multiple stakeholders, including village/community leaders and senior policy makers.

20. Pre-feasibility studies of priority investments will be conducted to compare options for climate proofing/retrofitting of key public assets and infrastructure. The *risk for planner* toolkit will allow quantitative assessment of development and infrastructure options. The methodology will draw on the best available knowledge including that from the Caribbean and include the development of a results framework and key indicators to measure resilient outcomes at national level.

Sub-component 2.2.3: Developing an Integrated Community Based Approach to Resilience for Disaster, Risk and Climate Change

21. This sub-component will develop decision making tools for 'integrated community resilience development'. Such tools will take account of already established methodologies that look at holistic development at a whole island or ridge to reef scale.

22. The Program will work with vulnerable and affected communities at the village level (including partnering with NGOs where appropriate) to identify activities that will make them more resilient to changing climate and disaster risk over the short to long term. Through dialogue and discussions (which will include a cross-section of the community, including children, youth, elderly and women), a range of risk phenomena that could adversely impact the community will be identified together with interventions that reduce village vulnerability to the identified risks and/or increase community resilience. The *risk for planner decision support tools* will be tested and applied to assist communities prioritizing investment in small infrastructure that contribute to climate and disaster resilient development (such as small bridges, drainage canals, building of new schools, churches and hospitals, etc.). This sub-component will also build on ongoing work such as sustainable village development plans, integrated management plans and disaster risk management plans. In addition, it will build on the normal government processes for engaging with villages/communities.

23. It is anticipated that for many community sectors (such as food security), changing agricultural practices, developing coastal fisheries and/or aquaculture, improving water resource management and developing coastal protection solutions will form part of resilience-proofing

activities. Thus, plans with prioritized activities will be developed with communities in an integrated, rather than sectoral manner, with the focus on reducing hazards and improving resilience and will inform ongoing community development projects (e.g Increasing Resilience to Climate Change and Natural Hazards Project in Vanuatu; Enhancing Resilience of Coastal Resources and Communities in Samoa) as well as potential PREP Phase II investments in community resilience. Practical, on-the-ground, visible solutions will result from this approach and this could (for example): (i) improve the security of food supply; (ii) diversify food and nutritional access; (iii) further develop coastal fish and aquaculture resources; (iv) improve access to clean water supplies; and (v) strengthen coastal defenses against high tide inundation and sea level rise. A toolkit will be developed that will include the overall approach as well as sector decision support systems for 2-3 key sectors (e.g., water, food/crop production, fisheries). This work would contribute to the r*isk for planner decision support tools.*

24. Pre-feasibility studies for priority investments will be conducted to compare options for enhancing the resilience of community-level investments using ecosystem/landscape approaches, and small infrastructure and/or simple technologies will be compared.

25. *Regional Atoll Islands study:* Regional atolls are a special category, with many atolls only 1-3m above sea level when sea levels are predicted to rise by 70cm by 2100. There are a number of options that can be explored and there is active research in this area that can be incorporated into PREP. Some atolls may be amenable to 'atoll raising', which constitutes raising the heights of atoll islands through the addition of sand and gravel from lagoonal settings. Similarly, significant land reclamation projects could increase the size of atolls, bringing protection against sea level rise, adding additional water aquifer capacity, and yielding quality land for development and inward investment (e.g. to attract increased tourism). Completely artificial islands are being constructed for infrastructure usage such as airports or oil tanker storage, and this is freeing up land in the existing atolls. There are also a range of engineering solutions for sea wall defenses that can be considered under this sub-component. Comparisons with migration options can be considered. In collaboration with Bank-executed activities[11], this sub-component will contribute to developing costed options for various types of engineering interventions, comparative to the costs of migration. It would bring in SPC and PICs expertise to develop options that incorporate social and environmental costs as well as purely economic considerations.

Sub-component 2.3.4: Innovative knowledge sharing to strengthen current investments

26. This sub-component will develop effective/innovative processes to share knowledge generated from projects funded in the Pacific through PPCR, PREP and other donors projects. Examples include web-platforms and short videos, among others. In addition, demonstration areas associated with academia and education facilities in participating countries (e.g., schools/colleges) will be established, with the aim of educating decision-makers (e.g., community leaders, government officials, CSOs, private sector, NGOs etc.) on some of the simple solutions that are possible for reducing climate and disaster risks. This will build on ongoing work supported by countries and/or SPC. Given the importance of measurable results, this sub-component will also

[11] The Bank is planning to gather a group of experts from around the world that would include coastal engineers, geomorphologists, hydrogeologists, planners, economist, and social scientists to provide inputs and inform key atoll country decision makers and potential donors on options to manage sea level rise and other risks to atoll islands.

develop products and services for monitoring, reporting and evaluation. The knowledge products and platforms will also be shared at the annual and/or bi-annual regional meetings of decision-makers from PICs that are responsible for climate and disaster resilient development, as well as meetings organized by SPC.

C. Component 3: Disaster Risk Financing (estimated cost including contingencies: US$0.75 million)

27. This component will provide immediate, yet limited post-disaster support to help participating countries and the region as a whole improve their post-disaster financial response capacity. This will be done through the implementation of an integrated disaster risk financing and insurance strategy which builds on a cost-effective combination of national and regional financial instruments to address the financing needs of post-disaster response, following events of low, medium and high severity (Refer to Figure 1, Annex 2).

28. This component will build on the Pacific Catastrophe Risk Insurance pilot, which currently offers technical assistance on public financial management of natural disasters and parametric catastrophe risk insurance solutions in five participating PICs, including the four participating Phase I countries. This component is divided into two sub-components as follows: (i) Disaster risk financing instruments (nationally implemented); and (ii) Development of Mutual Insurance Fund (regionally implemented).

Sub-component 3.1: Disaster risk financing instruments

29. This sub-component will be nationally implemented. More information is available in Annex 3 for Samoa, Annex 4 for Tonga, Annex 5 for RMI and Annex 6 for Vanuatu.

Sub-component 3.2: Development of Mutual Insurance Fund

30. This sub-component will be regionally implemented by PIFS and will provide Technical Assistance and finance the preparatory activities which will be required to better define a medium and long term disaster risk financing framework (e,g., mutual insurance fund), which is envisaged would be financed and implemented in Phase II of the Program. It will also provide technical assistance to assess the country capacity and as needed help prepare them to access to global climate funds, especially the Green Climate Fund.

Sub-component 3.2.1: Regional Technical Assistance

30. This sub-component would provide targeted technical assistance that focuses on the regional coordination of DRFI to ensure that there is regular discussion among countries at the regional level. This would be done via three main activities: (i) providing opportunities for discussion on DRFI at the Ministerial level; (ii) coordination of contracts for the Pacific catastrophe risk insurance pilot; and (iii) convening dedicated regional peer exchange workshops on DRFI.

31. The estimated cost for this component will cover the provision of a dedicated expert member within the Pacific Islands Forum Secretariat and convening an annual DRFI regional workshop for three years.

Sub-component 3.2.2: Development of a Mutual Insurance Fund for natural disasters

32. This sub-component seeks to address the need that has been identified by PICs to cover consequential losses such as transportation costs that are not currently covered by the catastrophe risk insurance pilot. Accordingly, this sub-component will finance the preparatory activities which will be required to better define a mutual insurance fund and explore the involvement of the private sector. The mutual insurance fund is a medium and long term framework and a financial instrument that it is envisaged would be financed and implemented in Phase II of the Program. This financial tool will complement the catastrophe risk insurance and national financial instruments.

33. The mutual insurance fund will be developed on an option basis with emphasis on a bonus system that would reward good behavior. Each year participating countries would have an option to withdraw the funds following a declaration of a disaster or to allow the funds to roll over and accrue in the next year. The mutual insurance product may require the PICs to establish a sustainable self-insurance mechanism (Pacific mutual disaster insurance fund) to finance it with initial capital and annual contributions (as well as potential donor funding). This product is to be developed with the PICs and will be designed to ensure that the PICs are largely responsible for the financial management of the fund, ensuring that expenditures are fully acquitted and discussed at the regional level to facilitate peer exchange on post disaster management of funds and initial response.

D. Component 4: Project and Program Management (estimated cost including contingencies: US $ 2.9 million)

Sub-component 4.1: Project Management

34. This sub-component will be nationally implemented. More information is available in Annex 3 for Samoa and Annex 4 for Tonga.

Sub-component 4.2: Regional Program Management and Coordination

35. The objective of this sub-component is to provide efficient regional coordination of the different country Projects and the coordination and implementation of activities that will be executed at the regional level. This component includes the following two sub-components: (i) Regional Coordination Unit; (ii) Program Implementation Support.

Sub-component 4.2.1 Regional Coordination Unit (RCU)

36. This sub-component will be regionally implemented by PIFS and will provide financing for high level coordination of climate and disaster resilient development projects and initiatives in the Pacific Islands Countries.

37. This will be achieved through the establishment of a Regional Coordination Unit (RCU), which will be established within the PIFS. The RCU will provide overall coordination for the Program, report on the overall Program implementation status to the RSC, provide monitoring of the regional and countries performance indicators, liaise with the main stakeholders on relevant issues related to the Program and provide information and communication on the Program's achievements. The RCU will include under program financing: (i) a Regional Coordinator; (ii) a part time Project accountant; (iii) a Junior Officer; (iv) a DRFI expert; and (v) short term consultants and experts as required. The sub-component will also finance operating costs to support the Regional Coordinator activities and partially finance the operation of the RSC, the cost of audits and the cost to prepare and carry out the Midterm Review (MTR). The RCU will also house the PPCR Pacific Regional Coordinator (international position financed and procured by ADB for the two first years, followed by program financing for two additional years) that will liaise with SPREP and SPC and will support the coordination, monitoring and reporting for the regional PPCR funded Strategic Program for Climate Resilience (SPCR).

38. This RCU will also serve as the secretariat of the Pacific Resilience Partnership (PRP) which has been established to facilitate the implementation of the Strategy for Climate and Resilient Development in the Pacific (SDRP). The PRP, supported by the RCU, would be designed to become the regional and strategic coordination hub for all climate and disaster resilient development discourse and also complement similar mechanisms at the national level in Pacific Island countries and territories.

Sub-component 4.2.2: Program Implementation Support

39. This component will provide financing for the efficient implementation of the Program, including staff, operating costs, monitoring and evaluation, and the cost of audits.

40. This would be achieved through the establishment of a Program Support Unit (PSU) within SPC. The PSU will provide technical and fiduciary support for the implementation of regional activities as well as technical, fiduciary and reporting, monitoring and evaluation for the implementation of country projects. The PSU will include, financed by the program: (i) a Project Manager; (ii) an International Procurement Advisor; (iii) a Program Accountant; (iv) Monitoring and evaluation expertise; and (v) procurement quality insurance part time expertise.

Table 1. Overview of Activities, budget and procurement methods for PIFS implemented Regional Activities

	Source of Financing	Budget (US$M)
1. Strengthening Early warning and preparedness		**2.185**
1.1. Investments in early warning and preparedness	NA	NA
1.2. Regional tools to support impact forecasting and preparedness	NA	NA
1.2.1. Impact forecasting	NA	NA
1.2.2. Strengthening preparedness for response	NA	NA
1.2.3. Post Disaster recovery	NA	NA
2. Risk Reduction and Resilient Investments		
2.1. Risk reduction investment planning and preparation	NA	NA
2.2 Regional TA to strengthen impact forecasting and preparedness	NA	NA

	Source of Financing	Budget (US$M)
2.2.1 Strengthening risk data and information system	NA	NA
2.2.2 Testing decision support system at the national level	NA	NA
2.2.3 Developing community based approach for resilience	NA	NA
2.2.4 Innovative knowledge sharing	NA	NA
3. Disaster Risk Financing		
3.1 Disaster risk financing instruments	NA	NA
3.2 Development of Mutual Insurance Fund	IDA/SCCF	**0.745**
3.2.1 Regional technical assistance	*IDA/SCCF*	*300*
3.2.2 Development of the Mutual Insurance Fund	*IDA/SCCF*	*445*
4. Project and Program Management		**1.470**
4.1. Project management	NA	NA
4.2. Regional Management and Regional Coordination	IDA/SCCF	1.470
4.2.1 Regional Coordination Unit	*IDA/SCCF*	*1.470*
4.2.2 Program Support Unit	NA	NA
TOTAL COSTS		**2.220**

*SCCF Funding requested, but commitment to be confirmed.

Table 2. Overview of Activities, budget and procurement methods for SPC implemented Regional Activities

	Source of Financing	Budget (US$M)
1. Strengthening Early warning and preparedness		**2.287**
1.1. Investments in early warning and preparedness	NA	NA
1.2. Regional tools to support impact forecasting and preparedness	IDA/PPCR	2.287
1.2.1. Impact forecasting	*IDA/PPCR*	*1.021*
1.2.2. Strengthening preparedness for response	*IDA/PPCR*	*0.921*
1.2.3. Post Disaster recovery	*IDA/PPCR*	*0.345*
2. Risk Reduction and Resilient Investments		**5.712**
2.1. Risk reduction investment planning and preparation	NA	NA
2.2 Regional TA to strengthen impact forecasting and preparedness	IDA/PPCR	5.712
2.2.1 Strengthening risk data and information system	*IDA/PPCR*	*1.094*
2.2.2 Testing decision support system at the national level	*IDA/PPCR*	*1.656*
2.2.3 Developing community based approach for resilience	*IDA/PPCR*	*2.508*
2.2.4 Innovative knowledge sharing	*IDA/PPCR*	*0.454*
3. Disaster Risk Financing		**NA**
3.1 Disaster risk financing instruments	NA	NA
3.2 Development of Mutual Insurance Fund	NA	NA
3.2.1 Regional technical assistance	NA	NA
3.2.2 Development of the Mutual Insurance Fund	NA	NA
4. Project and Program Management		**1.475**
4.1. Project management	NA	**NA**
4.2. Regional Management and Regional Coordination	IDA/PPCR	1.475
4.2.1 Regional Coordination Unit	NA	*NA*
4.2.2 Program Support Unit	*IDA/SCCF/PPCR*	*1.475*
TOTAL COSTS		**11.694**

Project Appraisal Document
Pacific Resilience Program (PREP)
ANNEX 8: IMPLEMENTATION ARRANGEMENTS

I. Institutional and Implementation Arrangements

Implementation Readiness

2. A number of steps have been undertaken to ensure effective implementation readiness for the Program. Draft Project Operations Manuals (POMs) for each country and one at the regional level have been discussed during appraisal, which will be finalized within 120 days after effectiveness. The POMs will outline, among other things, clear roles and responsibilities between various stakeholders involved at the regional level and national level, and the specific details regarding the proposed implementation arrangements and procedures governing the use of the CERC funds under component 3.1.1. In addition, it is envisaged that key consultants (i.e., a Regional Coordinator and Systems Integrator Consulting Firm to facilitate the implementation of Component 1) will be hired within three months of effectiveness. This will allow for bidding documents to be prepared and ready for procurement during the first 9-12 months of the Program. This has been reflected in the Implementation Plan and Commitments and Disbursements forecast for the Program and Projects. To support this process, terms of reference for these key consultancies have been discussed during appraisal and are being finalized.

Implementation period

3. The implementation period for the four countries (Samoa, Tonga, RMI and Vanuatu) in Phase I is planned to take up to five years. For the first countries, for which World Bank Board approval is scheduled for June 2015, effectiveness is foreseen in the fourth quarter of 2015. Completion of Program activities is foreseen, at this stage, for June 30, 2020 and the closing date is foreseen as December 31, 2020.

Overall organization

4. The organizational chart for the Program is presented in Figure 1 of this Annex. It shows the set up proposed for Phase I and includes PIFS and SPC at the regional level and Samoa, Tonga, RMI and Vanuatu, at the national level.

A. National Implementation arrangements

5. Each of the Projects will be implemented at the national level by designated implementing agencies (IAs), which will be either: (i) the ministry, department or agency responsible for climate resilience/DRM; and/or (ii) the Ministry responsible for Finance for each country. Arrangements will differ for each country, as set out in more detail below. The IAs will implement national-level activities, including financial management for these activities, utilizing funds from a national designated account.

6. Projects for Samoa and Tonga will be implemented and coordinated through Project Management Units (PMUs) or similar project implementation support arrangements. The national arrangements will be headed by a National Coordinator (NC) who will be responsible for overseeing implementation, monitoring progress towards intended results according to the indicators (see Annex 1), providing technical inputs for procurement processing/documentation as required to the Program Support Unit (PSU) as well as receiving support in particular on fiduciary matters from PSU, and ensuring environmental and social safeguards compliance. In addition, a financial management specialist and a national procurement officer, if required, will be designated/recruited for each country within the first quarter after effectiveness and housed in the PMU.

7. The administrative and operational arrangements for each participating Phase I country and the region have been developed during project preparation and will be set out in the Project Operational Manual (POM).

Arrangements for Samoa

8. The guiding implementation and institutional principles for the PREP activities and investments for Samoa will be to: (i) join the existing national institutional framework for climate change and disaster risk reduction; and (ii) build on the Samoa National PPCR (Enhancing the Climate Resilience of Coastal Resources and Communities Project) implementation arrangements without impairing their efficiency. Strengths of the Samoa National PPCR arrangements on which the PREP will build is that they: (i) are built around existing Government structures and processes; (ii) provide opportunities for additional institutional strengthening and streamlining of Government procedures through other funding sources; and (iii) seek to address capacity constraints of implementing agencies through both short-term arrangements and provision for longer-term capacity building. In addition, it is proposed that the existing Samoa National PPCR arrangements are adapted to ensure the Project is able to accommodate and respond efficiently to the varying administrative and reporting requirements of different bilateral or multilateral donors. The PREP will integrate the Government's existing programmatic approach to climate resilience and disaster risk reduction. This will allow for continued synergies between various projects and funding sources.

National Steering Committee

9. A key component of the PREP institutional arrangements is to use the existing Samoa National level Resilience Steering Committee as the National Steering Committee (NSC) for the PREP, eventually adding any new stakeholder that may be identified during project preparation. The NSC will provide the oversight and guidance for the project implementation.

Implementing Agencies

10. The Ministry of Finance (MoF) will have overall coordination responsibility for the Project, and will house the National Coordinator (NC), who will be responsible for (or will delegate) coordination at the regional level with the RCU and PSU, and will act as the secretariat to the NSC. Accordingly, in order to integrate the institutional framework for climate change, it is proposed to entrust the existing Climate Resilience Investment and Coordination Unit (CRICU)

established within the MoF with the overall coordination functions. The CRICU will require a strengthened capacity, which will be financed by the PREP. The degree to which this will be done will be dependent on the funding that is available for the Samoan PREP activities.

11. The Ministry of Natural Resources and Environment (MNRE) will be responsible for the day-to-day oversight and implementation of Component 1. The MoF will be responsible for the day-to-day oversight and implementation of Components 2, 3 and 4.

12. Line agencies will support MNRE with the technical development and implementation of sub-components and specific activities under Component 1. The key agencies have been identified to primarily include the Disaster Management Office (DMO), the Samoa Meteorological Division (SMD) and the Water Resources Division (WRD), with the potential for others to be added in the future.

Project Management

13. A Project Manager and a Procurement Specialist will be recruited by MNRE. The Project Manager will act as an MNRE focal point, and manage the day-to-day implementation of the PREP activities for Samoa. The Project Manager will report to the Assistant CEO, DMO (MNRE), and will work closely with the National Coordinator, housed in the MoF. The Procurement Specialist would also report to the Assistant CEO, DMO. Technical staff will be recruited by MNRE, as necessary, to support implementation of Component 1.

14. An Implementation Support Specialist will be recruited by MoF and will report to the Assistant CEO of CRICU who is also the National Coordinator for PREP. Withdrawals will be done by CRICU for the project

15. Monitoring and Evaluation (M&E) capability for the project will build on the existing M&E arrangements established through the PPCR projects in Samoa (coastal resources and communities and the West Coast Road), and will be undertaken by the CRICU. It is proposed that the Regional Coordination Unit will provide M&E guidance and support as needed. A monitoring and evaluation officer will be recruited as necessary to support this process.

16. It was agreed that a National Technical Committee (TEC) would be created, and this TEC would be responsible for the technical implementation of Component 1. The TEC would be chaired by the CEO of MNRE and members would include representatives from the DMO, SMD and WRD.

Arrangements for Tonga

17. The guiding implementation and institutional principles for the PREP activities and investments for Tonga will be to: (i) build on the already existing institutional framework to implement the Climate Resilience Sector Project (CRSP) prepared by the Government of Tonga (GoT) under Phase II of the recently commenced PPCR, which is financed by GoT and ADB; and (ii) use existing implementation arrangements (without impairing their efficiency). Implementation arrangements for the PREP should strengthen coherence; create synergies and mainstream coordination between agencies and funding resources for projects and donors.

Implementation arrangements will be built around existing Government structures and processes, and provide opportunities for additional institutional strengthening and capacity building as well as streamlining of procedures. In addition, it was agreed that the capacity constraints of implementing agencies would be specifically addressed through both short-term arrangements, and the provision of longer-term capacity building.

National Steering Committee

18. A National Steering Committee will be created to provide oversight for the PREP, and this committee would be chaired by the Minister responsible for Meteorology, Information, Energy, Disaster Management, Climate Change and Communications (MEIDECC). The NSC will provide the strategic vision (on resilience in particular), guidance and oversight for the PREP implementation.

Implementing Agencies

19. MEIDECC will have overall responsibility for the Project, and will house the National Coordinator (NC), who will be responsible for coordination at the regional level with the RCU and PSU, and will act as the secretariat to the NSC.

20. MEIDECC will be responsible for the day-to-day oversight and implementation of Components 1, 2 and 4. The Ministry of Finance and National Planning (MFNP) will be responsible for the day-to-day oversight and implementation of Component 3.

21. Line agencies would support MEIDECC with the technical development and implementation of sub-components and specific activities under Component 1 and Component 2. The primary agencies have been identified at this stage to include the National Emergency Management Office (NEMO), the Tonga Meteorology Department (TMD), and the Natural Resources Division (NRD). Additional relevant agencies as implementation progresses could include the Planning and Urban Management Agency, and the Ministry of Infrastructure, and potentially others.

Project Management

22. A PMU will be created housed in MEIDECC and entrusted with the overall coordination functions for the PREP. A National Coordinator (NC), an accountant and a procurement officer will be recruited to staff this PMU, and this will be done as a priority in order to ensure a PMU is in place in time for Project Effectiveness. Additional technical staff may also be procured, as needed.

23. A focal point would be selected within MFNP to coordinate the day-to-day implementation of activities under Component 3. The MFNP focal point would need to work closely with the NC.

24. M&E capability for the Project will build on and expand the existing capabilities established through the CSRP and will be progressively enhanced to support: (i) the longer-term need for the M&E data; and (ii) the GoT capability to assess the extent to which risk reduction activities are effective in addressing the threats posed by climate change and natural hazards. The PSU will provide M&E guidance and support as needed.

25. It was agreed that a TEC would be created, who would be responsible for the technical implementation of Component 1. The TEC would include representatives from TMD, NEMO and NRD

Arrangements for RMI and Vanuatu:

26. Given the simplified Project design for RMI and Vanuatu[1], simplified implementation arrangements will be put in place. The Ministry of Finance for RMI and the Ministry of Finance and Economic Management for Vanuatu would act as the implementing agency for Component 3.1.2 and would provide overall fiduciary oversight for the Project.

B. Regional Coordination and Implementation arrangements

27. At the regional level, the PREP will be coordinated by the Pacific Islands Forum Secretariat (PIFS) and implemented by the Secretariat of the Pacific Community (SPC). The proposed general institutional framework for the overall program (Phase I and eventually further Phases, to be re-examined during preparation of Phase II) will comprise a Regional Steering Committee (RSC), a Regional Coordination Unit (RCU) that will be established within PIFS, and a Program Support Unit (PSU) that will be housed within SPC. PIFS and SPC will enter into a Letter of Agreement in order to define the main indicators that will be relevant to good implementation of the Program, and also to set out the roles and responsibilities of each organization that will be required to ensure proper reporting to the Regional Steering Committee for the PREP.

Regional Steering Committee

28. The RSC will be responsible for overseeing the overall regional Program and will provide overall oversight and advice, as well as guidance towards achieving Project and Program objectives and better regional integration. It will also allow the "resilience agenda" to be dealt with at the highest level of the decision making process. At a later stage, during the beginning of Phase I implementation, the RSC will be essential to identify the appropriate medium and long term strategy for strengthening resilience in the region. It will also be essential to coordinate issues and activities that are relevant to the program at the regional level. The RSC will then be assisted in its role by the RCU. The composition of the RSC will include representatives from the highest level of decision making, both at the country and regional level. The Chair of each of the National Steering Committees (NSCs) will be members of RSC. The RSC will be a subset of the Pacific Resilient Partnership (PRP). The Council of the Regional Organizations of the Pacific (CROP) heads agreed that the PIFS would host the PRP. This acknowledges the importance of the role of advocacy and coordination in promoting climate and disaster resilient development within the Pacific Region, particularly through the annual Forum Leaders Meeting and the Forum Economic Ministers Meeting. Accordingly, the PREP will directly support the establishment of the PRP.

Regional Coordination Unit

29. Phase I will establish a RCU within the PIFS. The RCU will ensure strategic alignment between the PREP and the preeminent organization for Pacific leaders and will provide PIFS with

[1] For RMI and Vanuatu there is an abridged Project design encompassing only Sub-component 3.1.2

ownership of the Program. This will facilitate high level strategic guidance and coordination by PIFS for Program implementation.

30. The RCU will include a Regional Coordinator (RC) who will be housed at PIFS, and a small unit that will deal will the coordination aspects of climate and disaster resilience initiatives and projects in the Pacific (among which the PREP, the PPCR funded activities and Disaster Risk Financing are included). This RCU will act as the Secretariat to the RSC.

31. The main roles of the RCU will be to: (i) provide overall coordination at the regional level; (ii) report on the overall Projects and Program implementation status; (iii) monitor the regional and countries' performance indicators; (iv) provide information and communication on Project achievements at the regional level; (v) liaise with the main stakeholders and lenders on relevant issues for the Program; and (vi) act as Permanent Technical Secretariat to the RSC, including preparing and organizing RSC meetings and necessary documentation, preparing and distributing the minutes of the meetings, and following up on agreed actions recommended by the RSC.

32. The RCU will include under program financing: (i) a Regional Coordinator; (ii) a part time Project accountant; (iii) a DRFI expert; (iv) a Junior Officer; and (v) short term consultants and experts as required. The sub-component will finance operating costs to support the Regional Coordinator activities and partially finance the operation of the RSC, the cost of audits and the cost to prepare and carry out the Midterm Review (MTR). The RCU will also house the PPCR Pacific Regional Coordinator (international position financed and procured by ADB for the two first years, followed by program financing for two additional years) that will liaise with SPREP and SPC and will support the coordination and reporting for the regional PPCR funded Strategic Program for Climate Resilience (SPCR).

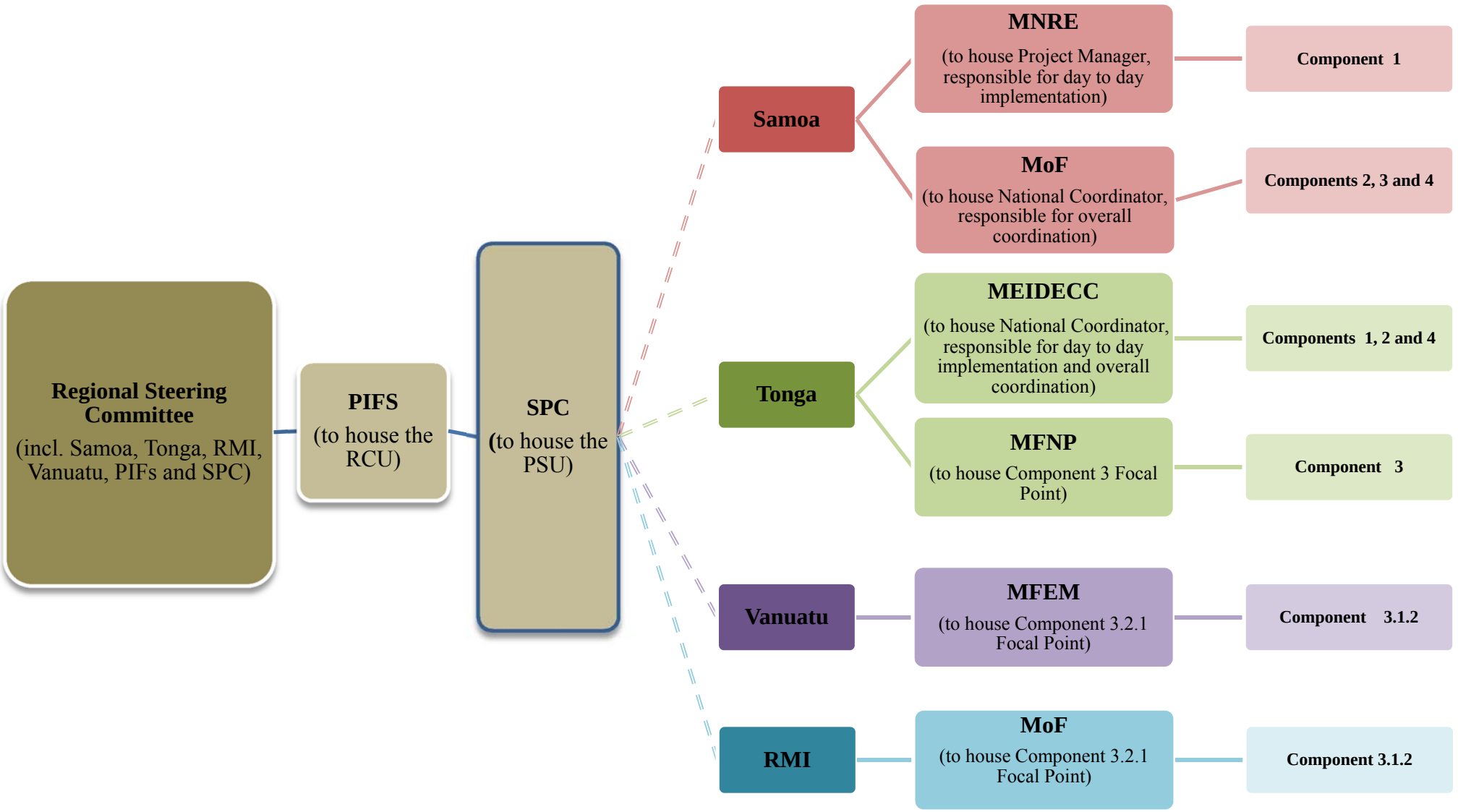
Program Support Unit

33. A Program Support Unit (PSU) will be established within SPC and will provide technical and fiduciary support for the implementation of regional activities as well as technical, fiduciary and monitoring and evaluation support for the implementation of country Projects. The PSU will undertake the procurement process on behalf of participating countries for joint procurement processes, as well as support day to day implementation and financial reporting as needed. The PSU will conduct frequent implementation support missions to each participating countries.

34. The PSU will include, financed by the program: (i) a Project Manager; (ii) an international procurement advisor; (iii) a Program Accountant; (iv) Monitoring and evaluation expertise; and (v) a procurement quality insurance part time expertise.

35. A Regional Technical Committee (RTEC) would be created. The RTEC would comprise all of the members of the Phase I national TECs which would be created at the country level for each country Project. The TECs will be responsible for providing technical oversight for Component 1, including the selection of key consultants which will be jointly procured by the three Phase I countries. In cases where joint procurement occurs at the regional level, the consultants would enter into individual contracts with each of the countries.

Figure 1: Implementation Arrangements for PREP



b) Financial Management, Disbursements and Procurement

i. Financial Management.

35. **Risks.** The overall financial management risk for this Program before the mitigation measures is **Moderate,** remaining at **Moderate** with successful implementation of the mitigating risks. The financial management risk for each individual Project and each individual implementing agency is also **Moderate.**

36. **Budgeting.** Each implementing agency will develop a total Project budget for the relevant aspects of the Project and financing that relates to them, and break this down into annual budgets. Each implementing agency will review this document periodically as required, annually at a minimum, with analysis of budget vs. actual expenditure also contained in the Interim Financial Reports (IFRs). There is no need for the budget to include amounts for sub-component 3.1.2 (financing of insurance premiums) and its related disbursement category, as the implementing agencies will not be managing or implementing this aspect of the project and funding.

37. **Accounting and Internal Controls.** Each implementing agency will use the accounting system that their organization operates on, with adequate support systems to assist in contract management, financial reporting, and Withdrawal Applications, (i.e. for Samoa and Tonga where the government accounting system produces the cheques for payment of invoices, but only has one line to report the project, it may not have the required breakdown of classifications for the project or enable efficient production of Withdrawal Applications, financial reporting etc. Thus adequate support systems, such as spreadsheets or an appropriate database/accounting system will be required). Each implementing agency will operate under the relevant finance and accounting laws and regulations applicable to them, and follow the procedures as laid out in the relevant Financial Management Manual adopted by each implementing agency. These laws, regulations, manuals and procedures are considered adequate and provide the required internal controls to also be compliant with World Bank requirements.

38. **Financial Reporting.** Each implementing agency will be responsible for managing, monitoring and maintaining Project accounting records for the project, including retention of original supporting documents. IFRs will be prepared by each implementing agency for the relevant aspects of the Project and financing that relates to them, on a calendar semester basis. The financial reports will include an analysis of actual expenditures for the semester (year to date and project to date), and outstanding commitments, compared to total Project budget. The format will be developed by each implementing agency and agreed to by the World Bank, prior to submission of the first IFRs. The IFRs will be forwarded to the World Bank within 45 days of the end of each calendar semester.

39. **External Audits.** Annual audits of the Project funds will be required. For Samoa and Tonga, annual audits of Project Financial Statements will be required. The Auditor General performs the audits of government agencies and projects. Annual audited project financial statements will be required to be submitted to the World Bank no later than 6 months after the end of each financial year by the recipients. Depending on the date of signing of the legal agreements, if in the final months of the fiscal year of Samoa and Tonga and little or no disbursements and

expenditure likely, the first audit may be set to be for the 12+ months ending the second fiscal year of the Project.

40. For PIFS, annual audited Project Financial Statements will be required. PIFS will arrange for the audit to be conducted by a firm acceptable to the World Bank. Annual audited project financial statements will be required to be submitted to the Bank no later than 9 months after the end of each financial year by the recipient.

41. For SPC, annual audited Entity Financial Statements with adequate disclosure of the Program will be required. SPC will arrange for the audit to be conducted by a firm acceptable to the World Bank. Annual audited entity financial statements will be required to be submitted to the Bank no later than 9 months after the end of each financial year by the recipient.

ii. Disbursements

42. **Disbursement Methods.** The following four disbursement methods are all available for the Project: (i) advance; (ii) reimbursement; (iii) direct payment; and (iv) special commitment. Supporting documents required for Bank disbursement under different disbursement methods will be documented in the Disbursement Letter issued by the World Bank, based on Statements of Expenditures, Lists of Payments, and records evidencing eligible expenditures.

43. **Designated Account.** A segregated Designated Account (DA) for each recipient will be required. The currency of the DAs will be the National currency of each recipient. Samoa will have the DA with the Central Bank of Samoa in Samoan Tala. Tonga will have the DA in a financial institution acceptable to the Association. in Tongan Pa'anga. PIFs will have the DA with ANZ bank in Fiji Dollars. SPC will have the DA with Westpac Banking Corporation in Fiji dollars. The ceiling of each DA will be determined and documented in the Disbursement Letter. The project funds will be disbursed against eligible expenditures as set out in the legal agreements.

44. **Disbursement Categories.** Minimum of two disbursement categories will be required: 1 - Goods, Works, Consultants, Non Consulting Services, Audits, Training and Workshops, and Incremental Operating Costs and 2 – Risk Insurance Premium under sub-component 3.1.2, titled "Premia for Disaster Risk Financing or Transfer Products", and with any requisite wording in the legal agreement regarding World Bank drawing down from the recipient grant to pay itself the amounts required to pay any such premiums. All categories can be funded inclusive of taxes, as allowed by the Country Financing Parameters.

iii. Procurement

45. The procurement capacity assessment identified the following main risks: (i) program coordination of several projects in multiple countries; (ii) weak institutional arrangements and low capacity; (iii) market constraints due to geography; and (iv) procurement complexity. The Program's overall procurement risk is rated high. A key Program-level mitigation measure that addresses identified capacity constraints and supports regional harmonization includes establishment of a PSU within SPC, which will be responsible for, among other aspects, coordinating and handling all procurement activities up to contract signing. The RCU will be established within the PIFS, and the PMUs within the other Implementing Agencies (IAs), will be

responsible for managing all project activities within their jurisdictions including contract award and signature, monitoring implementation progress of their respective projects, providing authorization for contract payments and providing progress reports for consolidation by the PSU. Furthermore, a Regional Procurement Evaluation Committee (RPEC) with members from the PSU and support from the RTEC will foster stakeholder ownership in the process and outcomes.

46. The following measures that have been also recommended are summarized below:

Table 1: Regional Procurement Risks and Mitigation

Perceived Risk	Action	Timeframe
Under resourcing in relation to procurement staffing may lead to Improper implementation of procurement activities under the Program (in terms of efficiency, competition, transparency)	Establishment of PSU. This unit to include a procurement advisor and IAs to employ dedicated procurement officers	Prior to start of implementation
Protracted approval process	SPC and PFIS to clarify the role of their corporate services divisions. PSU to establish a bid publication webportal (based on the Bank's Regional Online Marketplace) and KPIs covering all steps of the procurement process and has timeframes for the decision, including the time allotted to make them. PSU also to set up a simple procurement operations manual for the Program	By appraisal Prior to start of implementation and during implementation
Potential delays due to multiple reviews.	Ensure evaluation members are briefed on the process upfront, and reports are well prepared for briefing approving entities.	During implementation
Delay to project processing and implementation due to lack of proper planning	IAs to prepare credible procurement plans and package contracts in a way to maximize market interest and reduce transactional costs.	By appraisal
Implementation delays due to inadequate technical inputs.	Involve technical staff and users in preparation of specifications or agree to hire competent consultants to draft TS/TORs. This will be supported by the RTEC.	During implementation
Delays in project or increase in claims due to slow contract implementation.	IA to employ dedicated staff for contract supervision	During implementation

47. Procurement roles and responsibilities between the SPC/PSU and IAs/PMUs are outlined in Table 2.

Table 2: Procurement Coordination between PSU and IA/PMU

PSU Responsibilities	IA/PMU Responsibilities
• Ensure all procurement is conducted in accordance with World Bank guidelines. • Prepare, review and update Procurement Plans • Review and prepare bidding documents (for civil works, goods, and consulting services), with support from the RTEC and as needed assist in the preparation of documentation of national procurement to be carried out by IA • Review and prepare Request for Expressions of Interest with the support of the RTEC. • Review and prepare shortlist evaluation report with the support of the RTEC. • Coordinate inputs and finalize TOR and cost estimates with the support of the RTEC. • Respond to bidders' questions and clarification of request for Proposals. • Lead the RTEC and coordinate the inputs of the committee members for all Program activities. • Prepare regional Bid Evaluation Reports for submission to IDA, as required with the support of the RTEC. • Support contract negotiations. • Provide support to PMUs in national procurements. • Prepare reports for submission to IDA, as required.	Process procurement under national competitive bidding or shopping, with documentation and guidance provided by PSU. Also, to provide inputs to the PSU as required for: • Preparing bidding documents. • Preparing Requests for Expressions of Interest. • Preparing shortlist evaluation reports. • Responding to bidders' questions and clarification of Request for Proposals. • Preparing Bid Evaluation Reports for submission to IDA, as required. • Contract negotiations. • Participate in RPEC. • Sign contracts. • Monitor contract progress. • Prepare reports for submission to IDA, as required.

48. Procurement for the proposed Program would be carried out in accordance with: (i) the World Bank's ―Guidelines: Procurement Under IBRD Loans and IDA Credits, dated January 2011 (Revised July 2014) and ―Guidelines: Selection and Employment of Consultants by World Bank Borrowers dated January 2011 (Revised July 2014); and (ii) the specific provisions stipulated

in the Grant Agreements. There are still ongoing discussions with implementation agencies and change is likely to occur to the procurement tables presented below prior to negotiations.

49. **Procurement of Works:** Project or Program works estimated to cost US$5,000,000 or less will be procured through National Competitive Bidding (NCB). Standard Bidding Documents would be developed and agreed with IDA. Small value works less than US$1,000,000 may be procured through Shopping. The civil works to be procured under the Program are shown below in Table 3 and Table 4.

Table 3: Works to be Procured by Samoa

SAMOA: Procurement Category: Works				
1	2	3	4	5
Proc ID	Contract (Description)	Estimat Cost (US$ million)	Procurement Method	Review by Bank
PREPSamoa/W01	Construction of National Emergency Operations Center of some 1000 sq m	2.423	NCB	Prior
PREPSamoa/W02	Extention of Seismic Operations Center (at Mulinu'u)	0.920	Shopping	Prior

Table 4: Works to be Procured by Tonga

TONGA: Procurement Category: Works				
1	2	3	4	5
Proc. ID	Contract (Description)	Estimat Cost (US$ million)	Procurement method	Review by Bank
PREPTonga/Works 01	Tonga Met Department: Building of new facility for MET headquarters and backup for NEMO and NRD outside the tsunami	1.689	NCB	Prior
PREPTonga/Works 02	NEMO Emergency Operations Center refurbishment	0.500	Shopping	Post
PREPTonga/Works 03	Rehabilitation and construction of Emergency Operation Centres (5Nos) at Vava'u, Niuatoputapu, Niuafo'ou, Ha'apai, Eu'a	1.500	NCB	Prior

50. **Procurement of Goods:** Project or Program goods estimated to cost US$500,000 equivalent or more would be procured through ICB procedures. All ICB procurement will be done using the appropriate World Bank Standard Bidding Document (SBD). Off-the-shelf goods of small value of less than US$500,000 may be procured through Shopping. Direct Contracting may be used, but only in exceptional circumstances as stated in paragraph 3.7 of the Procurement Guidelines. The goods to be procured under the first eighteen months of the Program are shown below.

Table 5: Goods to be Procured by Tonga

TONGA: Procurement Category: Goods				
1	2	3	4	5
Ref	Contract (Description)	Estimat Cost (US$ million)	Procurement method	Review by Bank
PREPTonga/Goods 01	Marine and community communication infrastructure (HF and VHF) for TMD, NEMO and NRD	1.500	ICB	Prior
PREPTonga/Goods 02	Radio transmitter and accesories for A3Z AM Radio Station (AM Radio - full coverage of Tonga) and studio transmitter link & remote control unit between TMD and TBC	0.410	Shopping	Post
PREPTonga/Goods 03	Dedicated fibre optic Communication link between Disaster Response agencies	1.142	ICB	Prior
PREPTonga/Goods 04	Upgrade of WMO Information System	0.010	Direct Contracting	Prior
PREPTonga/Goods 05	Television Weather Presentation unit with recording camera, cubicle and accessories	0.020	Direct Contracting	Prior
PREPTonga/Goods 06	Stockpiling of emergency goods (tents & tarpaulins, water tanks and water containers, stretchers, porterloos, cooking ustensils, chainsaws..) to enhance preparedness and response	0.350	Shopping	Post
PREPTonga/Goods 06A	Chainsaws (20Nos)			
PREPTonga/Goods 06B	Cooking facilities (cooking pots: 8Nos, Dustbins: 2Nos, Buckets: 6Nos, cooking utensils: 20Nos)			
PREPTonga/Goods 06C	Generators 3KVA (6Nos)			
PREPTonga/Goods 06D	Porterloos: 16Nos			
PREPTonga/Goods 06E	Tents and Tarpaulins (Family tents: 600Nos, Evacuation Centre Tents: 12Nos, Tarpaulins: 1200Nos)			
PREPTonga/Goods 06F	Stretchers (10Nos)			
PREPTonga/Goods 06G	Watertanks (20Nos) and water containers (6000Nos)			

Table 6: Goods to be Procured by SPC

SPC: Procurement Category: Goods					
1	2	3	4	5	6
Proc. ID	Contract (Description)	Estimated Cost MUS$	Procurement Method	Review by Bank (Prior/Post)	Expected Bid Floating Date
PREPSpc/IF/Goods	**Technical Assistance for the development of Impact forecasting (tropical cyclone, storm surge, flooding) software and testing**				
PREPSpc/IF/Goods/01	Acquisition of unmanned aerial vehicle with associated capacity requirements for operations	0.100	Shopping	Post	2/11/2015
PREPSpc/IF/Goods/02	Satellite Imagery	0.100	Direct Contracting	Prior	2/11/2015
PREPSpc/IF/Goods/03	GPS hand held (10 Nos)	0.015	Shopping	Post	2/11/2015
PREPSpc/IF/Goods/04	Data processing equipment and software	0.015	Shopping	Post	2/11/2015
PREPSpc/PDR/Goods	**Post Disaster Recovery**				
PREPSpc/PDR/Goods/01	Health and Safety Equipment including protective gear, etc for field surveys during post disaster evaluation	0.100	Shopping	Post	1/08/2016
PREPSpc/SMH/Goods	**Strengthening multi -hazard spatial risk data and information systems and Development of the decision tools**				
PREPSpc/SMH/Goods/01	Office Equipment (5 Nos computer, plotter, printer, cloud storage, data server)	0.065	Shopping	Post	3/10/2016
PREPSpc/DSS/Goods	**Testing applications and decision support systems for resilient planning and investments at national levels**				
	Ancilliary data acquisition				
PREPSpc/DSS/Goods/01	Hazard/meteorological data	0.010	Shopping	Post	1/12/2016
PREPSpc/DSS/Goods/02	Acquisition of unmanned aerial vehicle with associated capacity requirements for operations	0.060	Shopping	Post	1/12/2016

51. **Selection of Consultant Firms:** Consulting contracts expected to cost more than US$500,000 equivalent per contract would use the Quality and Cost Based Selection (QCBS) or Quality Based Selection (QBS) in conformity with the Consultants Guidelines. Consulting services estimated under US$500,000 equivalent per contract may follow the Selection Based on Consultants Qualifications (CQS). The Least-Cost Selection (LCS) would be used for simple assignments such as audit services. Under the circumstances described in paragraph 3.9 of the Consultants Guidelines, consultants may be selected and awarded on a Single-Source Selection (SSS), subject to IDA's prior approval.

Table 7: Consultants to be Procured by Samoa

SAMOA: Procurement Category: Consultant					
1	2	3	4	5	6
Proc. ID	Description of Assignment	Estimat Cost (US$ million)	Selection Method	Review by Bank	Expected Bid Floating Date
PREPSamoa/CON 01	Institutional strengthening, development of a legal and regulatory framework for MHEWS including development of SOPs,etc	0.100	ICS	Prior	2/11/2015
PREPSamoa/CON 02	Improvement of service delivery to communities including development and introduction of mobile applications (warnings, water and food security)	0.300	QCBS	Prior	1/03/2016
PREPSamoa/CON 03	Survey of warning utility with public and sectors	0.100	ICS	Post	4/01/2016
PREPSamoa/CON 04	Feasibility study for Investments Phase 2	0.500	QCBS	Prior	4/01/2017
PREPSamoa/CON 05	DRF Capacity Building	0.435	QCBS	Prior	4/01/2016
PREPSamoa/CON 06	Project Manager	0.250	ICS	Post	1/06/2015
PREPSamoa/CON 07	Procurement Specialist	0.175	ICS	Prior	1/06/2015
PREPSamoa/CON 08	Project Accountant	0.125	ICS	Post	1/06/2015
PREPSamoa/CON 09	M&E Expertise	0.125	ICS	Post	4/01/2016

Table 8: Consultants to be Procured by Tonga

TONGA: Procurement Category: Consultant				
1	2	3	4	5
Proc. ID	Description of Assignment	Estimat Cost (US$ million)	Procurement method	Review by Bank
PREPTonga/CON 01	Institutional strengthening, development of a legal and regulatory framework for MHEWS including development of SOPs,etc	0.050	ICS	Prior
PREPTonga/CON 02	Improvement of service delivery to communities through the upgrade of the Tonga Meteorological Service, NEMO and NRD (Geohazards) websites	0.010	ICS	Post
PREPTonga/CON 03	Survey of warning utility with public and sectors	0.100	ICS	Post
PREPTonga/CON 04	Feasibility study for Investments Phase 2	0.500	QCBS	Prior
PREPTonga/CON 05	DRF Capacity Building	0.435	QCBS	Prior
PREPTonga/CON 06	Project Manager	0.250	ICS	Post
PREPTonga/CON 07	Procurement Specialist	0.175	ICS	Prior
PREPTonga/CON 08	Project Accountant	0.125	ICS	Post
PREPTonga/CON 09	M&E Expertise	0.125	ICS	Post

Table 9: Consultants to be Procured by SPC

SPC: Procurement Category: Consultant					
1	2	3	4	5	6
Proc. ID	Description of Assignment	Estimated Cost US$	Selection Method	Review by Bank (Prior/Post)	Expected Bid Floating Date
PREPSpc/IF	**Technical Assistance for the development of Impact forecasting (tropical cyclone, storm surge, flooding) software and testing**				
PREPSpc/IF/CON01	Hydro met Modelling Expert	0.232	ICS	Post	1/10/2015
PREPSpc/IF/CON02	System developer	0.116	ICS	Post	1/10/2015
PREPSpc/IF/CON03	GIS Expert	0.090	ICS	Post	1/10/2015
PREPSpc/IF/CON04	GIS Technician	0.060	ICS	Post	1/10/2015
PREPSpc/IF/CON05	GIS Technician	0.060	ICS	Post	1/10/2015
PREPSpc/SPR	**Strengthening Preparedness for Response**				
PREPSpc/SPR/CON01	Inventory of DRM training available in the region with New Zealand Emergency Management Qualifications Authorities (EMQUAL), identify gaps in the current training materials and recommendation for the improvement of the quality of DRM training	0.024	SS	Prior	1/10/2015
PREPSpc/SPR/CON02	Evaluation of Emergency Services framework and recommendations	0.018	ICS	Post	1/10/2015
PREPSpc/SPR/CON03	Development and application of customised role maps and a training needs assessment tool - HR Professional Development Specialist	0.018	ICS	Post	1/10/2015
PREPSpc/SPR/CON04	Technical and VocationalEducation and Training (TVET) Expert	0.225	ICS	Post	1/10/2015
PREPSpc/SPR/CON05	Training Materials Development Specialist	0.150	ICS	Post	1/10/2015
PREPSpc/SPR/CON06	Development of a comprehensive internationally recognised and accredited TVET programme and training course for accreditors in beneficiary countries as well as students in the whole region by the University of South Pacific/SPC	0.249	SS	Prior	1/10/2015
PREPSpc/PDR	**Post Disaster Recovery**				
PREPSpc/PDR/CON01	Technical Assistance for the development of country's protocol for post disaster needs assessments for Phase 1 countries	0.124	ICS	Post	1/03/2016
PREPSpc/PDR/CON02	Deployment of short term consultants to carry out PDNA	0.076	ICS	Post	1/03/2016
PREPSpc/SMH	**Strengthening multi -hazard spatial risk data and information systems and Development of the decision tools**				
PREPSpc/SMH/CON01	Geo physical Hazard Expert	0.232	ICS	Post	3/10/2016
PREPSpc/SMH/CON02	System developer	0.232	ICS	Post	3/10/2016
PREPSpc/SMH/CON03	Risk Analyst	0.232	ICS	Post	3/10/2016
PREPSpc/SMH/CON04	Technician	0.060	ICS	Post	3/10/2016
PREPSpc/SMH/CON05	Technician	0.060	ICS	Post	3/10/2016
PREPSpc/DSS	**Testing applications and decision support systems for resilient planning and investments at national levels**				
PREPSpc/DSS/CON01	Technical Assistance for engineering and planning support	0.400	QCBS	Prior	1/06/2016
PREPSpc/DSS/CON02	Engineering Field Surveys including topographical, infrastructure locations (3Nos)	0.225	QCBS	Prior	1/06/2016
PREPSpc/DIC/CON01	Technical assistance for the review of Resilience community development projects in the pacific countries and the drafting of ToR for an Integrated Management Plan and tool kits for community resilience	0.051	ICS	Post	1/10/2015
PREPSpc/DIC/CON02	Development of a Community Integrated Management Plan and tool kits for communities resilience enhancement to Disater, Risk and Climate Change	0.300	QCBS	Prior	1/03/2016
PREPSpc/DIC/CON03	Implementation of the CommunityIntegrated Management Plan	0.130	ICS	Post	1/02/2017
PREPSpc/PSU	**Program Support Unit**				
PREPSpc/PSU/CON01	Program Manager	0.417	ICS	Post	1/06/2015
PREPSpc/PSU/CON02	Procurement Quality Assurance	0.104	ICS	Prior	4/01/2016
PREPSpc/PSU/CON03	Procurement Adviser	0.261	ICS	Prior	1/06/2015
PREPSpc/PSU/CON04	Program Accountant	0.348	ICS	Post	1/06/2015
PREPSpc/PSU/CON05	Short Term consultant for M&E expertise	0.087	ICS	Post	1/10/2015
PREPSpc/PSU/CON06	Audits	0.024	CQS	Post	1/10/2015

Table 10: Consultants to be Procured by PIFS

PIFS: Procurement Category: Consultant					
1	2	3	4	5	6
Proc. ID	Description of Assignment	Estimated Cost US$	Selection Method	Review by Bank (Prior/Post)	Expected Bid Floating Date
	Regional Coordination Unit (RCU)				
PREPPfis/RCU/CON01	Regional Coordinator RC	0.522	ICS	Post	1/06/2015
PREPPfis/RCU/CON02	Logistic RC	0.174	ICS	Post	1/09/2015
PREPPfis/RCU/CON03	Expertises triggered on TORs	0.130	ICS	Post	1/03/2016
PREPPfis/RCU/CON04	Junior Officer	0.174	ICS	Post	1/03/2016
PREPPfis/RCU/CON05	Risk Financing - Climate Change Specialist	0.522	ICS	Post	1/03/2016
PREPPfis/RCU/CON06	Accountant	0.174	ICS	Post	1/06/2015

52. Individual consultants will be selected and contracts awarded in accordance with the provisions of paragraphs 5.1 through 5.5 of the Consultants Guidelines. Under the circumstances described in paragraph 5.6 of the Consultants Guidelines, individual consultants may be selected and awarded on a Single-Source basis, subject to IDA's prior approval.

53. **Contract Packaging:** In view of the isolated locations of the Program countries, the Program adopted a contract packaging strategy that consolidates, to the extent possible, similar bidding into single packages. This is being done for technical reasons, cost-effectiveness considerations, risk management and mobilization costs, and as a strategy to attract wider participation. For the purpose of standardization and compatibility of equipment, similar goods required by the participating countries will be packaged together and procured under a single package. Separate contracts will be signed by each country for the supply of works and goods. The goods to be packaged during the first eighteen months of the Program are shown in Table below.

Table 11: Goods to be Packaged by Samoa and Tonga

Procurement Category: Goods (Packaged - Samoa and Tonga)					
1	2	3	4	5	6
Ref	Contract (Description)	Estimat Cost (US$ million)	Procurement method	Review by Bank	Expected Bid Floating
PREPSamoaTonga/Goods/BP1	**Bid Package (BP1 with Lots for Samoa and Lots Tonga with separate contracts) - regional procurement by SPC**		ICB	Prior	1/03/2016
Samoa Lot A	GSM connection for 18 Nos rainfall and 16 Nos hydrological sub stations	0.450			
Samoa Lot B	Communication infrastructure - computer and sofware FOSS				
Tonga Lot A	Upgrade of the seismic network including three (3) seismic measuring equipment including GPS for volcano and earthquake monitoring	0.600			
PREPSamoaTonga/Goods/BP2	**Bid Package (BP2 with Lots for Samoa and Lots Tonga with separate contracts) - regional procurement by SPC**	1.100	ICB	Prior	1/08/2016
Samoa Lot A	Data management Equipment system, including back up at NEOC				
Samoa Lot B	Forecasting platform Equipment backup at NEOC				
Samoa Lot C	Computers, software for drought and flood monitoring, storm surges, coastal inundation forecasting and hydrological forecasting (3 independent systems), visual tools for MHEWS at Met Dept				
Samoa Lot D	Computers, software, furniture, generators for Seimic Operations Center (warning dissemination) with back up system at NEOC	0.500			
Tonga Lot A	Data management systems, including back up at Tonga Met Dept. and NRD				
Tonga Lot B	Computers, software, visual tools for MHEWSs at Met Dept with interactive displays at NEMO and Natural Hazards Dept				
Tonga Lot C	Computers, software for volcanic and seismic montoring and visualization with back up systems at NEMO and TMD				

Table 12: Consultants to be Packaged by Samoa and Tonga

Procurement Category: Consultant (Packaged - Samoa and Tonga)					
1	2	3	4	5	6
Proc. ID	Description of Assignment	Estimat Cost (US$ million)	Procurement method	Review by Bank	Expected Bid Floating Date
PREPSamoaTonga/CON 01	SYSTEM INTEGRATOR CONSULTANT (Regional-Tonga + Samoa)		QCBS	Prior	4/05/2015
Samoa Lot A	Detailed Design of the MHEWS system, Development, improvement and operationalization of production of basic and specialized information products, Development of SOPs, warning protocols and signals	0.900			
Tonga Lot A	Detailed Design of the MHEWS system including Development, improvement and operationalization of production of basic and specialised information products, improvement of service delivery to communities and introduction of mobile applications,and Development of SOPs, warning protocols and signals	0.655			

54. **Prior Review:** Prior review and procurement method thresholds for the Program are shown below and are included in the procurement plan.

Table 13: Prior Review and Procurement Method Thresholds

Procurement Method	Procurement Thresholds	Prior Review Threshold
Goods		
Shopping	≤US$500,000	None
ICB	≥US$500,000	All contracts subject to prior review
Direct Contracting	In accordance with authorizing circumstance provided in the Guidelines	All contracts subject to prior review
Works		
Shopping	≤US$1,000,000	None
NCB	≥US$1,000,000 and ≤US$5,000,000	First two contracts
ICB	≥US$5,000,000	All contracts subject to prior review
Selection of Consultants		
Selection Methods	**Applicability**	**Prior Review Thresholds**
Firms (QCBS, QBS, LCS, CQS and SSS)	In accordance with the Consultants Guidelines (CQS may be used for contracts estimated to cost≤US$500,000	≥US$200,000, expect SSS where all contracts subject to prior review
Individuals		Prior Review on exceptional basis only. All sole source and procurement and legal related assignments are subject to prior review.

55. **Frequency of Procurement Supervision*:*** In addition to the prior-review to be carried out by IDA, IDA procurement supervision missions will visit the field to carry out post-review of procurement activities every 12 months. The post review sampling ratio will be 20% of contracts.

56. **Procurement Plan:** The overall procurement plan for the Program (including procurement plans for Country Projects) will be agreed and finalized by negotiations. The Program procurement plan will be available on the SPC/PSU website and on the World Bank's external website. The country level procurement plans will be published at the country level through their standard mechanisms. The procurement plan will be updated in agreement with IDA annually, or as required, to reflect Program implementation needs and improvements in institutional capacity.

c) Environmental and Social Safeguards

57. The PREP has been classified as Environmental Category B, given the expected limited environmental and social impacts. The overall social and environmental impact of the PREP is expected to be positive and none of the eligible investments on the menu of options include activities that would generate significant risk or irreversible adverse environmental or social impacts. To ensure that this is the case and to guide implementing agencies on the: (i) environmental and social screening; and (ii) subsequent assessment of country-specific project activities during project preparation and implementation, an Environmental and Social Management Framework (ESMF) has been prepared. The ESMF sets out key principles and standards, as well as environment and social screening arrangements. The ESMF was disclosed locally and at the World Bank Infoshop during March 2015, prior to appraisal of the Program.

58. The overall environmental impact of the Program is expected to be positive, and none of the eligible investments on the menu of options include activities that would generate significant risk or irreversible adverse environmental impacts. There are three types of investments under the Program with the potential for interactions with the human and physical environment.

59. The first investment type includes eligible minor works activities to be funded under Components 1 and 2. While the specifics these activities are not yet determined, these activities are likely to include monitoring stations and construction/rehabilitation/retrofitting of public buildings and community evacuation centres amongst others. Environment and social impacts from these activities would be only minor and the types of mitigation measures are well-known and proven.

60. The second investment type includes subprojects that will be developed in investment plans under Component 2. The details of these subprojects are not known, however they will be developed through the course of country-specific strategies and plans. Hence the potential environmental and social impacts cannot be ascertained with any certainty. All subprojects proposed under this part will be subject to World Bank screening measures as proposed in the ESMF, with safeguards considerations incorporated into individual country strategies and plans. While these subprojects are yet to be proposed by the country participants, certain proposals will not be eligible for funding under the program and will be screened out (eg. projects that are Category A). Adherence to the screening procedures identified in the ESMF will ensure that any potential adverse environmental or social impacts from eligible projects are assessed, and appropriate measures are developed to avoid, minimize, mitigate and offset potential impacts.

61. The third investment type includes activities under Component 3.1.1 (CERC). Emergency subprojects financed under the CERC involve financing provision of critical goods or emergency recovery and reconstruction works and it is likely these will fall into Category B or C. Activities that fall under Category C could involve procurement of emergency supplies such as medicine and water and do not require the application of safeguard instruments post-screening or assessment. Other emergency supplies, such as fuel products, will require safeguard instruments (such as Codes of Practice or EMPs) to ensure procurement and storage procedures are adequate. Other potential CERC activities – such as infrastructure repair or utility reconnections - will likely include civil works or similar activities that could have adverse impacts if not properly mitigated, and therefore, fall into Category B. Owing to the unpredictable nature and location of natural disaster events, there is potential for subprojects to be located in or near ecologically sensitive land, and/or in/near areas with high biodiversity or physical cultural resources, on customary land, or to involve Indigenous Peoples and vulnerable groups. Depending on the circumstances of the emergency, it may also require acquisition of land either temporarily or permanently for reconstruction work.

62. In order to ensure that Component 3 emergency subproject activities comply with the requirements of the Bank's Safeguard Policies, a positive list has been developed in the ESMF for the purpose of country CERCs, in order to provide guidance on critical imports and/or for emergency works, goods or services which may be eligible under for financing under the PREP in times of national disasters. A negative list and screening process will also be included, but will need to allow for a degree of flexibility and efficiency in processing potential subprojects. Further guidance will be detailed in the Finance Agreement (FA) and POM for the PREP in each country.

63. The overall social impact of the project is also expected to be highly positive, as the PREP will support poor and vulnerable communities to make informed decisions on disaster prevention and preparedness by: (i) supporting the provision of early warning mechanisms and improving disaster risk-awareness; and (ii) supporting risk-informed planning and investments to reduce disaster impacts on societies, manage residual risk and uncertainties, and strengthen the capacity of people and institutions to prepare for and respond to disasters. As such, prevention of the social impacts created by natural disasters and climate change underlies the purpose of the Program.

64. The overarching safeguards document for the Program is the *Environmental and Social Safeguards Instruments for the Pacific Island Countries* (ESSIP) (October 2014). It is proposed to trigger the following World Bank safeguard policies for both TA and investment components. No other Safeguard policies are triggered.

Table 14: World Bank Safeguard Policies Triggered by PREP

Safeguard Policies	**Triggered?**	**Explanation (Optional)**
Environmental Assessment OP/BP 4.01	**Yes**	This policy is triggered because sub-projects involving civil works (Component 1) and entry level investments in resilience such as retrofitting public buildings (Component 2) may generate negative environmental or social impacts. Similarly, future subprojects developed under Components 3 (i.e., the CERC) may have environmental and social interactions. An ESMF will be

		the key safeguard instrument and will contain guidance on preparation of environmental and social impact assessments and associated safeguards documents. To this end, an ESMF has been prepared in accordance with the PIC guidelines and templates. The ESMF will be disclosed locally and at the Infoshop prior to appraisal of the Program.
Natural Habitats OP/BP 4.04	**Yes**	Program activities are not expected to involve significant loss or degradation of natural habitats, however this policy has been triggered as a precaution since specific sites and activities are not yet known.
Forests OP/BP 4.36	**Yes**	The Program will not support any civil works that encroach or adversely impact upon forests. However this policy is triggered as a precaution because limited incidental forest clearing may occur during civil works.
Pest Management OP 4.09	**No**	The Program does not involve procurement or use of pesticides.
Physical Cultural Resources OP/BP 4.11	**Yes**	The Program is not expected to finance any civil works that could significantly affect Physical Cultural Resources (i.e. these subprojects will be screened out). However building refurbishment may include retrofitting of historical buildings, and civil works may involve chance finds of historically or culturally important resources.
Indigenous Peoples OP/BP 4.10	**Yes**	Of the 7 or more countries that have been identified for inclusion in Phase I and potential inclusion in Phase II (RMI, Samoa, Tonga and Vanuatu for Phase I and potentially Fiji, FSM, and the Solomon Islands for Phase II), only the Solomon Islands would ordinarily trigger OP 4.10. It is proposed to trigger OP 4.10 on a precautionary approach as it assists in informing SPC as the Regional Implementing Agency that IP issues may need to be managed during the course of project implementation. The ESSIP details the required approach to engage with IP on relevant subprojects
Involuntary Resettlement OP/BP 4.12	**Yes**	Although it is expected that the majority of Program activities will be undertaken on state-owned or Crown land, there is potential for certain project activities (e.g. construction of monitoring stations, post-disaster reconstruction) to encroach on customary or private lands. A Resettlement Policy Framework (RPF) has been incorporated into the Program's ESMF.

Safety of Dams OP/BP 4.37	**No**	The Program does not involve dams.
Projects on International Waterways OP/BP 7.50	**No**	The Program does not involve international waterways.
Projects in Disputed Areas OP/BP 7.60	**No**	Any Program activities in areas that may be disputed will be ineligible

Project Appraisal Document
Pacific Resilience Program (PREP)

ANNEX 9: ECONOMIC ANALYSIS

I. Background

1. PREP Phase I countries are exposed to a range of hydro-meteorological and geo-hazards, including tropical cyclones and associated storm surges and flooding, earthquakes and tsunamis. Average annual losses expressed as a percentage of GDP range from 1.7% for Samoa, 2% for RMI, 4.3% for Tonga, and 6.6% for Vanuatu (PCRAFI 2011). Climate change and natural hazards are expected to affect all major economic activities. According to the Asian Development Bank (ADB), the modelled aggregate economic impacts of climate change in the Pacific are negative by 2050 in all scenarios that were considered. Under high emission scenarios, by 2050 these annual losses may reach up to 3.5% of GDP. By 2100, adverse economic impacts are projected to rise further over time up to 13% of GDP[43]. Although foreseen climate change effects are documented, their quantitative impacts and climate adaptation benefits are hard to measure due to the limited baseline of historic climatological events and the limitations of global climate models (GCMs) when applied to the Pacific. A conventional economic analysis for the project has not been carried out due to the difficulties of quantifying the damage associated with the effects of climate change and natural hazards, as well as the lack of reliable data on avoided economic losses.

2. **Component 1**. The Bank has developed substantial expertise and leadership in the area of modernization of national meteorological and hydrological services[44], such as the activities proposed under PREP. Bank experience shows that there is a high degree of complexity in the assessment of economic benefits of enhanced early warning, preparedness and response capacity. The primary challenge relates to the absence of systematic recording of damage/losses (both in physical and value terms) incurred by the economy, as well as the sectors and population of countries that are impacted by disaster events. Despite this, there is clear evidence that economic returns from activities similar to those proposed in Component 1 are very high. Typically, the economic benefits of early warning vary from 1:4 to as high as 1:40[45]. Losses due to earthquakes and tropical cyclones are estimated to be US$10 million per year for Samoa and US$15.5m per year for Tonga (PCRAFI 2011). In Tonga, US$3.2 million of these losses is associated with emergency losses, i.e., the cost of responding to a disaster. By strengthening the provision of adequate timely warning on the impact of disasters, and ensuring that the population is properly trained and is aware of risks, these costs could be reduced significantly. Accordingly, it is feasible that investments in early warning and preparedness for Tonga under Component 1 could be fully recovered in only a few years. Investments proposed are based on the least cost approach; the project will provide the countries instruments, methods and systems that are appropriate for local needs.

3. **Component 2**. PREP will support the preparation of a multi-sectoral investment plan in resilience, which will include a cost and benefits analysis of various options in order to inform decision making. Economic analysis will be carried out for some investments before funding is recommended. PREP will also support entry level risk reduction investments, e.g., retrofitting, strengthening or relocating buildings

[43] Asian Development Bank. 2013. *Economic of Climate Change in the Pacific*. Manilla.
[44] Rogers, David P., and Vladimir V. Tsirkunov. 2013. *Weather and Climate Resilience: Effective Preparedness through National Meteorological and Hydrological Services.* Directions in Development. Washington, DC: World Bank.
[45] Rogers, David P., and Vladimir V. Tsirkunov. 2013. *Weather and Climate Resilience: Effective Preparedness through National Meteorological and Hydrological Services.* Directions in Development. Washington, DC: World Bank.

which would otherwise be vulnerable to damage by earthquakes, cyclone winds, flooding, storm surge waves and tsunamis. A simple analysis has been conducted to evaluate the economic benefit of building to a higher standard or retrofitting existing structures to achieve a higher level of performance against damage caused by natural hazards (e.g., cyclone winds, earthquake, and floods). This analysis found that in order to increase the design standard to cater for events with return periods equal to the economic life of the structure (10 – 150 years were considered), a 10% increase in initial investment cost would be required, which will deliver future savings of four or more times the initial additional cost. Simple improvements such as seismic bracing in walls and foundations of buildings, use of tie downs and nail plates in roofs for wind loads, increased floor levels or relocation of structures in flood prone areas, are examples of relatively low-cost treatments that might deliver such benefits.

4. **Component 3**. Disasters resulting from natural events represent a significant contingent liability for PICs and are often associated with large fiscal consequences. Governments serve as a (re)insurer of last resort, often with limited knowledge of the level of disaster risk exposure. Sovereign disaster risk financing and insurance can protect against sudden macroeconomic shocks that negatively impact fiscal performance and a country's long-term economic development. Catastrophe risk pooling, at the regional level, aggregates risk into larger, more diversified portfolios, with participants benefitting from cost savings and access to international markets. The cost of risk transfer to international markets depends on many factors, including the risk level of the portfolio as a fraction of the size of the portfolio. The pooling of risks generates diversification benefits that are reflected in reduced insurance premiums. Preliminary analysis finds that PICs could reduce the cost of catastrophe risk insurance by 50 percent by pooling risk at the regional level.

II. Quantification of Economic Benefits

5. While all benefits presented above could not be quantified, the benefits of Components 1 and 2 combined were quantified to carry out a cost/benefit analysis. The quantified benefits cover averted casualties, injuries and lost activity (in equivalent Gross Domestic Product, GDP) from severe floods. Economic analysis was carried out using a 10% social discount rate over 20 years, based on the opportunity cost of capital and country risk. Sensitivity analysis was carried out under three scenarios: base case, pessimistic case, and optimistic case. In addition, the switch-off points for increases in cost and decrease in benefits were determined.

6. Economic analysis was carried out for PREP and based on the only quantifiable benefits accruing under Components 1 and 2 combined (as they are self-reinforcing) while the other benefits are not quantifiable. Analysis of early warning under Component 1 and resilient investments – yet to be defined – under Component 2 improve the islanders' preparedness to face natural disasters and their aftermath and would translate into fewer casualties and injuries, as well as reductions in damages and economic opportunity losses. These were estimated through a probabilistic model on annual average recurrent losses in the Pacific Islands, in particular Samoa and Tonga. A financial analysis will be conducted during project implementation to determine the insurance premium acceptable to islanders; as such Component 3 is excluded from the analysis.

7. Economic costs of PREP were determined by adjusting estimated financial costs by 10% to remove taxes. No adjustments were made to the financial costs of TA, insurance schemes and program management.

8. A number of socio-economic and environmental benefits that could accrue with the implementation of the project were not valued due to a lack of readily available data. A "without project" scenario could have the following negative direct and indirect effects:

- *Health*. Premature death, drowning, injuries, water-related diseases, vector-borne diseases, etc.
- *Environmental*. Ecosystem services disruption, water resource pollution, sea water intrusion, land degradation.
- Global externalities: carbon emission (e.g., due to additional traffic jams, animal putrefaction, vegetal decomposition, etc.);
- *Damages*. To infrastructure (transport, energy, water, etc.), land, households, businesses, private property (including vehicles), etc.
- *Economic opportunity*. Loss of economic opportunities and increased poverty incidence (especially among women) and increased vulnerability (loss of wages, loss of time, yield, sales, commerce, tourism, etc.).
- *Social*. Disruption of health services, schools, universities, etc.

9. The economic benefits for Components 1 and 2 combined are: (i) value of statistical life for premature mortality and the cost of treating injuries; and (ii) averted disruption of economic activity, denominated in GDP equivalent.

10. Key assumptions for the economic analysis of Components 1 and 2 combined are:
- The early warning system and small scale resilient civil works investments will benefit the islanders.
- Economic analysis was carried out over a period of 20 years (from 2015 to 2034) with the assumption that investments in new Components 1 and 2 assets are needed over the period.
- Priority investments are disbursed over the five year implementation of the project.
- Component 1 O&M cost was assumed at 2.0% after project implementation. Minor mechanical and electronic equipment investments would be covered by O&M over the lifetime of the investments.
- Benefits would accrue as shown in the Project Results Framework indicator targets (Annex 1).
- GDP would grow at 2% per annum.

11. **Value of Statistical Life**. The value of statistical life (VSL) allows the reductions in mortality risks to be monetized. It is derived by dividing an estimate of the value (such as the Willingness to Pay, WTP) for avoiding (or obtaining) a given change in the risk of death by the risk change. As there was no VSL readily available for the Pacific Islands, value transfer was applied on the 2012 United States VSL used by EPA (US$8.2 million) and adjusted for 2015 for both countries. A 2% annual increase in VSL is applied.

12. The formula for the transfer of VSL to adjust for differences in income value is as follows:[46]

$$VSLp = VSLs \times (Yp / Ys)^{ß}$$

Where:

VSLp = Value of statistical life in policy country
VSLs = Value of statistical life in study country
Yp = Income in the country policy denominated in purchasing power parity dollar (PPP$)
Ys = Income in the country of study denominated in purchasing power parity dollar (PPP$)
ß = Income elasticity for different environmental goods and services, often between a lower bound of 0.7 and an upper bound of 0.4. The lower bound of 0.7 has been assumed.

13. **Cost of Illness**. The Cost of Illness is a valuation technique to calculate direct and indirect costs associated with the illness and/or injury, including medical costs and loss in productivity. The cost of illness in the PREP economic analysis takes into account only the costs of hospitalization. The cost of illness is

[46] Navrud, Ståle. 2009. *Value Transfer Techniques and Expected Uncertainties.* New Energy Externalities Developments for Sustainability (NEEDS). Project no: 502687. Deliverable n° 2.1 - RS 3a. SWECO. Stockholm.

estimated to be equivalent to an average US$3,000 per capita for both Samoa and Tonga, based on an estimate of $200 per day for hospital care and 15 days of hospital care per event.

14. Table 1 illustrates the possible injury/death ratio according to the nature of the catastrophic event. In the case of Samoa and Tonga, injuries exceed deaths as cyclones bear more injuries than deaths. Doccy *et al* (2013)[47] derive the impact of tropical cyclones based on EM-DAT (University of Louvain)[48] where the ratio is 3.3:1. An FAO report on the health burden of catastrophic events in Asia and the Pacific derived an injury/death ratio of 5.2:1 in Oceania.[49] A midpoint between both injury/death ratios mentioned above has been considered for the injuries or 4.2:1.

Table 1: Patterns of Mortality and Injury after Natural Disasters

Death Risk	Deaths Exceed Injuries	Injuries Exceed Deaths
High	Storm surges, Tsunamis, Flash Floods	Earthquakes
Low	Floods	Tornadoes, Hurricanes, Cyclones (no surge)

Source: Adapted from Doocy et al. (2013).

15. **Foregone Activities**. For Components 1 and 2 combined, 15% of the population will forgo economic and social disruption due to an event and its aftermath to the tune of 0.225% of GDP. This estimate of GDP reduction is based on Hallegatte (2012).[50]

16. **Risk Profile**. Table 2 illustrates the risk profile in terms of annual average losses from catastrophic events in the targeted islands as modelled in each country's 2011 PCRAFI.

Table 2: Risk Profile from Catastrophic Events in the Targeted Islands

Risk Profile	Unit	Samoa	Tonga	RMI	Vanuatu
Annual Average Losses from Cyclones					
Direct Losses	US$ million	6.9	9.5	3	36.8
Emergency Losses	US$ million	1.6	2.2	0.7	8.5
Casualties	#	11	10	3	41
Annual Average Losses from Earthquakes and Tsunami					
Direct Losses	US$ million	2.9	6	0.1	11.2
Emergency Losses	US$ million	0	0	0	0
Casualties	#	8	24	0	45
Total					
Direct Losses	US$ million	9.8	15.5	3.1	48
Emergency Losses	US$ million	1.6	2.2	0.7	8.5
Casualties	#	19	34	3	86

Source: PCRAFI Samoa, Tonga, Marshalls and Vanuatu (2011).

17. Table 3 illustrates the results of the quantification of VSL, cost of illness and averted forgone economic activities in Samoa and Tonga for the three scenarios where the reduction of casualties, injuries and economic value added on flooding and their aftermath is based on the probabilistic model on the annual average recurrent losses performed for all the Pacific islands notably Samoa and Tonga. The calculation of

[47] Doocy S, Dick A, Daniels A, Kirsch TD. 2013. *The Human Impact of Tropical Cyclones: a Historical Review of Events 1980-2009 and Systematic Literature Review*. PLOS Currents Disasters. 2013 Apr 16. Edition 1.

[48] Louvain University website: <www.emdat.be/>.

[49] FAO website: <www.fao.org/docrep/005/ac120e/AC120e21.htm>.

[50] Hallegatte, Stephane. 2012. *A Cost Effective Solution to Reduce Disaster Losses in Developing Countries: Hydro-Meteorological Services, Early Warning, and Evacuation.* Policy Research Working Paper # 6058. The World Bank, Washington, D.C.

the social benefits is very conservative and significantly higher social benefits could accrue, especially after the implementation of Phase II of the project, when the Marshall Islands and Vanuatu will be connected to the early warning system and optimal small scale investments will be finalized. The pessimistic, base case and optimistic scenarios will reduce casualties, injuries and economic value added from recurrent events by 15%, 20% and 25% respectively.

Table 3: Economic Analysis Social Benefit Scenarios, truncated at year 2015

Indicator Name	Pessimistic 2015: 15%	Base Case 2015: 20%	Optimistic 2015: 25%
Samoa			
GDP per capita (current US$) +2% annual growth	3,841	3,841	3,841
GDP per capita, PPP (current international $) in 2012	4,493	4,493	4,493
Population (Total)	193,450	193,450	193,450
Population growth (annual %)	0.82	0.82	0.82
Population in largest city	34,681	34,681	34,681
VSL US$ million +2% annual growth	1.57	1.57	1.57
Number of death averted out of yearly 11 annually derived from the probabilistic model	2	2	3
Value of prevented death US$ million	3	3	4
Cost of Illness/Injuries/capita US$	3,000	3,000	3,000
Number of injured averted	7	9	12
Value of prevented injuries US$ million with US$ 3,000 per case	0.02	0.03	0.03
Prevented damages and losses: 0.225% GDP/capita equivalent	8	8	8
Number of people out of 100% of the population	29,018	38,690	48,363
Value of averted economic activity US$ million	0.25	0.33	0.42
Tonga			
GDP per capita (current US$) +2% annual growth	4,769	4,769	4,769
GDP per capita, PPP (current international $) in 2012	4,881	4,881	4,881
Population (Total)	120,00	120,000	120,000
Population growth (annual %)	0.48	0.48	0.48
Population in largest city	25,347	25,347	25,347
VSL US$ million +2% annual growth	1.67	1.67	1.67
Number of death averted out of yearly 10 derived from the probabilistic model	2	2	3
Value of prevented death US$ million	2	3	4
Cost of Illness/Injuries/capita US$	3,000	3,000	3,000
Number of injured averted	6	8	11
Value of prevented injuries US$ million with US$ 3,000 per case	0.02	0.03	0.03
Prevented damages and losses: 0.225% GDP/capita equivalent	11	11	11
Number of people out of 100% of the population	18,000	24,000	30,000
Value of averted economic activity US$ million	0.19	0.26	0.32

Note: Benefits start accruing in year 2019 and are not reflected in the table.
Source: Adapted from USEPA website; Ståle (2009); PCRAFI Samoa (2011); PCRAFI Tonga (2011); Hallegate (2012); Boocy et al. (2013); and WDI (2014).

III. Results of the Economic Analysis

18. Table 4 summarizes the results of the economic analysis for PREP with a NPV of US$ 21.1, an ERR of 19% and a Present Value benefit-cost ration of 1.6.

Table 4: PREP Economic Analysis Results

Key Economic Indicator	PREP
Cost/Benefit Analysis	**20 years discounted at 10%**
NPV (US$ million)	21.1
ERR (%)	19%
PV benefit/cost ratio	1.6
Viability	Yes

19. Table 5 shows the project and component viability switch-off points for cost increment, benefit decrement and equal cost increment and benefit decrement. PREP is more sensitive to a decrease in benefits than an increase in costs.

Table 5: PREP Switch-off Points

Key Economic Indicator	Component 1 & 2	PREP
Sensitivity Analysis	**20 years discounted at 10%**	**20 years discounted at 10%**
NPV (US$ million)	0.5	0.4
ERR (%)	10%	10%
PV benefit/cost ratio	1.0	1.0
Switch-off point		
>cost = <benefit (±%)	±48%	±24%
>cost (±%)	+190%	+64%
<benefit (±%)	-65%	-39%

Table 6 compares the results of the economic analysis of PREP under the base case (economic investment cost of US$40.1 million and a 20% reduction in casualties, injuries and GDP based on the probabilistic model) and two alternative scenarios: a *pessimistic scenario* with an increase of the economic investment cost by 15% (to US$46.1 million) coupled with a 15% reduction in casualties, injuries and GDP; and an *optimistic scenario* with a 15% reduction of the economic investment cost to US$34.1 million along with a 25% reduction of casualties, injuries and GDP. All scenarios are viable, although the viability of the *pessimistic scenario* is very close to the switch-off point.

Table 6: Results of PREP Economic Analysis under Alternative Scenarios

Scenario Variable	Pessimistic Scenario	Base Case Scenario	Optimistic Scenario
	20 years discounted at 10%		
PREP Investment cost (US$ million)	**46.1**	**40.1**	**34.1**
Samoa and Tonga			
Death averted (# over 16 years)	63	84	105
Injuries averted (# over 16 years)	265	353	441
GDP equivalent saved (US$ million over 16 years)	11	15	18
PREP Results			
NPV/20 years (US$ million)	7.7	21.1	34.6
ERR/20 years (10%)	13%	19%	23%
PV Benefit/Cost Ratio/20 years	1.4	1.6	2.1
Project viability switch-off point			
>cost = <benefit (±%)	±10%	±24%	±34%
>cost (±%)	+19%	+64%	+105%
<benefit (±%)	-19%	-39%	-51%

Note: benefits start accruing in year 2019; therefore, the benefit flow is over 16 years.

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ANNEX 10: CONTRIBUTION OF PREP TO TWIN GOALS

1. Low-income countries account for more than 70 percent of the world's disaster "hotspots," and the world's poor, one-third of whom live in multi-hazard zones, are the most vulnerable. Since 1980, low-income countries have accounted for only 9 percent of disaster events but 48 percent of the fatalities. The PREP lies at the heart of poverty reduction and shared prosperity, given the extreme vulnerability of the participating countries to natural disasters, economic shocks, and climate change.

2. Climate and disaster risks strongly affect people's well-being in terms of health, environmental sustainability, gender equality, livelihoods and access to education. Disasters and climate change also threaten economic growth and poverty reduction, causing losses in lives and infrastructure, and these losses disproportionately affect the poor and most vulnerable. In addition, poverty can actually increase disaster risks due to potential linkages between poverty and the over-utilization resources. For example cutting trees for firewood can increase erosion, impact the natural drainage basin, and thus increase the risk of flooding.

I. Poverty reduction

3. While disasters impact whole societies, when they strike, the poor and vulnerable (including women, children and the elderly) are hit the hardest. Natural disasters and climate shocks not only hit the poorest and vulnerable harder, but they also induce and exacerbate poverty. In Fiji, a national level analysis of the relationship between poverty and disasters found that the level of poverty negatively affects the impacts of the disaster (SOPAC, 2009). The UN's Rapid Environmental Assessment of the impact of the December 2004 tsunami in the Indian Ocean noted that, disproportionately, many of the victims of this disaster were poor people who depended on eco-system services and natural resources for their livelihoods (IRIN, 2005).

4. These trends have been mirrored in the Pacific region more recently, following disaster events in the Pacific Region (as seen in the aftermath of TC Pam in Vanuatu in March 2015, Tropical Cyclone Evan (TCE) in Samoa in December 2012, Tropical Cyclone Ian (TCI) in Tonga in January 2014 and the flash flooding in Solomon Islands in April 2014). The PICs are some of the most affected countries from disasters in the world, with for instance, average annualized losses estimated to amount to 6.6% of the GDP for Vanuatu and 4.4% of the GDP for Tonga[5].

5. Poorer people are typically disproportionately affected for several reasons:

   b. The poor and "bottom 40%" typically have inadequate financial means to deal with disaster events.
   c. Poorer people have less access to insurance, cash reserves and alternative income sources that provide the mechanisms to recover quickly.

[5] Pacific Catastrophe Risk Assessment and Financing Initiative, World Bank, 2011

d. In the face of more 'immediate' challenges, for example the threat of hunger, access to water or livelihood opportunities, poor people may be inclined to underestimate or ignore the risks incurred by living in hazard prone areas. For example, poor populations tend to live on low value land, often close to flood prone waterways in higher-risk coastal areas, making them more likely to be affected by adverse natural events.
e. People who are at risk of falling into poverty and hardship – people just above the poverty line and vulnerable populations (children, women, elderly) – can be pushed into transient poverty when a disaster hits as their livelihoods become destroyed.
f. As poorer groups become affected by disasters and climate shocks repeatedly (for instance by low-intensity, high-probability shocks such as frequent storms, floods, or droughts), they have less chances of re-building their livelihoods and investing in human capital, thus becoming trapped in a cycle that sinks them further down into poverty.

6. Accordingly, the PREP will benefit the most vulnerable and impoverished communities who are most at risk from natural hazards by: (i) strengthening their ability to receive and act on emergency warnings in order to protect themselves from natural hazards; (ii) supporting the governments and emergency services of participating countries to target their emergency response activities to the areas that are most in need, which is typically the poorer communities; (iii) developing multi-sectoral resilient investment plans which will set clear priorities and progress and results monitoring indicators, including the impact on poverty and the bottom 40%; and (iv) strengthening the financial resilience of participating governments to natural disasters, enhancing their ability to respond and rebuild in a timely manner following disaster, thus allowing poorer communities to recommence their livelihood activities sooner.

II. Impact on Economic Growth

7. The economic impact of disasters can be devastating for developing countries. Analysis done for Natural Hazards, UnNatural Disasters, a report funded by the World Bank and Global Facility for Disaster Reduction and Recovery (GFDRR), shows that disasters' impact on gross domestic product (GDP) is 20 times higher in developing countries than in industrialized nations.

8. The impact of disasters will continue to rise with climate change exacerbating such trends. The Bank's Building Resilience report finds that over the last 30 years, natural disasters accounted for close to US$4 trillion in economic losses globally. During this period, such losses have increased threefold—from US$50 billion a year in the 1980s to just under US$180 billion a year in the last decade. Almost 75 percent of the losses are attributable to extreme weather events. Accordingly, mainstreaming disaster risk management into the longer term development planning of governments, as is proposed under the PREP, can reverse the current trend of increasing economic impacts from disasters, thus benefiting the longer term economic growth for the participating countries.

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ANNEX 11: LESSONS LEARNED AND REFLECTED IN THE PREP DESIGN

1. The design of the PREP components has taken into consideration lessons learnt from other World Bank projects in the Pacific Region. For example, in response to weak institutional capacity and implementing capability of participating countries, the design of the PREP has sought to build on, consolidate and strengthen existing implementation and institutional agencies for the participating Phase I countries, while being mindful not to over-burden existing resources. In addition, coordination, technical and fiduciary support will be provided to countries through the involvement of regional organizations.

2. Lessons from the PCRAFI indicate that catastrophe risk insurance cannot cover all disaster losses and should be combined with other financial solutions as part of a comprehensive package for financial protection against natural disasters. Accordingly, Component 3 of the PREP seeks to use a range of financial instruments to support participating PICs to secure access to immediate financing post disaster for low, medium and high risk events.

3. There are a number of lessons from DRM and climate resilience projects in the Pacific and elsewhere in the world that have informed the design of the PREP components. For example, the Caribbean Catastrophic Risk Insurance Facility (CCRIF) is a regional catastrophe fund for Caribbean governments, designed to limit the financial impact of devastating hurricanes and earthquakes by quickly providing financial liquidity when needed. The CCRIF is the first multi-country risk pool in the world, and is also the first insurance instrument to successfully develop parametric policies backed by both traditional and capital markets. The key lesson from CRIFF relates to the offering to clients of an integrated financial strategy beyond parametric insurance. Lessons from the CRIFF have informed, and will continue to inform the design of Component 3 which will strengthen regional instruments for disaster risk financing. . The long-run and multi-phase national resilience programs (like those in Samoa and Kiribati) have demonstrated the need to avoid project fragmentation and to ensure the projects have clear oversight and/or coordination by the Ministries of Finance and Planning. These projects have also shown the need to balance TA with investment and practical experience.

4. Lessons from regional programs in the Pacific have also been considered when designing the PREP. For instance, lessons can be taken from the Pacific Aviation Investment Program (in implementation), the Pacific Islands Regional Oceanscape Program (approved in Dec 2014) and the preparation of the Pacific PPCR regional component. Regional programs can be more complex and difficult to prepare and implement due to, among other things, the number of implementing agencies, geographic spread, and the various country specific issues that can arise within the context of a regional program. They can also largely be capacity development and technical assistance focused with limited on-the ground activities. The PREP has drawn on lessons from these regional programs, with the intention of ensuring a simplified design, a clear focus on investments, and the inclusion TA activities closely linked to investments and/or encompassing feasibility studies for subsequent phases.

5. For example, the PREP has: (i) a shared development objective and approach, meaning that each country Project in the series has the same design features, (i.e. the same components and sub-components), and the same PDO (with the exception of RMI and Vanuatu, which will have a simplified PDO due to their limited participation during Phase I); and (ii) a reduced scope of investment to one key area (i.e., investments are primarily in the area of early warning and preparedness). While there will be some entry level investments in resilience, Phase I will focus more on preparatory activities for more substantial investments in resilience that could be implemented during Phase II. Separate P-codes will be established for each country and the regional activities, to facilitate project supervision and monitoring of country specific progress indicators. Regarding the CERC, lessons have been learned from the LAC region, and work will be done with participating countries soon after effectiveness for the development of ex-ante mechanisms for quick procurement of suppliers or contractors (e.g. supply of emergency goods, debris removal etc.).

6. The program also includes lessons learned from other regional IDA projects, such as the Africa Emergency Locust Project (AELP) and the Africa Stockpile Program (ASP). Clear roles and responsibilities between various stakeholders involved at the regional level and national level will be clearly defined before the Program becomes effective, and this will be described in the Project Operations Manual (POM). The Program also includes specific country projects, as well as regional activities that will strengthen regional coordination and harmonization of current approaches to DRM. Knowledge exchange between participating countries will also be facilitated through the regional activities. As highlighted in the AELP ICR, the partnership with regional organizations (in the case of PREP, PIFS and SPC) will be essential for the success of the program.

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ANNEX 12: IMPLEMENTATION SUPPORT PLAN

I. Summary of implementation support

1. Project implementation will be supported by a core task team based in the Pacific region to ensure a timely, flexible and more effective response to client's needs. TTL, procurement, financial management and technical support will be provided from staff based in Australia and Vanuatu. Additional technical specialists will be hired as needed in order to ensure quality of implementation and drawing upon global experiences, for example for the modernization of the regional early warning system. Strong implementation support and technical assistance will also be provided from the Disaster Risk Financing team building on the experience gained from the PCRAFI. A resilient investment plan under sub-component 1.2 will developed according to a methodology developed under a Bank executed programmatic TA on building resilience in the pacific.

2. The World Bank will hire (with GFDRR resources) a Regional Focal Point based in Fiji who would act as a liaison to participating countries, regional organizations and development partners. He/she will support implementation of activities at the country and regional level, and will work with additional countries that would join the PREP in Phase II.

3. Supervision will be more intense during the first year of implementation, especially on procurement of technical advisory services and investments.

4. The main focus of implementation support is summarized in the table below:

Time	Focus	Resource	Time (SWS)
First twelve months	Team leadership	TTL/Co-TTL based in Sydney	30
	Regional coordination and implementation support	Regional Focal Point	25
	Project implementation Support	Operation Officer/Analyst DRM/climate resilience specialist	15
	Technical and procurement review of bidding documents	MHEWS/Engineer DRM/climate resilience specialist Procurement specialist	4
	Technical review of TORs for advisory services	MHEWS/ Engineer DRM/climate resilience specialist	4
	Disaster Risk Financing	Disaster Risk Financing Insurance Specialist	6
	MHEWS Specialist	MHEWS Specialist	6
	Procurement training and supervision	Procurement specialist	N/A
	FM training and supervision	FM specialist	N/A

	Environmental and Social Safeguards training and supervision	Safeguards specialist	6
	Implementation support	ACS	10
Year 2 to 5	Team leadership	TTL/Co-TTL based in Sydney	20
	Regional coordination and implementation support	Regional technical coordinator	25
	Project implementation Support	Operation Officer/Analyst DRM/climate resilience specialist	10
	Technical and procurement review of bidding documents	Engineer DRM/climate resilience specialist Procurement specialist	3
	Technical review of TORs for advisory services	Engineer DRM/climate resiliencespecialist	3
	Disaster Risk Financing	DRFI Specialist	3
	MHEWS Specialist	MHEWS Specialist	3
	Procurement training and supervision	Procurement specialist	N/A
	FM training and supervision	FM specialist	N/A
	Environmental and Social Safeguards training and supervision	Safeguards specialist	4
	Implementation support	ACS	6

II. Skill Mix Required

Skills Needs	Number of Staff Weeks	Number of Trips	Comments
Co-TTL (2)	30	3	Based in Australia
Regional Focal Point	25	3	Based in Fiji
DRM/climate resilience specialists	20	3	Based in Australia and Washington DC
MHEWS Specialist	10	2	Based in Europe
Disaster Risk Financing specialists	10	2	Based in Bangkok/Washington DC
Operation Officer	10	3	Based in Australia
Engineer	5	2	Based in Australia
Financial Management	4	2	Based in Australia
Procurement	4	2	Based in Australia
Environmental	3	2	Based in Australia
Social	3	2	Based in Australia
Other technical Specialists	10	2	To be determined

III. Partners

Name	Country	Role
NOAA/PTWC	Hawaii	Technical assistance
WMO	Geneva	Hydromets/MHEWS

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Pacific Resilience Program (PREP)
Annex 13: Team Composition

World Bank staff and consultants who worked on the project:

Name	Title	Unit/GP	UPI
Denis Jean-Jacques Jordy	Senior Environmental Specialist, TTL	GENDR	266183
Michael Bonte-Grapentin	Senior Disaster Risk Management Specialist, co-TTL	GSURR	379439
Iain Shuker	Practice Manager	GENDR	66054
Olivier Mahul	Program Manager, Disaster Risk Financing and Insurance	GFMDR	251469
Nathan Hale	Program Assistant	EACNF	348247
Habiba Gitay	Senior Environmental Specialist	GCCPT	234590
Simone Lillian Esler	DRM/climate resilience Specialist	GSURR	460004
Tevi Maltali Obed	Disaster Risk Management Specialist	GSURR	398930
Philippe Jacobé de Naurois	Strategic and Implementation Adviser	GSURR	23191
David Rogers	Warning Systems Specialist	GCCDR	295840
Samantha Jane Cook	Disaster Risk Financing and Insurance Specialist	GFMDR	380595
Marjorie Mpundu	Senior Counsel	LEGES	289323
Cristiano Costa e Silva Nunes	Senior Procurement Specialist	GGODR	95542
David Whitehead	Financial Management Specialist	GGODR	320696
Stephen Paul Hartung	Financial Management Specialist	GGODR	350385
Ross James Butler	Social Safeguard Specialist	GSURR	458893
John Lowsby	Engineer	GSURR	295637