1. Country/Region:	**Samoa**	2. CIF Project ID #:	{Trustee will assign ID.}
3. Date of First Joint Mission:	*June 3 – 11, 2010*		
4. Funding request:	***US$ 500,000***		
5. Type of request:	*Accelerated funding for phase 1:* ☐ *Yes* X☐ *No*		
6. Multilateral Development Banks/focal points:	*International Bank for Reconstruction and Development (Lead);* *Asian Development Bank;* *International Finance Corporation*	*Samuel Wedderburn – Senior Natural Resources Management Specialist* *Anne Witheford – Governance Specialist* *Gavin Murray – Regional Manager*	

7. National Implementing Agency: Ministry of Finance;
National Focal Point: Ministry of Finance

8. Project Description:

(i) **Key development challenges** (vulnerability) related to climate change/variability:

- Sea level rise impacting on flooding, coastal erosion and damage to coastal infrastructure, affecting some 70% of the population;
- Increased frequency and intensity of tropical cyclones with potential for exacerbating coastal erosion, damaging infrastructure, agriculture, coral reefs, fishing and tourism;
- Possible increased frequency of El Nino-like events with implications for the length and frequency of droughts.

(ii) **Areas of intervention** – sectors and themes (indicative): The SPCR would focus on the following:

- Enhancing the resilience of the social sector (primary health care, school buildings)
- Enhancing resilience through exploitation of mitigation and adaptation synergies
- Enhancing the resilience of the coastal sector
- Sustainable financing for Adaptation

(iii) **Outcome:**

- Institutional capacity enhanced for mainstreaming climate resilience in planning and budgeting processes of key national ministries;
- Civil society and private sector engagement in climate change adaptation strengthened
- Main economic and social sectors are more climate resilient
- Enhancement of the flow of policy-relevant climate change information consistent with local capacities and capabilities

(iv) **Key Results:**

- Community-based adaptation initiatives upscaled
- Climate resilience of key infrastructure enhanced, including coastal infrastructure, school buildings and tourist facilities
- Resilience of natural and human coastal ecosystems is enhanced
- Vulnerable groups, such as subsistence farmers and fisherfolk have more stable sources of income

9. Budget (indicative):

Expenditures	**Amount** ($) - estimates
Consultants: National	206,250
International	106,250
Equipment:	31,250
Workshops/seminars:	93,750
Incremental Operating Costs:	62,500
Total Cost:	**500,000**
Other contributions (bilateral or private sector):	

10. Timeframe (tentative) – milestones

Submission for Trust Fund Committee approval: September, 2010
Phase I – Second Joint mission: April, 2011
SPCR for Trust Fund Committee approval: May, 2011

Please address all correspondence
To Chief Executive Officer
In reply, please quote the file reference

GOVERNMENT OF SAMOA

File ref:

Details of the submission are as outlined in the emailed documentation and the Climate Investment Fund (CIF) Administration Unit may publish the information.

Yours sincerely,

Tupa'imatuna Iulai Lavea
CHIEF EXECUTIVE OFFICER

Government of Samoa

Pilot Programme for Climate Resilience

Proposal for Phase 1

(Including Indicative Content of Phase 2)

August 2010

Table of Contents

List of Abbreviations

ADB	Asian Development Bank
CBA	Community Based Adaptation
CC	Climate Change
CCA	Climate Change Adaptation
CHZ	Coastal Hazard Zone
CIF	Climate Investment Funds
CRIP	Climate Resilience Investment Programme[1]
CRICU	Climate Resilience Investment Coordinating Unit
CRP	Climate Risk Profile
CSD	Climate Sensitive Disease
DRR	Disaster Risk Reduction
EBA	Ecosystem Based Adaptation
ICCAI	International Climate Change Adaptation Initiative
IPCC	Intergovernmental Panel on Climate Change
MDG	Millennium Development Goal
MNRE	Ministry of Natural Resources and Environment
MOF	Ministry of Finance
MWCSD	Ministry of Women, Culture and Social Development
NAPA	National Adaptation Programme of Action
NCCCT	National Climate Change Country Team
NGO	Non-governmental Organisation
PMU	Project Management Unit
PPCR	Pilot Programme for Climate Resilience
SCF	Strategic Climate Fund
SDS	Strategy for the Development of Samoa
SIAM	Samoa Infrastructure Asset Management
STA	Samoan Tourism Authority
SPCR	Strategic Programme for Climate Resilience

[1] For Samoa, the CRIP is equivalent to the PPCR's SPCR.

1. Introduction

The Pilot Programme for Climate Resilience (PPCR) is one of the programmes under the Strategic Climate Fund (SCF) of the Climate Investment Funds (CIF). The PPCR is designed to pilot and demonstrate ways to integrate climate risk and resilience into core development policies, planning and budgeting processes at national and regional level through increased capacity and scaled-up investments.

The PPCR will support selected countries as they undertake scaled-up climate action and transformational change by integrating climate resilience in their national development planning. PPCR helps countries build on their National Adaptation Programmes of Action (NAPAs) and helps fund public and private sector investments identified in climate resilient development plans. The PPCR is structured in two phases. Phase 1 will strengthen the enabling environment for climate change adaptation (CCA) and disaster risk reduction (DRR), as needed, and develop the PPCR Strategic Programme for Climate Resilience (SPCR). In Samoa this is referred to as the Climate Resilience Investment Programme (CRIP). All Phase 1 initiatives underpin implementation of Phase 2. The latter will implement the CRIP, mainly through investments in the public and private sectors. The PPCR is being implemented in nine pilot countries: Bangladesh, Bolivia, Kingdom of Cambodia, Republic of Mozambique, Nepal, Republic of Niger, Republic of Tanzania, Yemen, and Zambia. In addition, regional programmes have been established in the Caribbean and South Pacific.

Samoa is one of three countries selected for participation in the PPCR for the Pacific region. The Pacific PPCR is jointly implemented by the World Bank Group and the Asian Development Bank (ADB). The following is a draft proposal for Phase 1 of Samoa's PPCR. It also provides only indicative information on the nature of Phase 2, since the content of Phase 2 will be finalised during Phase 1. However, it is important to have some insight as to the content of Phase 2, in order to know what aspects of adaptive capacity will need strengthening in Phase 1.

On August 19, 2010 the Government of Samoa approved submission of this proposal to the PPCR Sub-committee.

2. Country Context

General Description. Samoa is a small island country in the southwest Pacific, comprised of four main inhabited islands and six smaller, uninhabited islands of volcanic origin (Figure 1). Samoa has a total land area of around 2,900 km^2. The capital, Apia, is in the northern coast of Upolu. Samoa's main islands are characterised by a rugged and mountainous topography. Around 46% of Upolu and 69% of Savai'i's total land area is covered by forest.

Samoa's climate is characterised by high rainfall and humidity, near-uniform temperatures throughout the year, winds dominated by the southeasterly trade winds and the occurrence of tropical cyclones during the southern-hemisphere summer. Samoa has two seasons, marked by significant differences in rainfall. The annual rainfall is about 3,000 mm. About 75% of the precipitation occurs between November and February. Cyclones are most common between December and February. Samoa is also vulnerable to anomalously long dry spells that coincide with the El Niño Southern Oscillation.

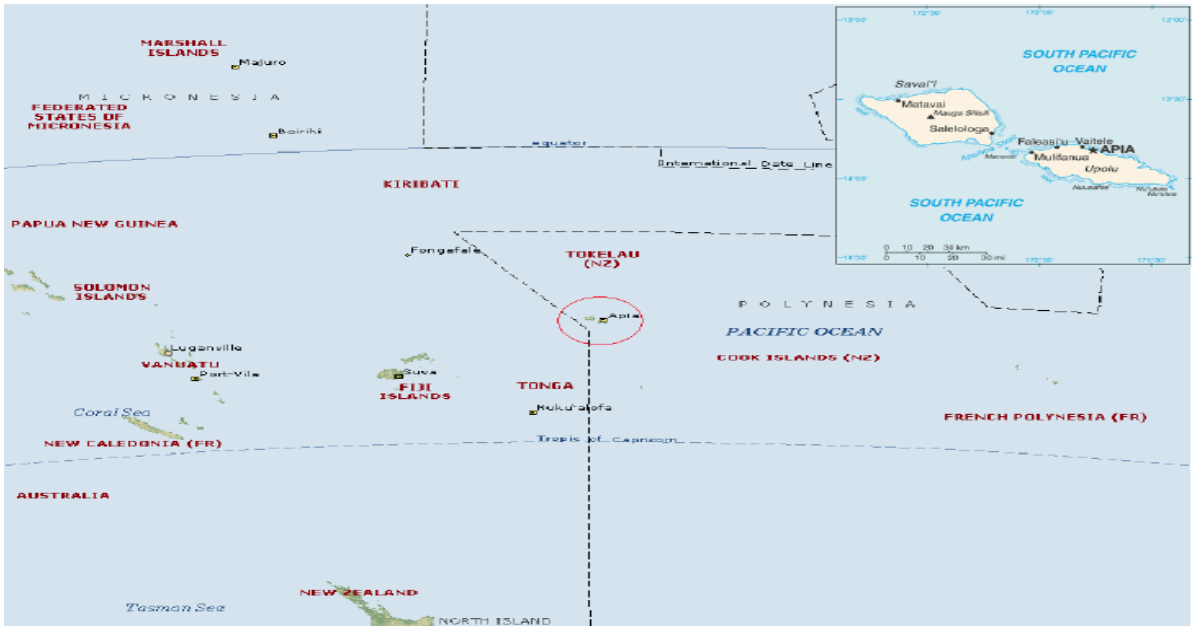


Figure 1. Samoa, and its location in the South Pacific.

The 2006 census estimated 180,741 persons in Samoa, with a growth rate of 0.3–0.9% per annum between 1971 and 2007. Since Samoa's independence in 1962 significant levels of emigration have slowed the overall rate of population growth, with a net migration rate estimated to be 1.6–2.2% per annum. Samoa is a small, fairly liberalised economy, with a GDP of around USD613 million (to the end of 2008). It is reliant on foreign imports and has a large trade deficit. In March 2006 the UN reviewed Samoa's Least Developed Country status and in December 2007 recommended graduation to Developing Country status in 2010. Samoa, however, is seeking to revisit this in light of the global economic crisis.

The economy is largely driven by tourism (20-25% of GDP), remittances (25% of GDP), and foreign aid. Samoa is one of the highest recipients of remittances in the world as a proportion of GDP. Only around 12% of Samoa's total population is engaged in formal paid employment. Two-thirds of the potential labour force is absorbed by subsistence village agriculture, a dominant sector in the Samoan economy. Private sector growth is constrained by a narrow resource base, limited infrastructure, and isolation, dependence on fuel imports, a lack of skilled labour, and a small domestic market.

Samoa depends upon imported petroleum products for much of its energy needs. Unleaded petrol is widely used for terrestrial and marine transport and automotive diesel is used for electricity generation and heavy machinery. From 2001 diesel has supplied about half of Samoa's electricity. About 95% of the Samoan population has access to electricity. The Government's objective is to change Samoa's reliance on fossil fuels to renewable energy. The Samoan Government endorsed the National Energy Policy in 2007. It encourages the use of renewable energy sources such as solar, wind, coconut oil, and energy from wastes. Currently Samoa generates up to 50% of its electricity from hydro power plants, but the reliability of this energy source is being increasingly reduced due to prolonged droughts.

3. Preparation of the Proposal, Including Participatory Processes

Following Samoa's acceptance of the offer to participate in the PPCR, an informal scoping mission was held on November 16-17, 2009 to begin discussions with the government and other stakeholders on the relevance, objectives and scope of the PPCR in enhancing the country's climate resilience. In the following months, the Ministry of Finance, as the Focal Point for the PPCR, invited government agencies to participate in a stock-take of ongoing climate adaptation activities, as the premise for the formal joint mission that would launch the Programme. During this time initial stakeholder roundtable meetings were also held, to ensure that all parties were fully informed on PPCR preparatory procedures as well as about opportunities to participate in preparing for, and implementing, the PPCR in Samoa. Every reasonable effort was made to ensure equitable and meaningful participation in these and subsequent meetings.

The first joint-mission was fielded in Samoa on early June 3-11, 2010. It held discussions with government agencies, donor partners, and representatives from civil society and private sector, in both roundtable and bilateral meetings (see Annex 1). Among the many stakeholders, the private sector was found to be the least informed and engaged in the debate on climate change adaptation. This is possibly due to the lack of familiarity with the linkages between a global environmental issue (climate change) and their day-to-day business operations. The private sector is a key agent in the identification and implementation of climate adaptation measures, and thus deserves full attention in the PPCR.

During the first joint-mission it was agreed that Phase 1 of the PPCR for Samoa would assess these and other investment opportunities, and prioritize them based on consultations with government as well as other stakeholders. The prioritized options would be incorporated in a new medium- and longer-term National Climate Change Programme and Plan, to be developed as a Phase 1 activity. PPCR would also support preparation of a CRIP during Phase 1, to be implemented in Phase 2. The CRIP would contribute to implementation of the National Climate Change Programme and Plan. Other donors and government could take up other investment opportunities indicated in the strengthened National Climate Change Programme and Plan. Preparation of the CRIP and the wider Programme will be a streamlined process in order not to delay PPCR Phase 2 implementation. This is realistic given the opportunity to build on the Second National Communication, the NAPA and other instruments. It should be possible to prepare a robust Programme by the end of Phase 1.

A follow-up technical mission took place in mid July 12 -16, 2010 (see Annex 2). This provided an opportunity to convene further meetings with the National Climate Change Country Team (NCCCT) as well as the following stakeholder groups: Government, private sector, non-governmental organisations (NGOs) and development partners. The meetings considered an initial draft of the Phase 1 proposal and suggested revisions. Three key messages arising from the discussions with national stakeholders were: (i) the PPCR must build on the extensive work undertaken in Samoa to date, and the wide experience that has resulted; (ii) there is a need to ensure effective coordination and integration of PPCR with Samoa's many ongoing and planned activities related to climate change; and (iii) to the extent possible, coordination and implementation are to be achieved by making use of existing institutions. The initial draft proposal had already identified and addressed these requirements.

Following the July mission several country-led, multi-stakeholder meetings have been held, culminating in Government endorsement of this proposal.

The above participatory processes were designed to ensure national ownership of Samoa's PPCR. This included reaching a consensus on up-to-date priorities for action by the public and private sectors, and agreeing on other aspects of the Phase 1 proposal.

4. Climate Change Considerations for Samoa

The focus of climate change scenarios for Samoa is overwhelmingly on the nature and frequency of extreme events (e.g. tropical cyclones, drought) and how their impacts may be exacerbated by sea-level rise. Over a medium time frame, sea-level rise will incrementally impact upon Samoa through events such as flooding, coastal erosion and damage to coastal infrastructure. While low islands (e.g. atolls) are often judged to be more vulnerable to sea-level rise than high islands (e.g. volcanic), the propensity for communities to be located along the coastal margins results in similar risks and vulnerabilities for all small island groups. In Samoa 70% of the population is reported to live within 1 km of the coast and critical infrastructure (e.g. hospitals, schools, port facilities, power plants, airports, tourist infrastructure) are also located in this zone.

Whilst the effects of sea-level rise are incremental over time, the impacts of tropical cyclones are an event of on-going and immediate concern. Tropical cyclones exacerbate coastal erosion, endanger life and well-being, and adversely impact upon infrastructure, agriculture, reefs, fishing and tourism. Climate modelling is indicating more El Nino-like conditions under global warming scenarios and the potential for an increase in the intensity and frequency tropical cyclones in the Samoan region, increasing damage, and the costs and frequency of repairs (Beca International, 2010a).

4.1 Climate Diagnostics

Present and Anticipated Climate-related Risks. Samoa's Second National Communication to the United Nations Framework Convention on Climate Change (2010) reports best estimates of long term, systematic changes in the future climate for Samoa. They indicate that by 2050 sea level is likely to have increased by 36 cm, rainfall by 1.2%, extreme wind gusts by 7% and maximum temperatures by 0.7 C. The observed long-term trend in relative sea level for Apia is 5.2 mm/yr. But maximum hourly sea level is increasing by approximately 8 mm/yr, a rate far in excess of the observed local and global trends in mean sea level. For Apia an hourly sea level of 1.8 m above mean sea level is currently a 100-year event. It will likely be at least a four-year event by 2025.

No significant long-term trends are evident in the observed daily, monthly, annual or maximum daily rainfall for Apia. Currently a daily rainfall of at least 300 mm is a relatively rare event at Apia, with a return period of 14 yr. Given Samoa's location, there is large uncertainty in the rainfall projections (Figure 2). Of the four global climate models used to prepare Samoa's climate risk profile (Young, 2007), two models indicated substantial increases in rainfall, one model suggested only small increases, and one model indicated a large decrease in rainfall into the future. An extreme daily rainfall of 400 mm is currently a 60-year event. It will likely be a 40-year event by 2050. An extreme six-hourly rainfall of 200 mm is currently a 30-year event. It will likely become a 20-year event by around 2050.

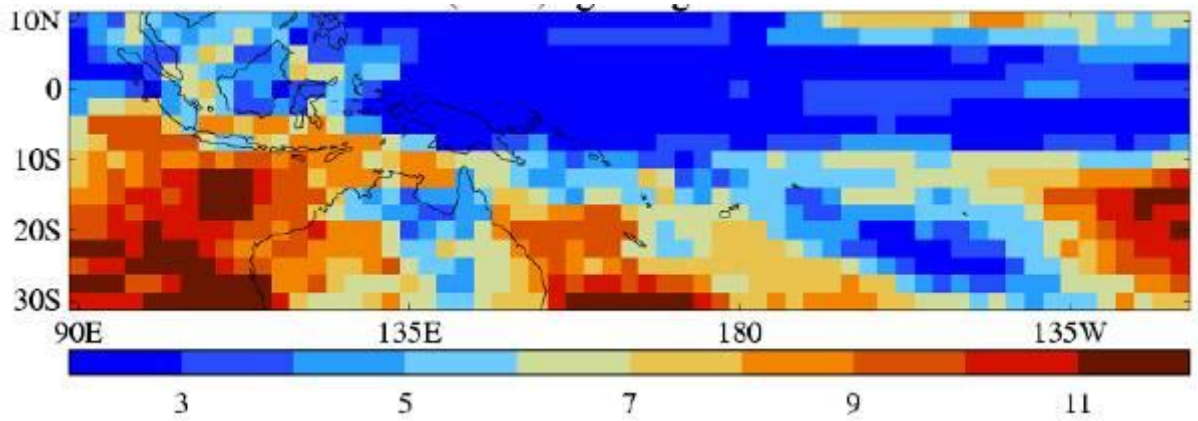


Figure 2. Number of models, out of 12, that show a decrease in mean annual rainfall between 1980-1999 and 2080-2099. Source: NIWA (2008).

A monthly rainfall below the ten percentile is used as an indicator of drought. Drought frequency is strongly linked to the occurrence of El Niño events. Six global climate models that were best out of 19 at simulating present day ENSO conditions show no significant changes toward El Niño-like conditions in the latter part of the current century. Therefore it is not yet possible to make any predictions about the future nature of El Niño events and the implications for the frequency, duration and intensity of droughts in Samoa.

Currently an extreme wind gust of 70 kt at Apia has a return period of 75 years. This will reduce to approximately 40 years by 2050.There is relatively high confidence in projections of maximum air temperature. A maximum air temperature of 34 C is currently well in excess of a 100-year event. By 2050 it will likely have a return period of 40 years.

Vulnerability Baseline. One of the key lessons from the World Bank's recently completed Samoan country study on the economics of adaptation to climate change (Beca International, 2010b) is that extreme weather variability in the coastal zone will lead to large costs, whether they be in the form of hard coastal protection measures and continued road (and other infrastructure) replacement, or the costs associated with relocation. The study concluded that, in the longer term, relocation of certain assets (and whole villages in some cases) must be seen as the most sustainable option as it has the potential to pull economic activity such as tourism, crops and other village based enterprises away from the coast. Relocation of key infrastructure as an option for the most at risk villages should be seriously considered as part of the implementation phase of the coastal infrastructure management (CIM) plans.

Samoa's Second National Communication includes an updated vulnerability assessment for Samoa which can act as a baseline. The assessment was undertaken on a sectoral basis, covering water resources, health, agriculture, fisheries, biodiversity and infrastructure. These were the sectors where it was considered desirable and possible to build on the 13 sectors considered and prioritized in Samoa's NAPA. The sectors considered in the NAPA were agriculture and food security; forestry; water, health, communities, biological diversity; fisheries, trade and industry; works transport and infrastructure; tourism, urban planning and development; coastal environments; and energy.

The NAPA identified that around three quarters of these sectors are highly vulnerable to the adverse impacts of climate change and climate variability, including extreme events. The nine sectors considered highly vulnerable from the highest to lowest were the water sector, agriculture and food security sector; forestry sector; health sector; urban settlements; coastal environments; communities; trade and industry sector; and the works, transport and infrastructure sector. Climate change and climate-induced disasters will cause instability in

food production and water availability, affecting income generating activities for communities and the country at large. The NAPA Implementation Strategy was last updated in 2008. Given the increased understanding since then, as evidenced in the Second National Communication, and the considerable effort now going into implementing adaptation interventions, the Strategy needs to be updated.

The World Bank's Samoan country study on the economics of adaptation to climate change (Beca International, 2010b) concluded that the priority adaptation needs for Samoa include the following:

- Revision of the NAPA, which takes into account changing climate science considerations, and a review of sectors with a move to give energy a higher priority;
- Development of a multi-criteria assessment tool to assist in the prioritisation of adaptation measures within and between sectors. This could be in addition to or in conjunction with the multi objective optimisation method being developed as part of the World Bank study;
- CIM Plan implementation, including a review of the currency of CIM Plans, prioritisation of actions within CIM Plans and developing a programme for undertaking the various actions. Relocation of key assets out of hazard zones should possibly be weighted;
- Tackling the challenge of developing statutory and non-statutory plans (or other policy approach) which addresses land use on customary land; and
- Investing in information management and analysis, including better integrated and more robust data storage and retrieval systems. A property based land information system would be useful.

These findings, the sector vulnerabilities are described in Annex 1, and other additional information, will be take into account when preparing Samoa's CRIP as well as the wider National Climate Change Programme and Plan.

Response Baseline. Figure 3 provides a timeline for relevant Government of Samoa Reports. These are shown in the international context of reports of the Intergovernmental Panel on Climate Change (IPCC). The figure shows that Samoa has been proactive in its assessment of climate change impacts, vulnerabilities and identification of current and possible future adaptation measures. There are a number of policies and directives which are seeking to address the implications of climate change for the country, and the integration and co-ordination of efforts to mitigate and respond to it. Details of key adaptation interventions are provided in Annex 3.

4.2 Strategic Context and Institutional Arrangements

Strategic Context. Samoa has developed a framework of strategies, plans and governance structures that are best practice in the Pacific islands region. Climate change adaptation is reflected as a priority in many high level plans and strategies. The Strategy for the Development of Samoa (SDS) for 2008-2012 provides the high level framework for economic and social development. The SDS identifies seven key development priorities: sustained macroeconomic stability; private sector-led economic growth and employment creation; improved education outcomes; improved health outcomes; community development including improved village governance; improved public sector governance; and environmental sustainability and disaster risk reduction. It identifies climate change adaptation as a cross cutting issue alongside environmental sustainability. The Samoa Coastal

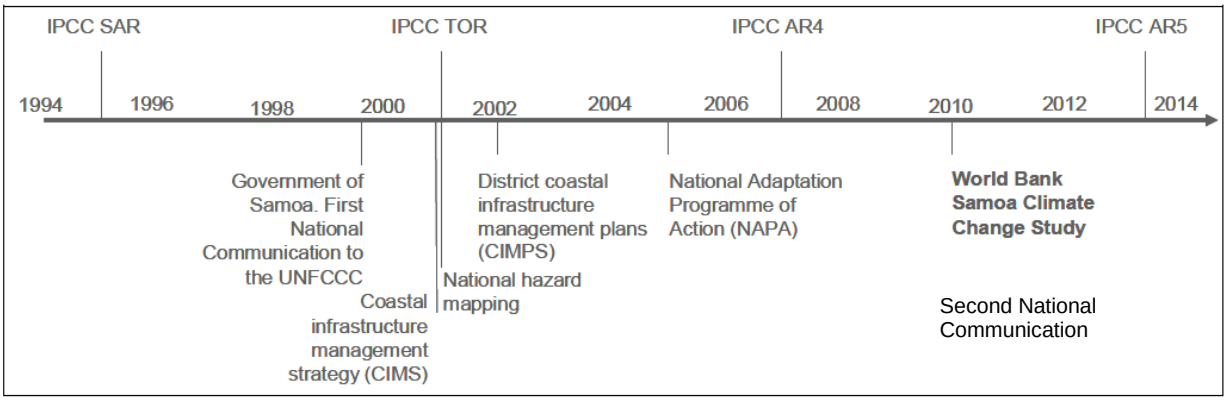


Figure 3. Timeline of relevant Government of Samoa and IPCC reports. Source: Beca International, 2010b.

Infrastructure Management Strategy (2001, updated in 2007) defines national and local priorities for coastal management and sets policies and implementation methods for disaster risk reduction and climate adaptation measures. They are seen by Government as a key adaptation initiative.

While many sector ministries are still struggling with the concept of integrating climate change considerations in their plans and operations, the Ministry of Natural Resources and Environment (MNRE) has taken the lead in mainstreaming climate change (adaptation and mitigation) in its own planning, work programmes and budgetary process.

Institutional Arrangements. MNRE is the ministry responsible for developing the key policy documents that guide climate change programmes in Samoa. This includes the National Policy Statement on Climate Change (2007) and the NAPA. The Ministry serves as the secretariat for the NCCCT (Figure 4). The NCCCT, key members of which are the CEOs of relevant government ministries, is the key coordination mechanism for Samoa's response to climate change. The MOF has been recently designated as the National Implementing Entity for the Adaptation Fund as well as the Designated National Authority for the Clean Development Mechanism.

5. Coordination of Development Assistance Related to Climate Change

Samoa is very efficient in coordinating and managing a large amount of external assistance. Many development partners are active in Samoa, including Australia, the European Union, China, Japan, New Zealand, the World Bank, the Asian Development Bank and the United National Development Programme. Development assistance makes up around 15% of GDP. The multi-donor environment is well coordinated by the Samoa Aid Coordination Division, located in the Ministry of Finance. This has resulted in a number of multi-donor, multi-year sector wide programmes. This includes a three-year public sector investment programme that has been formulated and integrated into the budgetary process.

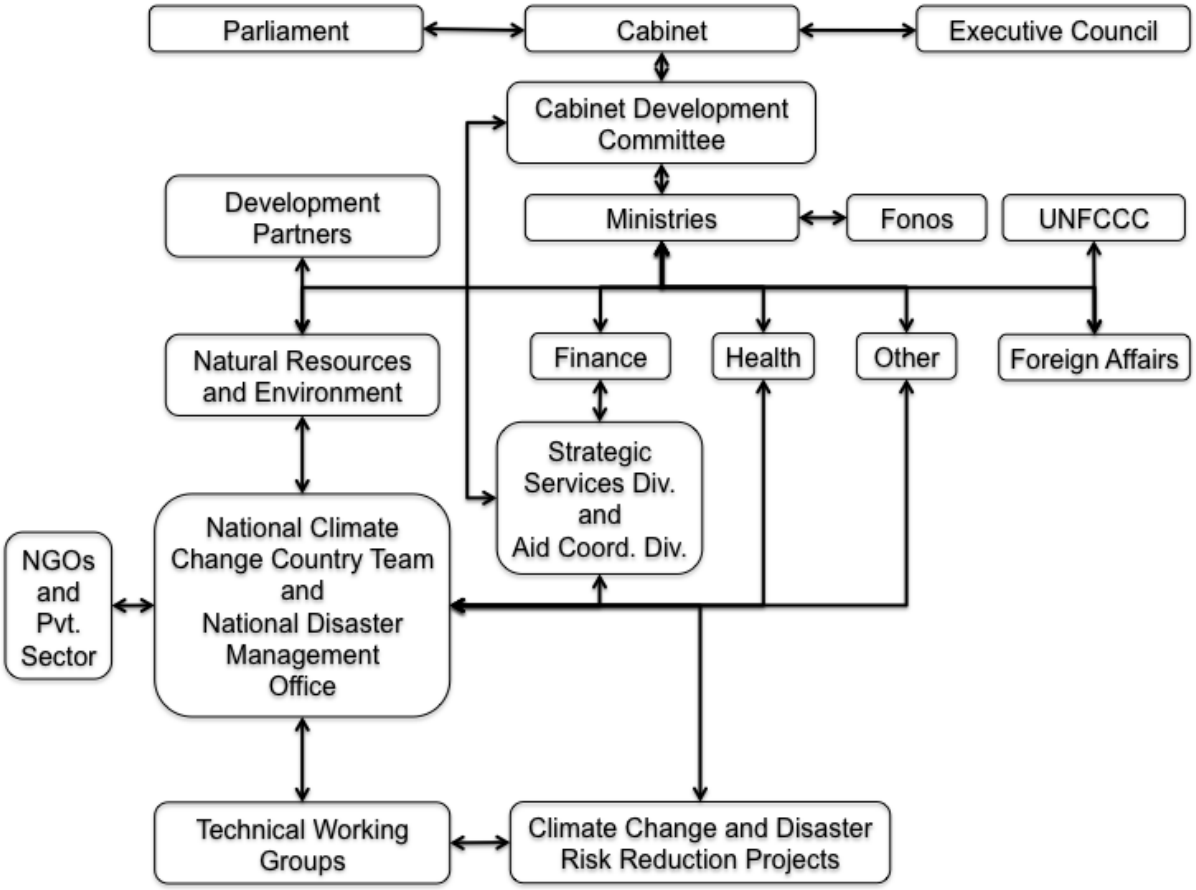


Figure 4. Institutional arrangements for climate change responses in Samoa.

The NCCCT provides more direct coordination of climate-related activities. This covers initiatives funded by donors as well as through the national budget.

6. PPCR Linkages with National Processes

The SDS, the National Policy to Combat Climate Change, the NAPA, the Planning and Urban Management Act, the Disaster and Emergency Management Act and the National Disaster Management Plan, and the Coastal Infrastructure Management Strategy and Plans offer effective entry points for mainstreaming of climate change risks and adaptation strategies at national level. As noted earlier, the current SDS includes some consideration of climate change adaptation. The National Disaster Management Plan has identified many links to climate change adaptation. The PPCR could provide additional resources to strengthen such links and promote synergies.

Economic and Development Planning Frameworks. Under the economic and financial reforms, and especially the institutional strengthening programmes which started in the mid-1990s[1], the Government of Samoa established a straight forward and streamlined institutional framework for preparing and implementing economic development strategies. This framework has four major components – (i) the over-arching SDS; (ii) sector planning; (iii) project planning; and (iv) performance budgeting. Figure 5 demonstrates the cycle of economic and development planning and implementation, and the relationships between the

[1] Government of Samoa, National Report to the World Summit on Sustainable Development 2002, p.13 discusses in more detail the various reforms the government undertook to improve the performance of its public sector and create opportunities for the growth of its private sector and development of the wider community.

four components. It is important to note that, with commitment and careful analysis, opportunities can be identified and utilized to incorporate national environmental concerns, including climate change considerations, into these main components of the economic planning and development cycle or process.

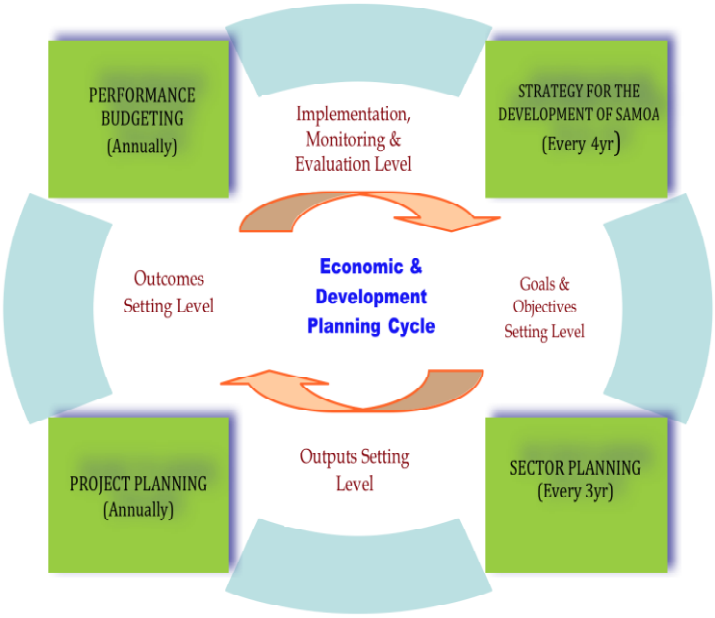


Figure 5. Samoa's economic and development planning cycle.

Gender and Climate Change. Samoa has made some progress in implementing the Beijing Platform for Action passed at the Fourth World Conference on Women as well as the Millennium Development Goal (MDG) 3. However, much work remains to be done in order to ensure that the developments for women in relation to climate change are promoted, sustained and will continue. This includes the need for a Strategic Policy Framework that is informed by gender statistic, and one that shall provide the direction for achieving gender equality in line with the SDS. Such a focus is intended to bridge the gap between policy and planning, as well as between planning and financing. It is recognised that this requires better monitoring and evaluation, and renewed and continues support from regional and international networks and development partners, in line with their mandates on enhancing gender equality. It also means increased support for gender sensitive awareness raising, and stronger collaboration and partnerships across all sectors and at all levels, in order for Samoa to achieve its goals for the advancement of women. In this respect Samoa's draft National Policy for Women is currently being reviewed further, to make it a more succinct document that speaks to the priority issues and the intended outcomes for women and girls in Samoa for the next five years.

Following on from the pioneering gender-sensitive approaches used during NAPA preparation, formulation and implementation of Samoa's PPCR will also use all opportunities to ensure the equitable involvement of women. In addition, every effort will be made to ensure that the PPCR outcomes will provide equitable benefits for women and girls.

PPCR – Assisting Achievement of Samoa's Millennium Development Goals

Samoa has already achieved MDGs 4 and 5 on child and maternal health, MDG 2 (universal primary education), and MDG 6 (combat HIV/AIDS, TB, NCDS and other diseases). For MDG1 Samoa is on track with low level of food poverty but off track to reduce basic needs poverty. For MDG 3 (gender equality and empower women) Samoa is on track with education but off track with empowerment of women. Samoa is on track for MDG 7 (environmental sustainability) but some information gaps remain. A similar situation exists for MDG 8 (global partnerships). Significant challenges exist in sustaining and improving achievements and the distribution of development benefits is uneven, especially between urban and rural areas and between Upolu and the other islands (Government of Samoa, 2010).

PPCR will contribute to achieving Samoa's MDGs, and sustaining that success, in many ways, including the following:

MDG 1 – through creating of income generating opportunities by combining biofuel production and sustainable land management;
MDG 2 – through enhancing the resilience of school buildings;
MDG 3 – through community-based adaptation and other initiatives that include equitable involvement of women and girls and sharing of benefits;
MDGs 4, 5 and 6 – by enhancing primary health care to address climate change related diseases;
MDG 7 – by CIM Plan implementation and strengthened disaster risk management; and
MDG 8 – through the partnership between PPCR, the World Bank, ADB and Samoa.

Government and donor-supported initiatives. Development assistance provided to Samoa by Australia is delivered through the Samoa-Australia Partnership for Development. Samoa is a major stakeholder in the International Climate Change Adaptation Initiative (ICCAI), in which Australia is investing AUD150m from 2008-2011 to meet priority climate adaptation needs in the Asia-Pacific. Australia has contributed AUD40m to the PPCR through the ICCAI. Samoa is also involved in ongoing programmes funded by Australia such as the South Pacific Sea Level and Climate Monitoring Project and the Pacific Islands - Climate Prediction Project.

Under the United Nations Development Assistance Framework, United Nations agencies support development in Samoa, consistent with the SDS. The Global Environment Facility (GEF), through UNDP, has financed several climate change-related projects in Samoa, from the preparation of the National Adaptation Programme of Action (NAPA) to the implementation of adaptation projects in key economic sectors, including agriculture, health, forestry, tourism and coastal communities. Through the Samoa GEF small grant programme and community development programme, UNDP is implementing community-based adaptation projects that use existing village-level delivery mechanisms and strengthen national-local level institutional linkages.

In recent years the World Bank has assisted Samoa through a series of projects addressing post-cyclone reconstruction and infrastructure asset management. The ongoing Samoa Infrastructure Asset Management (SIAM) Phase 2 project aims to enhance the economic, environmental and social sustainability of transport and coastal infrastructure assets, and to manage these assets, natural resources, and disaster risks through an effective partnership with private sector stakeholders. The World Bank support to Samoa increased last year in response to the devastating tsunami of September 2009 with an emergency loan and grant for post-tsunami recovery in the transport sector which includes elements of disaster risk management and additional financing in the health sector. The World Bank under the Samoa

Asset Management Programme was also engaged in community support projects to enhance resilience.

Ongoing support in climate change from Asian Development Bank includes a loan for the Samoa Sanitation and Drainage Project (2003), to improve environmental conditions and public health of the Apia urban area. A loan and grant have also been provided for the Power Sector Expansion Project (2007). European Union engagement on climate change issues is mainly through its programme in the water sector and the support to civil society. Support for climate change adaptation by New Zealand's Aid Programme is mainly delivered through multilateral regional programmes and mainstreamed into the regular programmes for health and sustainable economic development. Japan is engaging in the upgrading of the weather observation system for the Meteorological Office, a forest preservation programme as well as renewable energy with a focus on solar power. The latter activity is delivered through the regional Pacific Environment Community facility. China is particularly active in supporting renewable energy and public infrastructure.

7. Strengthening Climate Resilience at National Level and Enhancing PPCR Implementation

Four overarching themes are considered relevant to driving PPCR design and implementation in Samoa. These are: (i) Enhancing institutional capacity for mainstreaming climate resilience in planning and budgeting processes of key national ministries; (ii) Identifying and utilizing key entry points for mainstreaming climate change considerations in national and sub-national planning and budgeting processes; (iii) Strengthening civil society and the private sector engagement and gender considerations in climate change adaptation; and (iv) Enhancing the flow of policy-relevant climate change information consistent with local capacities and capabilities. Analysis of each overarching theme will identify elements which can contribute to the twin goals of PPCR: scaling up and transformative impact.

8. Preparation and Implementation of Samoa's PPCR

As noted above, the PPCR for Samoa will be implemented in two phases:

Phase 1 - Assessment and strengthening of implementation capacity for the PPCR; and
- Preparation of the CRIP

Phase 2 - Implementation of the CRIP

Figure 6 presents the key features of the two phases, as well as their interlinkages.

Phase 1 Implementation. This Phase will be of short duration due to the strong enabling environment for adaptation that already exists in Samoa. Phase 1 will be aligned with, and build on, the relevant climate change policy frameworks (e.g. the SDS) and the National Policy for Combating Climate) and implementation programmes and plans (e.g. the NAPA). Phase 1 will comprise four components, the first three covering the four overarching themes described above. The fourth component will cover preparation of a CRIP, which defines the work programme for Phase 2. Work under some of the Phase 1 components, particularly Component 2 (Mainstreaming and Empowerment), will continue through Phase 2.

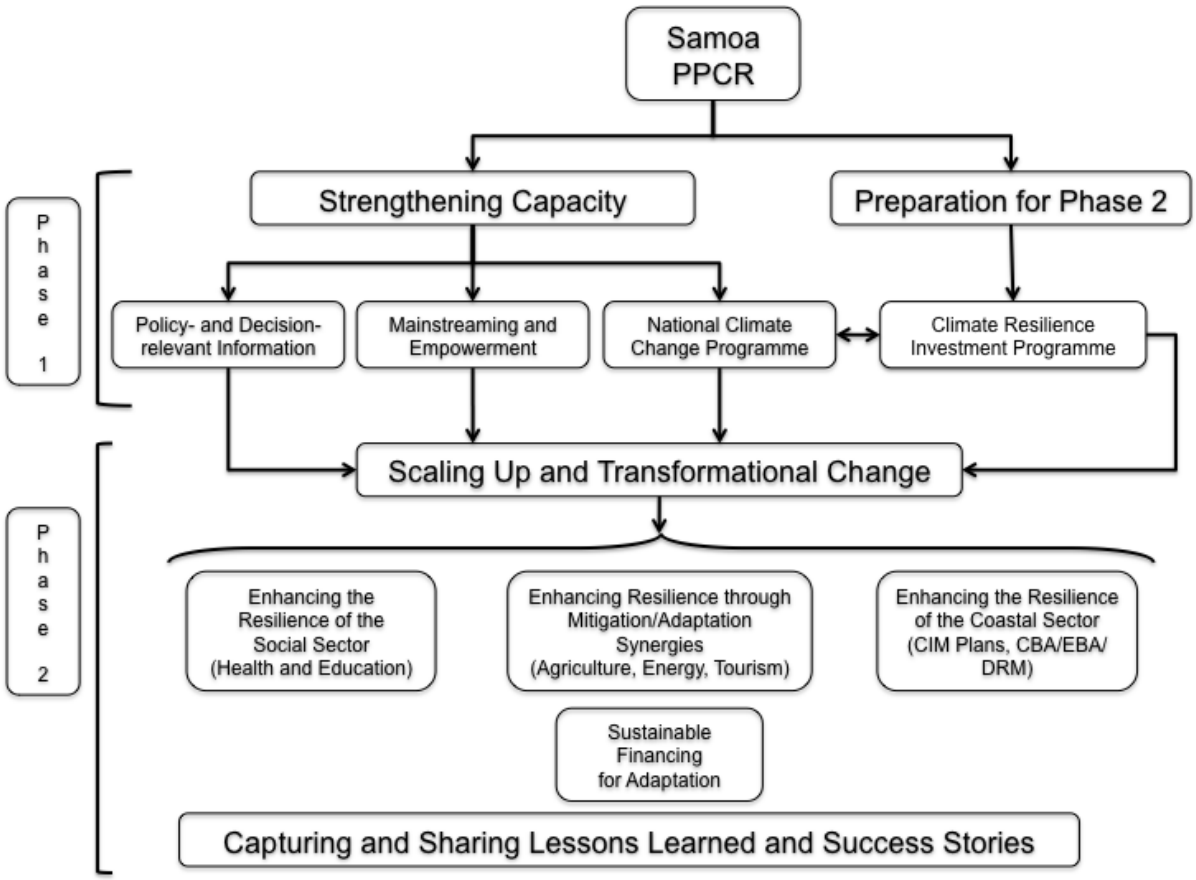


Figure 6. Relationship between Phases 1 and 2 of Samoa's PPCR. Note: Samoa's Climate Resilience Investment Programme (CRIP) is equivalent to the PPCR's Strategic Programme for Climate Reslience (SPCR).

The following sections describe the activities to be undertaken in Phase 1. These will ensure there is adequate capacity to implement Phase 2 in a successful manner. Annex 4 describes the work programme, the general budget and the timetable for Phase 1, while Annex 5 presents a more detailed budget for Phase 1.

Component 1: Acquiring and Disseminating Policy and Decision-relevant Information

Output 1: Assessment of Climate Risks in Key Vulnerable Sectors and Areas

Implementation of a risk-based approach to adaptation, and prioritization of PPCR investments to enhance resilience to climate change require a detailed knowledge of both current and anticipated climate risks for the key sectors and areas shown in the Second National Communication and the NAPA to be highly vulnerable to climate change. Currently there is only general information, complemented by quantitative, but somewhat outdated information for the Apia area. The World Bank economics of adaptation study for Samoa (Beca International, 2010b) noted that the uncertainty about climate outcomes and lack of baseline data has lead to a focus on the collection of information in Samoa, for example demographic information, state of environment reporting and population health. More effort is needed to support the collection and analysis of this information and use of the information to inform decision making. Basic information management systems including digital storage, integration across sectors, retrieval and archiving systems are needed for much of the information.

Work has started on improving the database and updating the available information, but substantial work remains to be done if the PPCR is to pursue a comprehensive risk-based approach to adaptation. One sector that as not been fully addressed is Education. It is planned for the high exposure of education infrastructure to be addressed in Phase 2. The assessment of climate risks would increase the spatial coverage of the quantitative risk information and apply it to relevant sectors, including Education.

Output 2: Institutional Analysis.

More sectors and components of society are recognizing the need to enhance resilience to climate change. In addition, there has been some discussion about climate change being given a higher institutional profile in government. This activity will help ensure that institutional arrangements are optimized in terms of both addressing needs and reflecting capacities. For example, work related to this outputs will complement the MNRE evaluation of meteorological services, climate change and the Disaster Management Office, leading to their strengthening and the possibility of climate change being upgraded to a Division within the Ministry. The activity will also assess the implications related to a greater integration of disaster risk reduction and climate change adaptation.

Output 3: Assessing and Addressing the Social Aspects of Climate Change.

This activity would consider how best to optimize and facilitate the involvement of all non-government stakeholders in enhancing resilience to climate change, including the participation of communities, community-based and non-governmental organizations and the private sector. One focus would be community-based adaptation through identifying opportunities for furthering and up-scaling ongoing community-based adaptation initiatives, community demonstrations of NAPA sectoral adaptation projects, and integrating adaptation into community-based development programmes, such as UNDP's Community-Centred Sustainable Development Programme for Samoa. A key aspect of the activity would be assessing and integrating gender considerations and promotion of women's participation in national climate change adaptation institutional frameworks and in implementation of adaptation.

Component 2: Climate Change Mainstreaming and Empowerment

Output 1. Functioning PPCR Steering Committee.

A PPCR Steering Committee will be established, comprising relevant members of the NCCCT. It will also include other individuals, as necessary and appropriate, in order to ensure the necessary expertise and oversight of a comprehensive, cross-sectoral project. Inclusion of donors and other development partners in the PPCR Steering Committee will strengthen its role and lead to all encompassing coordination. The experience of Government under the SIAM project will be drawn on in order to ensure the Steering Committee functions in an effective manner.

Membership of the Steering Committee will be finalised at Phase 1 inception. It is likely to include the following, among others: Ministry of Finance (MOF) (chair), Ministry of Natural Resources and Environment (MNRE) (deputy chair), the Land Transport Authority (LTA), the Ministry of Works, Transport and Infrastructure (MWTI), the Electric Power Corporation (EPC), Ministry of Women, Community and Social Development (MWCSD), the Samoa Tourism Authority (STA), the Samoan Umbrella of Non-governmental Organisations (SUNGO), the Chamber of Commerce (COC) and representatives of development partners.

Output 2. Functioning Project Management Unit

The Climate Resilience Investment Coordination Unit (CRICU), based in the MOF, will serve as the Project Management Unit (PMU), including the secretariat for the PPCR Steering Committee. The proposed structure of the CRICU is shown in Figure 7. PPCR will support the establishment and operation of the CRICU. The existing resources in the Energy Unit of the MOF will assist CRICU, as required. CRICU will undertake specific project management tasks as instructed by the CRIP Programme Manager, on advice of the PPCR Steering Committee.

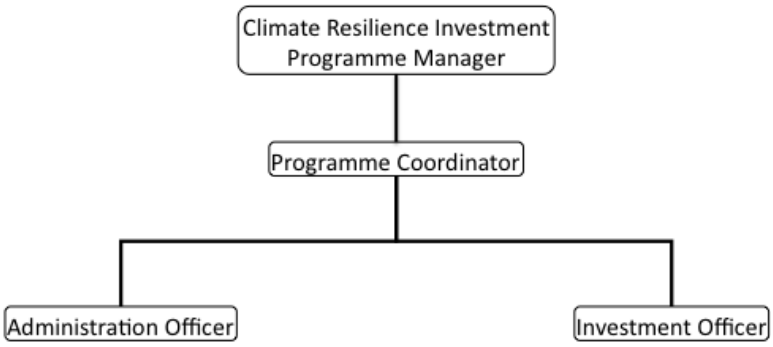


Figure 7. Proposed structure of the Climate Resilience Investment Coordination Unit (CRICU), Ministry of Finance.

Output 3. Mainstreaming Climate Change Considerations into Policy, Planning and Budgetary Processes.

With the support of the PPCR, the process of mainstreaming climate change (inclusive of disaster risk reduction) considerations in ministry plans, work programmes and budgets that is being implemented by MNRE will be replicated and scaled-up throughout relevant government agencies and at national level. In cooperation with the relevant line ministries and departments, the activities would also build on the climate change mainstreaming activities that are ongoing or planned through the NAPA implementation projects in the agriculture, health, forestry, coastal and tourism sectors, as well as on the ongoing Climate Early Warning System work. The aim would be to systematically integrate climate risk, climate change tools and climate information services into all sectoral adaptation projects, to foster informed policy making. Similarly, PPCR can build on and further enhance the capacity building and knowledge management interventions that are at the heart of all NAPA projects in Samoa.

Output 4. Enhancing the Capacity for Climate Risk Management.

This activity will build the capacity for climate risk management at national, institutional, enterprise, community and individual levels. This will include strengthening the institutional capacity to acquire, manage and disseminate climate risk information, increasing integration of disaster risk reduction and climate change adaptation at policy and planning levels, and identifying how best to up-scale community- and ecosystem-based adaptation in Samoa. It will also involve significant outreach activities, including development of a specific web-based information hub for improved access to climate and relevant sector data and analyses to be managed by the NCCCT (linked to the Google Adaptation layer, WeAdapt, and the UNDP Adaptation Learning Mechanism). Quarterly policy briefs on selected themes will be prepared, and there will be community and national learning events linked to activities undertaken during both PPCR phases.

Capacity will be built to ensure that the following and similar capabilities are built into all sectors and projects, as appropriate: Climate Early Warning System; Soils Resources Inventory Manual; Forest Resources Information System; and the Adaptation Learning Mechanism. The tourism sector, and especially private tourism operators, will be one focus for capacity building related to climate risk management. The findings of the PPCR missions highlighted the need to raise awareness of both the public and private sector stakeholders in the tourism sector.

Linking Climate and Tsunami Risk Reduction

In terms of causes, tsunami and climate change are unrelated, but there consequences have some similarities. However, actions to reduce tsunami risk have much in common with efforts to enhance resilience to climate change, especially the increased frequency and magnitude of extreme weather and climate events. This would include direct measures such as helping to improve protection from tsunami and storm surges associated with a severe tropical cyclone includes ensuring effective coastal protection, such as extensive and healthy mangrove ecosystems and, where necessary and appropriate, that homes and other infrastructure are set back an adequate distance from the coast line.

Disaster risk reduction measures common to tsunami and climate change also include such initiatives as improving lives and livelihoods to reduce poverty and hunger and enhancing awareness of the risks and appropriate risk reduction actions. A healthy, vibrant and informed community is a more resilient community.

Component 3: Preparation of the National Climate Change Programme and Plan

Output 1. This will be a medium- and longer-term strategic climate change programme and plan for Samoa, building on the NAPA and other frameworks, including the SDS. It will capture the current and emerging needs of Samoa for both adaptation and mitigation interventions and investments, and lay out a road map. An important focus of the Programme will be enhancing integration of disaster risk reduction and climate change adaptation, and identifying and exploiting the synergies between adaptation and mitigation. Up-scaling community- and ecosystem-based adaptation will be another focus. As a result of this activity, development partners will be better informed about where to target their assistance. The National Climate Change Programme will incorporate the CRIP as well as other climate-related investment opportunities and plans.

Component 4: Preparation for Phase 2

Output 1. The CRIP will be developed from the existing information as well as current and emerging understanding. It will be consistent with the National Climate Change Programme and Plan. This will help ensure that Samoa's investment activities funded by the PPCR are fully aligned with other climate-related investments and will contribute to implementation of the SDS. This will include ensuring alignment with the United Nations Development Assistance Framework for Samoa.

Output 2. A Strategic Environmental and Social Assessment, with terms of reference acceptable to IBRD/IDA and the PPCR Development partners, will be prepared. This will systematically screen and scope the proposed policies, programmes and projects in the CRIP, and review their environmental and social sustainability.

9. Outline of Indicative Key Action Areas for Samoa's Climate Resilience Investment Program (CRIP)

This section describes the key elements of the CRIP that may be implemented in Phase 2.

CRIP Goal

The proposed goal of Samoa's CRIP is to ensure a strong enabling environment for Samoa's responses to climate change, including sustainable financing for adaptation, and to utilize this enhanced capacity to increase climate resilience in relation to the social and coastal sectors, exploiting the synergies between adaptation and mitigation and ensuring sustainable financing for adaptation.

The goal may be achieved by implementing the four components of Phase 2 (see Figure 8).

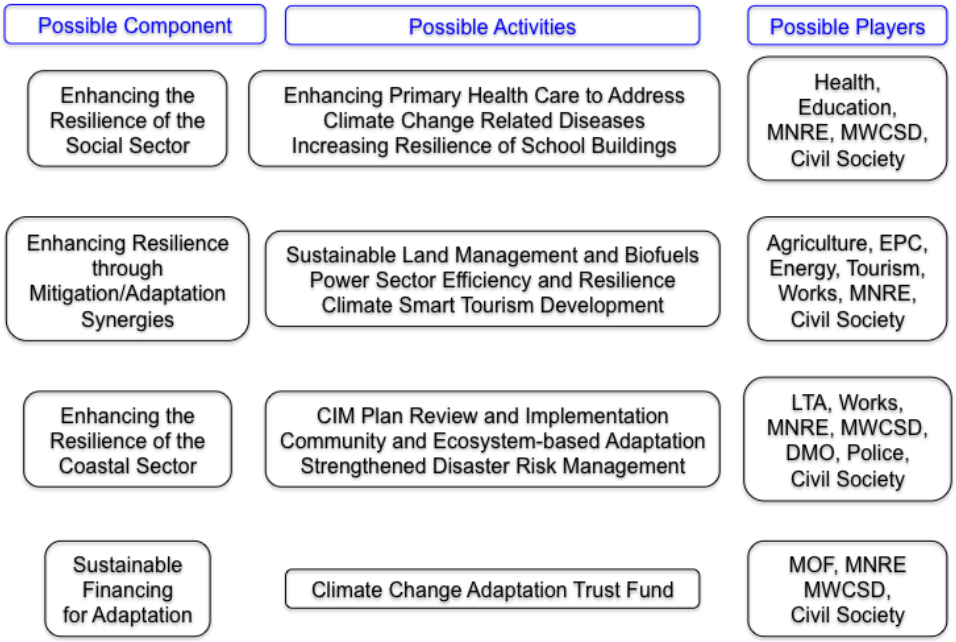


Figure 8. Elaboration of indicative content of Phase 2, including possible activities and key players. Relevant development partners would be actively involved in all four components.

The World Bank's recently completed Samoan country study on the economics of adaptation to climate change (Beca International, 2010a,b) developed and applied the Multi-Criteria Economic Optimisation tool to a range of sectors and vulnerabilities. The study concluded that the tool could well best be used to challenge, confirm and re-evaluate the priorities and sequencing of climate change adaptation projects. However, it also noted that, as a sole tool, it is inherently limited by the compartmentalisation of parameters and weightings, and therefore is likely to be insensitive to relevant externalities. The value of the tool is therefore likely to be in terms of validation of decisions made by way of informed professional judgement, and in providing a set of (non-exclusive) parameters against which adaptation needs and projects can be assessed.

These findings, and the associated experience, will be used to inform the final selection of the Phase 2 components, as a critical part of Samoa's CRIP. For now, the following are simply indicative.

Component A: Enhancing the Resilience of the Social Sector

Outcome 1: Enhanced Primary Health Care to Address Climate Change Related Diseases

The objective is to reverse current trends and build the basic health of people in Samoa to allow for improved resilience to changes caused by climate change. The activity will use newly available technology to strengthen a decentralised primary healthcare approach rather than continue the existing focus on centralised secondary healthcare. It will build on an existing pilot - Rotary5000 - being undertaken in Samoa by the Oceania University of Medicine. It will also build on the health promotion initiatives of the Ministry of Women, Culture and Social Development (MWCSD) that are currently being undertaken in all villages in Savaii and 105 villages in Upolu. This is a large programme which takes a primary health

care approach to disease prevention and daily hygiene and sanitation practices. It is driven and monitored through the women's committees, government liaison officers and village mayors. The MWCSD will be a key implementing and monitoring partner along with the National Health Service and the Ministry of Health.

The above activities will be scales-up, to pave the way for a nationwide screening programme to capture a baseline health level for Samoa. This will then be used to establish a nationwide primary care programme to assist in turning the tide on non-communicable diseases as well as building resilience to communicable disease outbreaks which are expected to increase as climate change impacts increase.

The proposed new technology is easy to use by low level Medical Care Staff, removing limitations caused by the lack of qualified medical personnel at the village level. It includes digital diagnosis equipment allowing for instant recording and playback of diagnostic data, the use of a unique ID for patients enabling tracking across the country. This is important given the mobility of the Samoan population. Communication will be over low bandwidth, providing telemedicine capability. This includes automatic flagging and reporting of disease signatures, allowing for rapid response to possible disease outbreaks.

Outcome 2: Increased Resilience of School Buildings

The total number of government schools in Samoa is 164 – 24 secondary schools and 140 primary schools. The recent tsunami and earlier cyclones have highlighted the high vulnerability of the school buildings. This outcome will involve assessing the condition of all school buildings in Samoa, excluding the newly built schools constructed under the tsunami recovery programme. They will be assessed in terms of safety and the ability to withstand natural disasters, including those exacerbated by climate change.

The building survey will be conducted by qualified personnel, with the assistance of staff from the Ministry of Education, Sports and Culture. The Ministry will then advise School Committees and villages concerned of existing school buildings identified to be at risk, so that schools that are located in areas that are at risk may be renovated and reinforced, or relocated.

Component B: Enhancing Resilience through Exploitation of Mitigation and Adaptation Synergies

Outcome 1: Tourism Sector is More Sustainable, Including Increased Resilience to Climate Change

The objective is to, through an integrated approach, help ensure that tourism development in Samoa occurs in ways that enhance the resilience of the tourism sector, communities, its natural resource base and the nation as a whole to climate change, while also assisting Samoa to follow a path of sustainable, low carbon development. As is highlighted below, the private sector will play a major role in delivering this outcome.

Key outputs related to this outcome will be a number of practical projects that demonstrate application of measures that promote and facilitate both adaptation and mitigation, as well as the achieving synergies between them. There will be five demonstration projects:

- Transport Operator – the Samoan Tourism Authority, in collaboration with key stakeholders, will climate proof Faleolo International Airport through establishment of renewable energy and climate resilience measures;
- Large Resort – the Authority, in collaboration with Aggie Grey's Beach Resort and key stakeholders, will implement climate resilience and renewable energy initiatives;

- Tourism Authority's Samoan Village - pilot climate resilience involving both adaptation and mitigation initiatives for both tourists and local stakeholders through the use of solar power and climate change adaptation;
- Beach Fale - Utilise Lalomanu and Aleipata Corridor as pilot project for beach fale adaptation and mitigation initiatives; and
- Tourism Experience Provider – demonstrate how a tourism services provider can improve their climate resilience through a combination of adaptation and mitigation initiatives.

All the above will demonstrate both adaptation and mitigation, including synergies. They will also highlight that, in such a highly integrated sector such as tourism, it is important to link with development activities being undertaken in other sectors, such as agriculture and water, even though the initiatives in these sectors may not in themselves be focussed on addressing climate change.

Outcome 2: Biofuel Production is Resilient to Climate Change due to Adoption of Sustainable Land Management and Other Best Practices

The objective of this intervention is to show how the planned moves towards large-scale production of biofuels in Samoa could enhance the vulnerability of the agriculture and forestry sectors to climate change unless the initiatives adopt best practices in sustainable land management. Because Samoa is committed to decreasing its reliance on fossil fuels, its Renewable Energy Policy has identified and addressed issues such as biofuel crops replacing food crops, the environmental impacts associated with the growth and processing of biofuels, and the long term sustainability and profitability of biofuel production and use. Activities related to this outcome will demonstrate how climate risk management can enhance the resilience of biofuel production and help ensure its long-term sustainability.

Outcome 3: Enhance Efficiency and Resilience of the Samoan Power Sector

Another key lesson from the World Bank economics of adaptation study for Samoa (Beca International, 2010b) has been recognition of the importance of the energy sector in the climate change adaptation context in Samoa. Samoa is currently reliant on diesel fuel imports for electricity generation, although there is some hydro power generation. Considerable investment is being made in the investigation of alternative energy sources such as micro-hydro and wind.

While sustainable and self sufficient energy features strongly in Samoa's national priorities, the energy sector is more aligned with climate mitigation policy than it is with adaptation. Significantly, the energy sector is not one of the priorities in the NAPA.

The objective of this intervention is to demonstrate that it is possible to achieve increases in both efficiency and resilience of the power sector through such interventions as improvements in power reticulation – e.g. lower energy losses and more robust overhead and underground reticulation systems, enhancing the security of supply while also increasing efficiency.

Component C: Enhancing the Resilience of Coastal Sector

It is acknowledged that normally it is desirable to adopt ridge-to-reef and integrated watershed management approaches when building resilience of human and natural systems, especially in the small island context. Ecosystem- and community-based adaptation are thus key for inland as well as coastal areas. However, Samoa is already implementing or planning adaptation projects that focus on inland areas. An example is the NAPA-GEF-LDC forestry adaptation project. This uses both ecosystem- and community-

based adaptation approaches for lowland agro-forestry and upland native forestry areas. PPCR initiatives will thus focus on the coastal sector while building linkages and achieving synergies with adaptation projects in inland areas as well as in key development sectors such as agriculture, forestry, energy health and education.

Outcome 1: Coastal Communities and Infrastructure More Resilient to Climate Change

The objective is to establish lifeline services outside coastal hazard zones (CHZs), ensure residential flooding hazards are mitigated, including raising the level of residential developments and improving the condition and climate resilience of roads and other critical infrastructure. The CIM plans exist for every district in Samoa. Forty one CIM Plans have been completed. Fifteen were prepared under IAMP-I and 26 were completed under the SIAM-2 project. The CIM plans considered to relate to the most vulnerable and at risk areas will be reviewed, and revised as necessary. The Samoan component of the regional Pacific Adaptation to Climate Change project (NAPA2) is focused on coastal adaptation, targeted to implement selected CIM plans in a way that builds climate resilience. PPCR will draw in this experience, upscale the adaptation initiatives, and further develop and enhance selected CIM plans and associated policy frameworks and instruments. Best practices solutions will be identified in coastal infrastructure management strategy implementation guidelines. There will be incremental relocation of community and government assets outside CHZs for the most vulnerable districts and areas within those districts. In the most at risk districts and areas educational programmes will be undertaken to improve the level of awareness of coastal hazard risks.

Outcome 2: Enhanced resilience of natural and human coastal ecosystems

The objective of this intervention is to enhance the resilience to climate change for both inshore fisheries and biodiversity, as well as the communities that rely on these assets for their economic and social well being. The interventions will improve the climate resilience of communities dependent on inshore fisheries and biodiversity, through enhanced food security and improved livelihoods due to more resilient community-based coastal tourism activities. Protection of community assets will be enhance through mangrove replanting and other soft adaptation measures, thus linking ecosystem- and community-based adaptation. The PPCR will build on and expand some of the work piloted by UNDP, scaling up the most successful and innovative interventions. This includes the community-based adaptation projects that use existing village-level delivery mechanisms and strengthen national-local level institutional linkages.

Component D: Sustainable Financing for Adaptation

Outcome 1: Predictable and ongoing resources available to finance tangible, on-the-ground adaptation interventions.

This component will involve the use of one or more of the following modalities: national trust fund for climate change grants, budget assistance to cover the incremental costs of ensuring government development projects are climate proofed; and contribution to a pooled donor fund for climate change adaptation initiatives. PPCR will help ensure that the agreed mechanism(s) will achieve acceptably high levels of transparency and accountability in disbursing funds and for monitoring, reporting and evaluation. Some PPCR resources would also be allocated to the agreed modality(ies), to encourage other donors to also make contributions.

The design and implementation of Component D will build on the studies and decisions related to the Australian-funded assessment of sustainable financing mechanisms for climate change responses in Samoa, and the current study being undertaken by the Pacific

Regional Environment Programme for the Pacific Climate Change Roundtable. The study is assessing the feasibility of establishing a Pacific Regional Climate Change Fund or Facility, with the objective of harmonizing donor assistance related to climate change and reducing the administrative burden and other constraints Pacific island countries are experiencing with accessing and utilizing climate change development assistance. It can also build on the experience Samoa has gained from being an active player in the GEF-funded Small Grants Programme. This includes a country-driven governance structure and grant-making procedures, administrative and technical back-up mechanisms. In Samoa the Programme is already disbursing funds to communities for community-based adaptation.

10. Institutional Arrangements.

Samoa's PPCR project takes climate change beyond just a thematic issue to considering it as a development issue. This calls for effective integration across and between all sectors, and at all levels – policy, planning operational, technical and management. Thus an effective and fully supportive implementation framework is required, including clear roles and responsibilities.

Samoa's MOF is the Focal Point for PPCR. The role of this ministry is key to the success of the PPCR. Its Economic Policy and Planning Division is best placed to ensure integration of climate risk considerations in government national and sectoral planning, work programmes and budgeting processes. It is also the key ministry that interacts with and coordinates external funding through its Aid Coordination Division. MNRE has the technical and scientific knowledge most relevant for the PPCR. It has been the engine behind the development and implementation of the country's climate change work, both at policy and project level.

One agency of Government will be responsible for implementation, including project management. The MOF has the lead for coordinating the PPCR nationally and will be responsible for managing implementation of Phase 1. Implementation arrangements for Phase 2 will be further detailed in the CRIP, based in part on the experience of implementing Phase 1. For Phase 1 at least, PPCR will be executed in a joint partnership with the MNRE and other relevant agencies in order to take advantage of their comparative advantages and benefit from their synergies and complementarities, consistent with the institutional arrangements shown in Figure 4. Coordination with development partners will be assured through the activities of both the NCCCT and the Aid Coordination Committee.

Coordination of implementation, as well as monitoring and evaluation, will be the responsibility of the PPCR Steering Committee. The Climate Resilience Investment Coordination Unit (CRICU), based in the MOF, will serve as the secretariat of the Steering Committee (Figure 9).

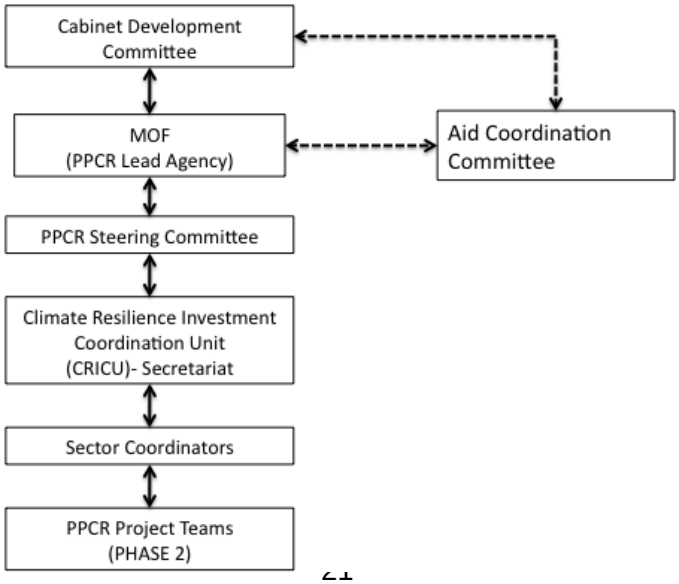


Figure 9. Arrangements for coordinating implementation of Samoa's PPCR, as well as monitoring and evaluation.

11. Monitoring and Evaluation

Monitoring of Phase 1 implementation will have an input and output focus, while that for Phase 2 will be predominantly outcome focussed, including documenting and sharing lessons learned and success stories of adaptation up-scaling and transformational change. The detailed Phase 2 monitoring and evaluation plan will be developed as part of the CRIP, prepared in Phase 1.

Phase 1 builds capacity and develops an enabling framework for climate risk management n Samoa. It is therefore appropriate that the monitoring and evaluation plan for Phase 1 is input and output focussed. The preparatory activities are essential to effective delivery of tangible outcomes in Phase 2.

The monitoring and evaluation framework for Phase 1 it presented in Table 1.

Table 1

Monitoring and Evaluation Framework for Phase 1

Inputs	**Indicator**	**Target**
Project Oversight	PPCR Steering Committee	Established at inception
Project Management	Project Management Unit	Established at inception
Work Plan	Finalised and approved work plan	Within one week of inception
Budget	Finalised and approved budget	One month prior to inception
Funding	Disbursements as in budget	Disbursements on schedule
Outputs	**Indicator**	**Target**
Climate Risk Data	For key vulnerable sectors and areas	80% by end of Phase 1
Institutional Analysis	Consensus on institutional strengthening	Implemented by end of Phase 1
Social Analysis	Consensus on equitable participation	Implemented by end of Phase 1
Mainstreaming	CC considerations in policies/plans	80% by end of Phase 1
Enhanced Capacity	Consensus on improved knowledge management	Implemented by end of Phase 1
	Outreach products disseminated	80% by end of Phase 1
Programming Document	National Climate Change Programme and prepared	Awaiting endorsement by end of Phase 1
Environ. and Social Assessment	CRIP compliant with environmental and social safeguards	By final draft of CRIP
CRIP	CRIP Approved	Awaiting approval by end of Phase 1

12. References

Beca International Consultants Ltd, 2010a: Samoa Climate Change Adaptation Study - Desk Top Review. Prepared for The World Bank, 18 March 2010.

Beca International Consultants Ltd, 2010b: Economics of Climate Change Adaptation in Samoa. Draft of background report prepared for The World Bank, 25 May 2010, 42pp.

Government of Samoa, 2010: Millennium Development Goals. Second Progress Report, 2010, 49pp.

NIWA. 2008. Kiribati Adaptation Programme. Phase II: High Intensity Rainfall and Drought. NIWA Client Report: WLG2008 – 12, NIWA Project GOK 08201.

Young, W., 2007: Climate Risk Profile for Samoa. Ministry of Natural Resources and Environment, Government of Samoa.

Annex 1

Samoa
Pilot Program on Climate Resilience (PPCR)
Joint Mission, June 3-11, 2010

AIDE-MEMOIRE

Introduction

1. The PPCR is one of the programs under the Strategic Climate Fund (SCF) of the Climate Investment Funds (CIF)[2]. The PPCR is designed to pilot and demonstrate ways to integrate climate risk and resilience into core development policies, planning and budgeting processes at national and regional level through increased capacity and scaled-up investments. The PPCR is structured in two phases. Phase 1 will develop a Strategic Program for Climate Resilience as an enabling framework to manage climate risks. Phase 2 will implement the strategic program mainly through investments.

2. Samoa is one of three countries selected for participation in the PPCR for the Pacific region[3]. The Pacific PPCR is jointly implemented by the World Bank Group and the Asian Development Bank (ADB). Following Samoa's acceptance of the offer to participate in the Program, an informal scoping mission was held on November 16-17, 2009 to begin discussions with the government and other stakeholders on the relevance, objectives and scope of the PPCR in enhancing the country's climate resilience. In the following months, the Ministry of Finance, as the Focal Point for the PPCR, invited government agencies to participate in a stock-take of ongoing climate adaptation activities, as the premise for the formal joint mission that would launch the Program.

3. The first joint-mission[4] led by the Ministry of Finance (MoF) and including World Bank, ADB and AusAID/Department of Climate Change, was fielded in Samoa on June 3-11, 2010. The mission worked particularly closely with Ministry of Natural Resources and Environment (MNRE) and UNDP.

4. Following PPCR guidelines, the main objective of the joint mission was to put in place a clear process for formulating a Strategic Program for Climate Resilience. The main tasks of the joint mission included: (i) taking stock of country level activities on climate resilience, and identifying gaps; (ii) assess opportunities for mainstreaming climate resilience in national and local development policy, planning, regulatory and budgetary processes and in the key vulnerable sectors; (iii) carry out broad based consultations with development partners and national stakeholders; (iv) outline the content and implementation arrangements for Phase 1.

5. The mission held discussions with representatives of Government entities, civil society organizations and private sector (see Annex 1 for a list of people/organizations met). The team wishes to thank Mr. Tupa'imatuna Iulai Lavea, CEO MoF, and Mr. Taule'ale'ausumai La'avasa Malua, CEO MNRE, and their staff, for their excellent cooperation and assistance to the mission. The preliminary findings and recommendations

[2] The Climate Investment Funds are comprised of the Clean Technology Fund and the Strategic Climate Fund.
[3] The Pacific PPCR includes Samoa, Tonga, PNG as well as a regional component.
[4] Ms. Silia Kilepoa-Ualesi (PPCR Coordinator, Economic Policy and Planning Division, Ministry of Finance); Ms. Emilia (Milina) Battaglini (PPCR Co-team Leader, World Bank); Mr. Mahendra Kumar (Climate Change Specialist, Asian Development Bank); Mr. Cameron Darragh (Program Manager, Australian Department of Climate Change); Prof. John Hay, (Climate Risk Management Advisor, World Bank). Mr. Sam Wedderburn (PPCR Co-team Leader, World Bank) was not able to join the mission as originally planned.

of this draft aide memoire were discussed at a mid mission briefing chaired by Mr. Sealiimalietoa Melepone Isara, Deputy CEO MoF, on June 8, 2010. The more detailed findings and recommendations of this draft aide memoire were discussed at an exit meeting chaired by Mr. Tupa'imatuna Iulai Lavea, CEO MoF, on June 11, 2010.

Context for Climate Risk Management (CRM) in Samoa

6. ***Climate risks, vulnerabilities and adaptation priorities***. Samoa's Second National Communication to the United Nations Framework Convention on Climate Change (2010) reports best estimates of long term, systematic changes in the future climate for Samoa. Samoa's Second National Communication also includes an updated vulnerability and adaptation assessment for Samoa. The assessment was undertaken on a sectoral basis, covering water resources, health, agriculture, fisheries, biodiversity and infrastructure. These were the sectors where it was considered desirable and possible to build on the 13 sectors considered and prioritized in Samoa's National Adaptation Programme of Action (2004). The sectors considered in the NAPA were agriculture and food security; forestry; water, health, communities, biological diversity; fisheries, trade and industry; works transport and infrastructure; tourism, urban planning and development; coastal environments; and energy.

7. The NAPA identified that around three quarters of these sectors are highly vulnerable to the adverse impacts of climate change and climate variability, including extreme events. The nine sectors considered highly vulnerable from the highest to lowest were the water sector, agriculture and food security sector; forestry sector; health sector; urban settlements; coastal environments; communities; trade and industry sector; and works transport and infrastructure sector. Climate change and climate-induced disasters will cause instability in food production and water availability, affecting income generating activities for communities and the country at large.

8. The NAPA Implementation Strategy was last updated in 2008. Given the increased understanding since then, as evidenced in the Second National Communication, and the considerable effort now going into implementing adaptation interventions, the Strategy needs to be updated.

9. Additional information on Samoa's climate risks, vulnerabilities and adaptation priorities in presented in Annex 2.

10. ***Institutional arrangements for CRM.*** MNRE is the ministry responsible for developing the key policy documents that guide the climate change programs in Samoa, including the National Policy Statement on Climate Change (2007) and the NAPA. The Ministry serves as the secretariat for the National Climate Change Country Team (NCCCT) (see Figure 1). The NCCCT, the key members of which are the CEOs of relevant government ministries, is the key coordination mechanism for Samoa's response to climate change. The MoF has been recently designated as the National Implementing Entity for the Adaptation Fund as well as the Designated National Authority for the CDM.

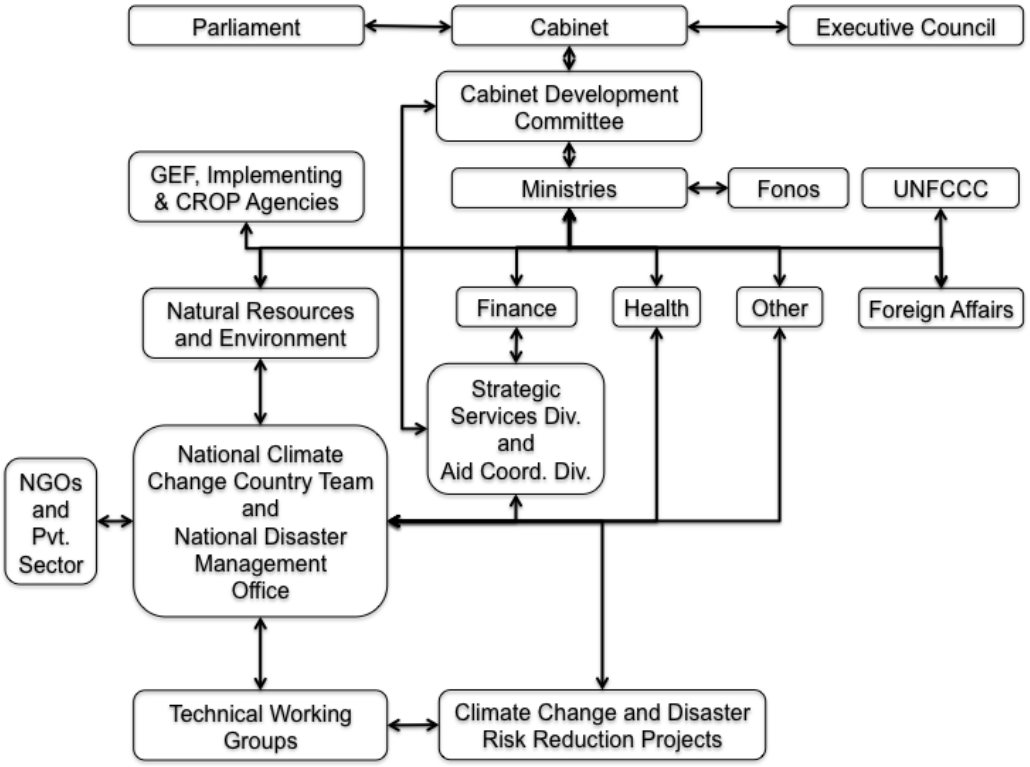


Figure 1. Institutional arrangements for climate change responses in Samoa.

11. ***Government and donor-supported initiatives***. Development assistance provided to Samoa by **Australia** is delivered through the Samoa-Australia Partnership for Development. The Partnership establishes a shared vision to work together to meet common challenges and to raise the standard of living for the people of Samoa. In 2009-2010, the Partnership provided a total of US$1.036,205 to support priority adaptation activities (primarily under NAPA Project Profile 4) and mitigation activities (feasibility assessment of a biomass gasification plant). The partnership also examined sustainable financing mechanisms for climate change adaptation and supported capacity building and mainstreaming. Annual Partnership Talks will take place between senior officials of the Australian and Samoan Governments in early July 2010 to determine future Partnership priorities and allocations.

12. At the regional level, under the International Climate Change Adaptation Initiative (ICCAI), Australia is investing AUD150m from 2008-2011 to meet priority climate adaptation needs in the Asia-Pacific. Through the ICCAI, Samoa has been an active participant in the AUD20m Pacific Climate Change Science Program and has access to the AUD12m Pacific Adaptation Strategy Assistance Program, the AUD3m Pacific Future Climate Leaders Program and is eligible for support under the Mekong and Asia Pacific Community-Based Adaptation Program (MAP-CBA). Australia has contributed AUD40m to the PPCR through the ICCAI. Samoa is also involved in ongoing programs funded by Australia such as the South Pacific Sea Level and Climate Monitoring Project and the Pacific Islands - Climate Prediction Project. UNDP-GEF.

13. Ongoing support in climate change from **Asian Development Bank** includes a loan for the Samoa Sanitation and Drainage Project (2003). The overall objective of the project is to improve environmental conditions and public health of the Apia urban area. A loan and grant have also been provided for the Power Sector Expansion Project (2007). The project is part of Government's power sector development plan to improve capacity of the sector to provide sustainable and reliable electricity services to all consumers at affordable prices. Components 1 and 2 of the project include establishing the DNA and CEF, while Component 3 strengthens the regulatory framework, including establishing a regulator for electricity services and reviewing the EPC Act. There are two technical assistance projects associated with the Power Sector Expansion project, namely Power Sector Improvement (2007), piggybacked to Power Sector Expansion Program, and Capitalizing the Clean Energy Fund (2008). There are plans for the future to expand on the ongoing activities as follows, a loan for the Sanitation and Drainage Project II (2011), technical assistance for the Power Sector Expansion Project Phase II (2010) There are plans to expand on the ongoing activities, including technical assistance for preparing the Sanitation and Drainage Project (2011), a loan for the Sanitation and Drainage Project II (2012), technical assistance for preparing the Power Sector Expansion Project Phase II (2011) and a loan for the Power Sector Expansion Project Phase II (2012).

14. **The Global Environment Facility** (GEF) through **UNDP** has financed several climate change-related projects in Samoa, from the preparation of the National Adaptation Programme of Action (NAPA) to the implementation of adaptation projects in key economic sectors, including agriculture, health, forestry, tourism and coastal communities (so-called NAPA-1, 2 3 and 5). These projects provide a mix of policy advice, capacity building, early warning systems, community demonstration activities and knowledge management. Building on the NAPA and the National Communications to the UNFCC, UNDP is carrying out work on vulnerability and climate risk assessments, and mainstreaming of climate change adaptation in sectoral planning especially in agriculture, forestry and health. Through the Samoa GEF small grant program and community development program, UNDP is implementing community-based adaptation projects that use existing village-level delivery mechanisms and strengthen national-local level institutional linkages. The PPCR could build on and expand some of the work piloted by UNDP, scaling up the most successful and innovative interventions.

15. The **World Bank** has been present in Samoa for the last several years with a series of projects addressing post-cyclone reconstruction and infrastructure asset management. The ongoing Samoa Infrastructure Asset Management (SIAM) Phase 2 project aims to enhance the economic, environmental and social sustainability of transport and coastal infrastructure assets, and to manage these assets, natural resources, and disaster risks through an effective partnership with private sector stakeholders. The World Bank support to Samoa increased last year in response to the devastating tsunami of September 2009 with an emergency loan and grant for post-tsunami recovery in the transport sector which includes elements of disaster risk management and additional financing in the health sector. Looking ahead, future engagement will focus on strengthening agricultural competitiveness, and further work to build on successful investments to improve infrastructure asset maintenance, and "climate proof" investments. The World Bank under the Samoa Asset management program was also engaged in community support projects to enhance resilience

16. The **EU** engagement on climate change issues is mainly through its program in the water sector and the support to civil society. **NZAID** support to climate change adaptation is mainly delivered through multilateral regional programs and mainstreamed into the regular programs for health and sustainable economic development. **Japan** is engaging in the upgrading of the weather observation system for the Meteorological Office, a forest preservation program as well as renewable energy with a focus on solar power. The latter

activity is delivered through the regional Pacific Environment Community facility. **China** is particularly active in renewable energy and public infrastructure.

17. The current priorities of the Government are: (i) reviewing the national policy analysis framework; (ii) early warning systems expanded nationally, institutional reorganizing and strengthening, leveraging capital investment for climate proofing infrastructure and for renewable energy technologies, building on existing initiatives such as the national climate-related disease baseline study, and on-the-ground implementation of sector-based adaptation initiatives. Current and planned adaptation interventions are described in Annex 3.

Main Mission Findings

18. ***Building on ongoing government achievements.*** Samoa has been very proactive in tackling the climate change challenge, assessing climate change impacts and vulnerability, identifying and implementing adaptation measures. Samoa is one of the first Pacific countries to have developed a National Adaptation Plan of Action (NAPA 2005) after two years of data collection and extensive consultations across the country. The NAPA identifies the most urgent and immediate adaptation needs and the government of Samoa, under the leadership of MNRE, has very effectively sought donor financing to implement the NAPA through a series of projects targeted to key sectors. NAPA 1 (piloting adaptation in health and agriculture) and NAPA 2 (piloting community-based adaptation for coastal protection) are now under implementation, and MNRE has secured significant funding to finance 3 more NAPA projects. The development and implementation of the NAPA have been instrumental in stimulating the preparation of climate risk and vulnerability assessments, raising awareness around climate change adaptation and building opportunities to work across sectors (for example through the NCCCT).

19. Samoa has developed a framework of strategies, plans and governance structures that are best practice in the region. Climate change adaptation is reflected as a priority in many high level plans and strategies. The Strategy for the Development of Samoa (SDS) for 2008-2012 for example identifies climate change adaptation as a cross cutting issue alongside environmental sustainability. The Samoa Coastal Infrastructure Management Strategy (2001 updated in 2007) defines national and local priorities for coastal management and sets policies and implementation methods for disaster risk reduction and climate adaptation measures. They are seen by government as a key adaptation initiative.

20. While most sector ministries are still struggling with the concept of integrating climate change considerations in their plans and operations, MNRE has taken the lead in mainstreaming climate change (adaptation and mitigation) in its own planning, work programs and budgetary process.

21. ***Emerging gaps.*** The NAPA, by its own design, is very project-specific, sector-focused and short-term. While it calls for mainstreaming of climate risk management into sectoral plans and operations, government agencies' corporate and business plans often do not refer to climate change adaptation. The stock-take meetings highlighted that many parts of government have still only a limited knowledge of the climate adaptation work carried out by MNRE. This may be due to the limited implementation of the NAPA (one year) but it is also likely due to its sector by sector approach and the "horizontal" relation it supports between MNRE and other sector ministries. From the stock-take discussions a consensus emerged around the need for a more strategic, whole of government approach to climate risk management that supports mainstreaming climate considerations in national plans as well as sector plans and a vertical and horizontal integration within and across government departments. The role of MoF in pursuing the integration of climate risk management objectives in government processes, planning and budgeting is critical especially in light of

an efficient and fair allocation of resources. It is however understood that the technical knowledge and capacity to implement climate adaptation measures rest with the sector ministries and agencies.

22. The stock-take meetings also highlighted some areas that were not adequately covered in the NAPA and may need to be re-considered in light of their relevance for climate adaptation measures. The energy sector, for example, was not considered under NAPA, in part because it was looked at only from a climate change mitigation perspective. Similarly, communities and the Ministry of Women, Community and Social Development (MWCSD) do not feature prominently in the NAPA despite their critical role in the implementation of adaptation measures at village level.

23. ***Synergies with disaster risk reduction***. One area highlighted as missing from the NAPA is the synergy between disaster risk reduction and climate change adaptation. In practice, and especially at community level, distinguishing between the two is irrelevant as many of the risk reduction measures are the same whether the disaster is climate-related or not. The National Disaster Management Plan of 2007 recognizes climate change, sea level rise, environmental degradation, coastal erosion, water quality and resource management as important issues. In practice, however, the climate change adaptation and the disaster risk management agendas are still dealt with separately. MNRE expressed interest in learning about risk financing mechanisms, another area that is not addressed in the current policies and strategies. The issue is being addressed by the World Bank in the design phase of the support program for the agriculture sector, as well assessing the appropriate modalities for implementing risk financing activities in the context of Samoa.

24. ***Consultation and participation processes***. The mission held discussions with government agencies, donor partners, and a limited number of representatives from civil society and private sector. Among the many stake-holders, the private sector seems to be the least informed and engaged in the debate on climate change adaptation, possibly due to the lack of familiarity with the linkages between a global environmental issue (climate change) and their day-to-day business operations. The engagement of the private as key agent in the adoption of climate adaptation measures was identified as an area that deserves more attention.

Opportunities for PPCR[5]

25. The advanced stage of government awareness and commitment to adopting climate change adaptation measures at national and local level provides an excellent basis for PPCR to transform the climate change adaptation debate from an environmental issue to a development issue and assist the government in moving towards a climate resilient economic development path. In doing so, the PPCR will build on existing programs and frameworks, including existing implementation modalities that have proved successful. In the course of the discussions with government agencies and other stakeholders several suggestions were made in regard to the focus of the PPCR. These suggestions will be further assessed in the course of the next few weeks as part of the development of the proposal for Phase 1 of the PPCR.

26. Since the NAPA was completed there has been an evolution of the debate around climate change adaptation and climate risk management, changing climate science considerations and new priorities that have emerged since its development, including in sectors not previously considered (such as energy). The PPCR could support the preparation of an Annex to the existing NAPA that addresses these developments. However,

[5] Possible investment opportunities are listed in Annex 4. Phase 1 of PPCR would assess these and other options, prioritize them and reflect them in both the PPCR Strategic Program for Climate Resilience and in the proposed medium- and longer-term climate change strategy for Samoa.

an alternative approach, which found initial favor with the Government, was to recognize that the NAPA is near to the end of serving its purpose. There is an opportunity to build on the NAPA and prepare a strategic document that would capture the current and emerging needs of Samoa for adaptation interventions and lay out a road map. Development partners would then be able to see where to target their assistance. The planned PPCR Strategic Program for Climate Resilience would form an integral part of the wider strategic document.

27. The process of mainstreaming climate change considerations in ministry plans, work programs and budgets that is being implemented by MNRE could be replicated and scaled-up throughout government agencies and at national level with the support of PPCR.

28. The government attaches high priority to the implementation of the Coastal Infrastructure Management Plans. The PPCR could support the implementation of updated and prioritized CIM Plans that take into account the consultation program currently carried out by the Ministry of Women, Community and Social Development.

29. It was also suggested that the PPCR could be used to scale-up successful pilot adaptation projects, including community-based adaptation and disaster risk management projects that have been tested and demonstrated throughout the implementation of the NAPA.

30. Samoa stands to receive additional financing for climate change adaptation and mitigation in the coming years through the Adaptation Fund and CDM. Several donors are already supporting climate change activities, often through different mechanisms and requirements. The government is very keen to rationalize and increase the efficiency of the management and use of financial resources available to Samoa for climate change and is looking at different options, including setting up a national trust fund for climate change; pooling donor resources; and providing budget support mechanisms to cover the incremental costs of climate proofing development projects. The PPCR could assist the government in investigating and developing the most appropriate mechanism.

31. In order to increase its impact it was suggested that PPCR take a cross-cutting, multi-sectoral approach to exploit the adaptation and mitigation synergies in forest, agriculture and energy as well as the synergies between climate change adaptation and disaster risk management.

32. Phase 1 of the PPCR would assess these and other investment options, and prioritize them based on consultations with government as well as other stakeholders. The prioritized options could be incorporated in a new medium- and longer term climate change program to be developed as a Phase 1 activity. PPCR would contribute to implementing part of the program, as defined in the PPCR Strategic Program for Climate Resilience (SPCR). Other donors and government could take up other investment opportunities indicated in the program. Preparation of the program would have to be a streamlined process in order not to delay PPCR Phase 2 implementation. This is realistic given the opportunity to build on the Second National Communication, the NAPA and other instruments. It should be possible to prepare a robust program by the end of Phase 1.

Implementation Arrangements for PPCR

33. MoF is the Focal Point for PPCR. The role of this ministry is key to the success of the PPCR. Its Economic Policy and Planning Division is best placed to ensure integration of climate risk considerations in government national and sectoral planning, work programs and budgeting processes. It is also the key ministry that interacts with and coordinates external funding through its Aid Coordination Division. MNRE has the technical and scientific

knowledge most relevant for the PPCR. It has been the engine behind the development and implementation of the country's climate change work, both at policy and project level.

34. It is suggested that, while the MoF has the lead for coordinating the PPCR nationally, implementation be undertaken in partnership with the MNRE and other relevant agencies in order to take advantage of their comparative advantages and benefit from their synergies and complementarities. It is also recommended that the PPCR use implementation frameworks that are already in place, such as the NCCCT and the sector steering committees.

Outline of Possible Phase 1 Activities[6]

35. ***Assessment of Climate Risks in Key Vulnerable Sectors.*** Implementation of a risk-based approach to adaptation, and prioritization of PPCR investments to enhance resilience to climate change. This requires a detailed knowledge of both current and anticipated climate risks for the key sectors shown in the Second National Communication and the NAPA to be highly vulnerable to climate change. Currently there is only general information, complemented by quantitative, but somewhat outdated information for the Apia area. This activity would increase the spatial coverage of the quantitative risk information and apply it to relevant sectors.

36. ***Institutional Analysis****.* More sectors and components of society are recognizing the need to enhance resilience to climate change. In addition, there has been some discussion about climate change being given a higher institutional profile in government. This activity will help ensure that institutional arrangements are optimized in terms of both addressing needs and reflecting capacities. The activity will also assess the implications for greater integration of disaster risk reduction and climate change adaptation.

37. ***Mainstreaming Climate Change Considerations into Policy, Planning and Budgetary Processes.*** Some progress has already been made. With the support of the PPCR, the process of mainstreaming climate change (inclusive of disaster risk reduction) considerations in ministry plans, work programs and budgets that is being implemented by MNRE could be replicated and scaled-up throughout government agencies and at national level.

38. ***Preparation of the Strategic Program on Climate Resilience (SPCR) for Samoa and Development of a Medium- and Longer-term Climate Change Program for Samoa.*** There is an opportunity to build on the NAPA and prepare a strategic document that would capture the current and emerging needs of Samoa for adaptation interventions, and lay out a road map. The strategic document would also build on, and be consistent with, the SDS. One focus of the activity will be enhancing integration of disaster risk reduction and climate change adaptation. An outcome of this activity would be development partners more able to see where to target their assistance. The planned activity would include PPCR investment opportunities. Possible opportunities are identified in Annex 4. Another output would be the Strategic Program for Climate Resilience (SPCR), which would describe the portion of the overall national climate change program to be supported directly through the PPCR. The inclusion of the PPCR Strategic Program for Climate Resilience as an integral part of the wider strategic document would help ensure PPCR alignment with climate-related investments and contribute to implementation of the SDS.

39. ***Enhancing the Capacity for Climate Risk Management.*** This activity would build knowledge and raise awareness on climate risk management, including addressing any

[6] Detailed activities and specific Terms of Reference to guide the design of Phase 1 will be prepared in the coming few weeks.

significant shortcomings in terms of availability of climate data and other relevant information. This includes the institutional capacity to acquire, manage and disseminate such information and to increase integration of disaster risk reduction and climate change adaptation.

40. ***Assessing and Addressing the Social Aspects of Climate Change****:* This activity would consider how best to optimize and facilitate the involvement of all non-government stakeholders in enhancing resilience to climate change, including the participation of communities, community-based and non-governmental organizations and the private sector. A key aspect of the activity would be assessing and integrating gender considerations into climate change adaptation.

Next Steps

41. The proposed next steps are shown in the following table.

Activity	Completed by
MoF consults with other agencies and provides consolidated comments on the draft aide-memoire	June 29, 2010
Aide-Memoire finalized	July 4, 2010
First draft of Phase 1 Program Proposal	July 31, 2010

Attachment 1

List of People and Organizations Consulted

Government Roundtable Participant List[7]

	Names	Designation	Ministry/Organisation
1	Mrs. Leilani Matalavea	Information & Communication Specialist	Ministry of Health
2	Mr. Asuao Kirifi Pouono	Chief Executive Officer	Ministry of Agriculture and Fisheries
3	Mr. Ueta Solomona Jr.	Manager Aerodromes & ATS	Samoa Airport Authority
4	Mr. Sealiimalietoa Melepone Isara	Deputy Chief Executive Officer	Ministry of Finance
5	Ms. Eira Elisara	Planning & Development Officer	Samoa Tourism Authority
6	Mr. Ben Gagau	Manager Works & Technical	Samoa Airport Authority
7	Mr. Wairarapa Young	Renewable Energy Officer	Electric Power Corporation
8	Mr. Muaausa Joseph Walter	General Manager	Electric Power Corporation
9	Mr. Sinapati Ulberg	Assistant CEO	Land Transport Authority
10	Mr. Bismarck Crawley	Consultant	Isikuki Punivalu & Associates (IPA)
11	Ms. Shirleen Fuimaono	Marketing Executive	Samoa Ports Authority
12	Mr. Cameron Darragh	Program Manager	Australian Government CCA
13	Mr. Steve Brown	GEF Services Assistant CEO	Ministry of Natural Resources and Environment
14	Ms. Louisa Apelu	Assistant CEO – Division for Women	Min. of Women, Community & Social Devlopment
15	Mr. Peseta Frank Fong	Assistant CEO– Policy Planning Communication	Ministry of Agriculture and Fisheries
16	Ms. Emma Wong	Lecturer	Victoria University (Australia)
17	Ms. Min Jiang	Research Fellow	Victoria University (Australia)
18	Ms. Patila Malua-Amosa	Lecturer/ Head of Science Department	National University of Samoa
19	Mr. Mala Tanei	PEO-Projects	Ministry of Education, Sports and Culture
20	Ms. Emilia (Milina) Battaglini	Sr. Environment Specialist, PPCR Co-team Leder	World Bank
21	Dr. Mahendra Kumar	Climate Change Specialist	Asian Development Bank
22	Ms. Litara Taulealo	Prinicipal Officer- Projects and Sector	Ministry of Finance
23	Ms. Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance
24	Ms. Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance
25	Ms. Noumea Simi	ACEO Aid Coordination	Ministry of Finance
	Mr. Mulipola Ausetalia Titimae	ACEO Meteorology	Ministry of Natural Resources and Environment

[7] Samoa Umbrella for Non-Governmental Organisation (SUNGO) submitted their apologies for being absent from this roundtable. However, they participated in the pre-mission roundtable where they were informed of the PPCR and they made a submission to the PPCR preparations (see Annex 3).

Private Sector Roundtable Participants

	Names	Designation	Ministry / Organisation
1	Mrs. Karen Mapusua	Associate Director	Women in Business Development Inc.
2	Mr. Afoa Amituanai Faleulu Mauli	President Samoa Hotel Association (SHA)	Samoa Hotel Association
3	Mr. Tuaopepe Felix Wendt	President Farmers Association	Samoa Farmers Association
4	Mr. Papalii Grant Percival	COCI / SAME EC Member	COCI/ SAME
5	Mr. Sealiimalietoa Melepone Isara	Deputy CEO	Ministry of Finance
6	Ms. Emilia Battaglini	Sr. Environment Specialist, PPCR Co-team Leder	World Bank
7	Prof. John Hay	Climate Risk Mgmt Advisor	World Bank
8	Mr. Cameron Darragh	Program Manager	AusAID/Dept of Climate Change
9	Dr. Mahendra Kumar	Climate Change Specialist	ADB
10	Ms. Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance
11	Ms. Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance
12	Tainau Moefaauo Taputoa Titimaea	Vice President	Association of Engineers
13	Funefea'i Oliva Vaai	Vice President	SAME
14	Eddie Wilson	President	SAME
15	Adi Tafuna'i	President	Women in Business Development Inc
16	Nynette Sass	Chief Executive Officer	Samoa Hotel Association
17	Lemalu Sina Retzlaff	President	Chamber of Commerce
18	Litia Brighouse	Chief Executive Officer	Chamber of Commerce

Development Partner Roundtable Participants

	Names	Designation	Ministry/Organisation
1	Ms. Misileti Satuala	Activity Manager	AusAID
2	Mr. Xie Yancun	Secretary	Chinese Embassy
3	Mr. Aiba Manabu	RR	JICA
4	Mr. Sealiimalietoa Melepone Isara	Deputy CEO	Ministry of Finance
5	Mr. Meapelo Maiai	Programme Officer	UNDP Samoa
6	Mr. Justin Locke	Project Manager	UNDP
7	Mr. Mehdi Kamyab	Programme Coordinator	UNDP Samoa
8	Mr. Peter Zwart	NZAID Manager	NZ High Commission
9	Mr. Peniamina Leavai	CC- Mitigation & Adaptation Officer	UNDP Samoa
10	Mr. Cameron Darragh	Program Manager	Australia-Dept of Climate Change
11	Mr. Nick Roberts	Budget Support Adviser	MOF/AID
12	Ms. Lita Iamafana	Principal Officer- Aid	Ministry of Finance
13	Ms. Noelani Tapu	Prinicipal Officer - Aid	Ministry of Finance
14	Ms. Emilia (Milina) Battaglini	Sr. Environment Specialist, PPCR Co-team Leder	World Bank
15	Dr. Mahendra Kumar	Climte Change Specialist	Asian Development Bank

16	Ms. Litara Taulealo	Prinicipal Officer- Projects and Sector	Ministry of Finance
17	Ms. Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance
18	Ms. Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance

Attachment 2

Climate risks, Vulnerabilities and Adaptation Priorities[8]

Samoa's Second National Communication to the United Nations Framework Convention on Climate Change (2010) reports best estimates of long term, systematic changes in the average climate for Samoa. They indicate that by 2050 sea level is likely to have increased by 36 cm, rainfall by 1.2%, extreme wind gusts by 7% and maximum temperatures by 0.7 C. The observed long term trend in relative sea level for Apia is 5.2 mm/yr. But maximum hourly sea level is increasing by approximately 8 mm/yr, a rate far in excess of the observed local and global trends in mean sea level. For Apia an hourly sea level of 1.8 m above mean sea level is currently a 100-year event. It will likely be at least a four-year event by 2025.

No significant long term trends are evident in the observed daily, monthly, annual or maximum daily rainfall. Currently a daily rainfall of at least 300 mm is a relatively rare event at Apia, with a return period of 14 yr. There is large uncertainty in the rainfall projections, with two models suggesting substantial increases in rainfall, one model suggesting only small increases, and one model indicating a large decrease in rainfall into the future. An extreme daily rainfall of 400 mm is currently a 60-year event. It will likely be a 40-year event by 2050. An extreme six-hourly rainfall of 200 mm is currently a 30-year event. It will likely become a 20-year event by around 2050.

A monthly rainfall below the ten percentile is used as an indicator of drought. Drought frequency is strongly linked to the occurrence of El Niño events. Six global climate models that were best out of 19 at simulating present day ENSO conditions show no significant changes toward El Niño-like conditions in the latter part of the current century. Therefore it is not yet possible to make any predictions about the future nature of El Niño events and the implications for the frequency, duration and intensity of droughts in Samoa.

Currently an extreme wind gust of 70 kt at Apia has a return period of 75 years. This will reduce to approximately 40 years by 2050.There is relatively high confidence in projections of maximum air temperature. A maximum air temperature of 34 C is currently well in excess of a 100-year event. By 2050 it will likely have a return period of 40 years.

Samoa's Second National Communication also includes an updated vulnerability and adaptation assessment for Samoa. The assessment was undertaken on a sectoral basis, covering water resources, health, agriculture, fisheries, biodiversity and infrastructure.

Samoa's National Adaptation Programme of Action (NAPA) reviewed 13 sectors: agriculture and food security; forestry; water; health; communities; biological diversity; fisheries; trade and industry; works transport and infrastructure; tourism; urban planning and development; coastal environments and energy. The NAPA Synthesis Report identified that around three quarters of these sectors are highly vulnerable to the adverse impacts of climate change and climate variability, including extreme events. The nine sectors considered highly vulnerable from the highest to lowest were the water sector, agriculture & food security sector; forestry sector; health sector; urban settlements; coastal environments; communities; trade and industry sector; and works transport & infrastructure sector. Climate change and climate-induced disasters will cause instability in food production and affect income generating activities for communities and the country at large.

Water. Samoa's water resources and water supply systems are extremely vulnerable to current climatic patterns. In 1997–1998 and 2001, periodic droughts associated with El Niño-

[8] Based largely on the Second National Communication and the NAPA.

Southern Oscillation events meant that Samoa's water supply was rationed and water reservoirs were depleted. In 2006, low flows resulting from a 57% below average rainfall (associated with a weak-moderate El Niño) resulted in water shortages despite rains for August and September being 32% and 41% above average respectively. Flooding, which is associated with cyclones and periods of heavy rainfall, has adversely affected water quality and quantity, due in part to erosion and sedimentation associated with flash flooding. The effect of flooding upon water quality and quantity in the urban areas is exacerbated by extensive forest clearance within the uplands of the watersheds to the south of Apia. Extreme heavy rainfall causes immediate flooding, which in turns causes extensive erosion, loss of terrestrial habitats, damage to agro-forestry and destruction to vital infrastructure, for instance hydrological monitoring equipment and reticulation systems.

The influx of flood-mobilized sediments into reservoirs and hydropower schemes damages the water supply as it compromises the generation of electricity. An increase in diesel power generation is recognized as a result of faltering or unsuitable supplies for hydropower. In recent years, increasing instances of flooding and extreme rain serve only to demonstrate the water sector's vulnerability to climate change and variability. In the early 1990s, Cyclones Ofa and Val caused major disruptions to Samoa's water supply by damaging water storages and reticulation networks as well as forests that act as natural water storage and flood control systems. As water infrastructure was effectively destroyed, during and immediately after the cyclones people harvested water by whatever means they could. The destruction of vital hydrological infrastructure also made it impossible to monitor water resources. Incidents of underground water becoming saline have been reported in parts of northern and eastern Savai'i.

Samoa's NAPA prioritizes the water sector and recognizes that immediate action must be taken to mitigate the adverse effects of climate change. The vulnerability and adaptation assessment conducted as part of the Second National Communication confirmed this view, and identified a number of priority adaptation measures, including:

- upgrading and climate-proofing water storage systems to secure supply of high-quality drinking water for the entire population throughout the year;
- improved water quality monitoring to address contamination issues;
- ensuring all future developments undergo proper Environmental Impact Assessments (EIA) to ensure they will not exacerbate pre-existing climate risks; and
- enforcing sustainable management and water-related legislation to ensure ongoing availability of high-quality water.

Health. The effect of climate change upon the health sector is evidenced in the growth of vector-and water-borne diseases. Other projected health issues are the result of changes in ecological and social systems, namely changes in local food production, potential malnutrition from successive agricultural under-production, population displacement and stresses caused by economic disruption. Some adverse health effects relate directly to weather and climatic events, for example potential fatalities in times of flooding or cyclonic activity. Others are more indirectly related to these events, for example water and vector-borne diseases in the wake of flood or cyclonic activity. Non-physical health problems – i.e. psychological or emotional stress – can frequently result from extreme weather events, particularly in instances where there is bereavement and damage to property and livelihood. Those most directly affected by extreme weather events are the poor, who tend to reside in flood-prone areas.

Samoa is susceptible to extreme climate events such as cyclones, flooding and droughts and water and food-borne diseases such as typhoid, diarrhoea and gastroenteritis remain highly prevalent. Vector-borne diseases including dengue and filariasis continue to receive highest priority in terms of control and prevention programs. The first major outbreak of

typhoid in Samoa was recorded in 1994, following the two major cyclones Ofa and Val. Heavy rainfall and inadequate drainage mean that flooding is a frequent problem, compounded by land filling and the blocking of drains. Intense flooding causes foul water to be released to the surface, which poses a public health risk as septage and latrine runoff contaminate supplies.

Increased settlements along coastal areas also put additional pressure on already diminishing agricultural and fishery resources in the urban areas. Those who live in coastal areas amongst tropical vegetation, tidal mudflats and mangroves are at increased risk from vector-borne diseases and complications from wounds and tropical ulcers. The resettlement of rural villagers in urban areas is also creating sub-standard conditions in some areas, with poor sanitation and overcrowded housing contributing to the spread of communicable diseases.

The most important adaptation measures involve improving surveillance systems, early response systems and developing sustainable prevention and control programs. An initiative by MNRE under the National Adaptation Programme of Action (NAPA), the National Health Service (NHS) and the United Nations Development Program (UNDP) will develop an integrated adaptation approach to develop an early warning system that can improve climate reporting to the health sector. Raising public awareness will also be particularly important.

Agriculture. This sector's contribution to Samoa's GDP dropped from 12% in 1998 to 8% in 2003 and stayed at 7% during 2004–2007. Increasingly, agricultural production competes with other growing sectors such as tourism and manufacturing. Remittances and more attractive salary opportunities in Apia and overseas have likewise caused a shift away from agricultural production. Notwithstanding these socioeconomic changes, the Ministry of Agriculture and Fisheries has claimed that one of the factors contributing to the diminution of agricultural production in Samoa is climate change.

The numerous effects of climate change and variability: cyclones, flash floods, high rainfall, high temperature and long dry periods have made agricultural production increasingly challenging. Climatic changes have meant greater incidence of pests and pestilence, which meant a loss of quality and quantity in production.

Unstable and inconsistent food production caused by climate change has affected farmers' capacity for self-sufficiency, not to mention their ability to generate income from their crops. Perhaps the most devastating effect of natural disasters in Samoa is the damage wrought on agricultural production, and consequently the sector's capacity to supply domestic demand. Samoa's geographic location presents difficulties in terms of reducing the vulnerability of the agriculture sector, particularly as cyclones, droughts and floods become increasingly common.

Three intense cyclones have occurred in Samoa in the past twenty years, with major consequences on agricultural production. In particular, cyclones Ofa and Val caused significant damage to food and water sources. In island states like Samoa, forests and trees serve a vital role in managing watersheds, providing wood and non-timber resources and protecting biodiversity. Unfortunately, Samoa's forest cover has declined significantly in the past sixty years, as trees have been cleared for agriculture and, particularly in the 1970s and 1980s, for commercial logging. Cyclones have also contributed to forest degradation and fragmentation.

Samoan agriculture is dominated by small-scale, semi-subsistence farming concerns. Generally, there are four broad categories of agricultural production: root crops, plantation crops, livestock, and fruit and vegetables. Agricultural development is one of the National Development Strategy's key focal areas, as over 70% of Samoan households are

considered to be agriculturally active. Furthermore, the agriculture sector offers some of the best opportunities for economic development.

Like most small island countries, Samoan exports are confined largely to agricultural produce and marine resources. Samoa continues to face major barriers in terms of realizing its export potential in this sector. Key challenges for the agriculture sector include its susceptibility to climate variability and change, limited arable land and vast distances from the main world markets.

Irregular or inconsistent rainfall is especially problematic in Samoa because there is limited irrigation to provide steady supplies. Samoa has experienced drier-than-normal weather conditions over the past few years, most recently in 2004 and 2005, when average rainfall reached a thirty-year low.

The drier-than-normal conditions for 2005 brought regular dry bouts during the dry season, interspersed with short spells of torrential rain that caused flash flooding in Apia's low-lying coastal areas. From September onwards, heavy rains severely affected fruit and vegetable production. Damp conditions supported the spread of fungal disease, which in turn affected supply. In the first quarter of 2006, fruit and vegetable supply to the Fugalei market declined markedly in light of the unfavorably wet conditions of the last quarter of 2005.

Adaptation in the agriculture sector will depend on national policies, planning for projected climatic changes and developing appropriate response measures. At the village level, the emphasis should be on implementing practical adaptation measures that enhance local people's resilience to climate change. Combined, these activities will facilitate adaptation in commercial and subsistence agriculture and promote food security.

Fisheries. In recent years, the fisheries sector has concentrated much of its efforts on reviving coastal marine resources significantly damaged or indeed destroyed by cyclones and destructive fishing. All components of fisheries (oceanic fisheries, coastal fisheries and aquaculture) show very high vulnerability to levels of CO_2 concentration. Whilst emissions may have no immediate impact on the sector, by virtue of the connection between CO_2 emissions and climate change, over time the effects on this sector are likely to be significant.

Because it can alter environmental conditions relevant to productivity and habitats for pelagic species, sea surface temperature (SST) is critical to both the coastal and oceanic sectors in the immediate to long-term. For aquaculture, rising SST threatens broad stock like giant claims, as water temperatures exceed normal tolerance levels.

Extreme winds affect all components of fisheries. For oceanic and aquaculture fisheries, infrastructure becomes more vulnerable as fishing vessels smash into each other at berth and alongside the wharf and the hatchery required for spawning is damaged or destroyed by flying objects and fallen trees.

The Coastal and Aquaculture component of Fisheries is also vulnerable to extreme rainfall as run-off from land affects the coastal marine environment. Extreme wave action is projected to have a devastating effect on coastal fishery and aquaculture. Wave action is also important for the oceanic component of fishery, as it can significantly reduce catches.

Rising temperatures can have a disastrous effect on the marine ecosystem. Dinoflagellates, which coral polyps rely upon for survival, are highly sensitive to fluctuations in temperature. Extreme rises in temperature can force these micro-organisms to vacate coral polyps, thus leading to the demise of reefs. This process is commonly known as coral bleaching. Coral reefs support a variety of marine organisms, and when reefs die the ecosystems they

support rapidly collapse. So far, however, no major cases of coral bleaching have been reported to Fisheries.

Molluscs are highly sensitive to fluctuations in temperature, light and salinity. High rainfall and flooding can disturb the composition of salinity and sediment in water, which can distress or kill molluscs. Changes in temperature have various effects on spawning. The optimum growth and spawning temperature for tilapia (O. niloticus) is between 27 and 32 °C. Giant clams are more likely to spawn at the higher ranges of their optimal temperatures (28 to 32 °C). Beyond this optimal range, however, symbiotic algae are often expelled (Shokita et al. 1991). Sea urchins are especially sensitive to changes in salinity. After periods of heavy rain, sea urchins are often found dead or dying in shallower waters.

The only measurable variable with respect to oceanographic conditions that we can freely obtain is the SST of Samoan waters. High CPUE levels coincide with low SST and low CPUE levels coincide with high SST. Albacore inhabit depths where colder temperatures occur, below the thermocline layer. Although SST measurements do not extend below the thermocline layer, low SST is linked with relatively high levels of CPUE and vice versa.

Practically, this means that low levels of SST are associated with higher catch rates for albacore tuna. Other species, including the yellowfin and skipjack tuna (Katsuwonus pelamis), are found to prefer warmer temperatures. With sufficient reliable data, we would expect, for these species at least, a correlation with SST opposite to that of albacore tuna.

Adaptation measures include managing fisheries resources, establishing marine protected areas and reserves, restoring vital habitats like mangroves and coral reefs, improving public education and devising and implementing sound policy and regulation.

Current fisheries policies and systems fail to provide a coherent plan-of-action to address the effects of climate change. The current Fisheries Act 1988, which provides the scope of fisheries, must be updated to include a system capable of addressing climate-change risks. Such a system must focus on a thorough analysis of risks and develop strategies for the sector, based on climate-change projections.

Biodiversity. Many changes are anticipated for the biodiversity sector as a result of climate change, not only in terms of species population but also in terms of the health of entire ecosystems. The health of the biodiversity sector has direct consequences for inter-related sectors, namely fisheries, forestry, agriculture, tourism, infrastructure, health and water. The biodiversity sector will need to implement sound adaptation activities to combat both the detrimental consequences of human activity and the effects of climate change. Sectoral efforts to assess vulnerabilities and generate future climate-change scenarios face numerous difficulties and uncertainties. Most animals depend on more than one habitat for survival, thus, if only one of these habitats is damaged or destroyed a great deal of uncertainty surrounds their capacity to adapt and survive. To identify potential damage to habitat and ecosystems will therefore provide an idea of how different species may be affected.

Increasing temperatures can affect species in quite profound ways. A change in SST may for instance affect the timing of biological events (phenology) for certain species. Many species may also show changes in morphology, physiology and behavior associated with changes in climatic variables, for example accelerated attainment of sexual maturity.

Furthermore, there is some concern that particular species may become endangered or extinct, particularly species that are currently vulnerable, for instance the endemic Manumea and certain species of turtle. Changes in species distribution and density from climatic stress

could also affect the availability of food and increase the frequency and intensity of pestilential outbreaks, which would again have some bearing on species' capacity to survive.

At the ecosystems level climate change is expected not only to affect the diversity of native fauna and flora, but also the ecosystems that provide goods and services for human welfare and development. Extreme climatic conditions relevant for the marine biodiversity sector include:

- sea-level rise;
- higher SST;
- increasingly frequent and intense tropical storms;
- frequent flooding;
- extreme high and low tides; and
- increases in ocean acidification.

These climatic changes will have potentially disastrous consequences for marine biodiversity and ecosystems, including:

- habitat mortality: coral bleaching, erosion, and sedimentation;
- accelerated coastal erosion that will remove beaches and mangroves important to certain marine species;
- extensive coastal inundation and higher levels of sea flooding;
- waves and storm surges into coastal land areas, causing salinity in coastal wetlands and coastal springs;
- mangroves and wetlands pushed further inland by frequent king tides and sea-level rise;
- eutrophication, sedimentation and siltation of water resources, leading to invasive species proliferation;
- increased habitat and nursery areas destruction, ensuing in species decline;
- decline in inshore fisheries; and loss of natural reefs that protect the islands and coastal communities.

Priority adaptation measures identified in this study include:

- replanting mangroves and restoring habitats;
- re-introducing native and endemic plants within established national reserves and parks;
- improving the way protection regimes for marine and terrestrial biodiversity are managed; and
- reviewing the way different laws, policies, and strategies are implemented.

Although Samoa has developed a stronger understanding of the vulnerabilities and adaptation potentials of its biodiversity, critical information gaps still exist. More must be done to understand the role each species plays in the ecosystem. This would also improve general knowledge of the risks posed by degradation of the ecosystem and species loss.

Infrastructure. Samoa's coastline is highly susceptible to erosion and flooding (BECA, 2000). More than three quarters of Samoa's population resides along the coastal planes, which indicates to some degree Samoans' strong reliance upon marine resources for subsistence and commerce. Infrastructure and utility services are also located in these coastal zones and are thus extremely vulnerable to extreme climate events.

The Second Infrastructure Asset Management Project (SIAM) and Cyclone Emergency Recovery Programme (CERP) have helped develop Coastal Infrastructure Management (CIM) plans, as well as promote design standards and COEPs for road works and coastal protection structures. Through the CIM Plans, the Government and communities have

agreed on various solutions to manage coastal infrastructure in times of coastal erosion, flooding and landslides induced by cyclonic activity. These initiatives must be extended to accommodate inland flooding and watershed management, particularly in light of their affect on coastal infrastructure and works.

Climate stresses such cyclones, prolonged droughts, extreme flooding, storm surges and sea-level rise are likely to increase over the coming decades. Samoa must therefore urgently consider suitable technologies that will aid its adaptation efforts in safeguarding vital infrastructure.

Tourism is a major economic sector in Samoa, and most tourism spots are located within coastal areas. The effects of climate change and climate variability have been widely acknowledged as both direct and indirect. Direct effects include the loss of beaches, inundation and degradation of coastal ecosystems, saline intrusion and damage to critical infrastructures. Indirect consequences include the diminished beauty of natural resources, for example bleached coral or destroyed forests.

The damage that Cyclones Ofa and Val caused Samoa is estimated to be about three times the Gross National Product (GNP). High winds, storm surges and heavy rains caused severe damage to ninety per cent of infrastructure including the coast of Apia. In 2004, cyclone Heta also caused damage to infrastructure, although on a smaller scale.

The vulnerability of the sector is high because of sea level rise, cyclones, flooding and wave actions. Drought is less of an issue except with respect to hydroelectric dams, which obviously depend on a steady stream of rainwater to generate electricity. The droughts of 2002 and 2003 led to rationing of electricity. Frequency in climate-change-related drought will make Samoa increasingly dependent on diesel, although generation costs from diesel are significantly higher.

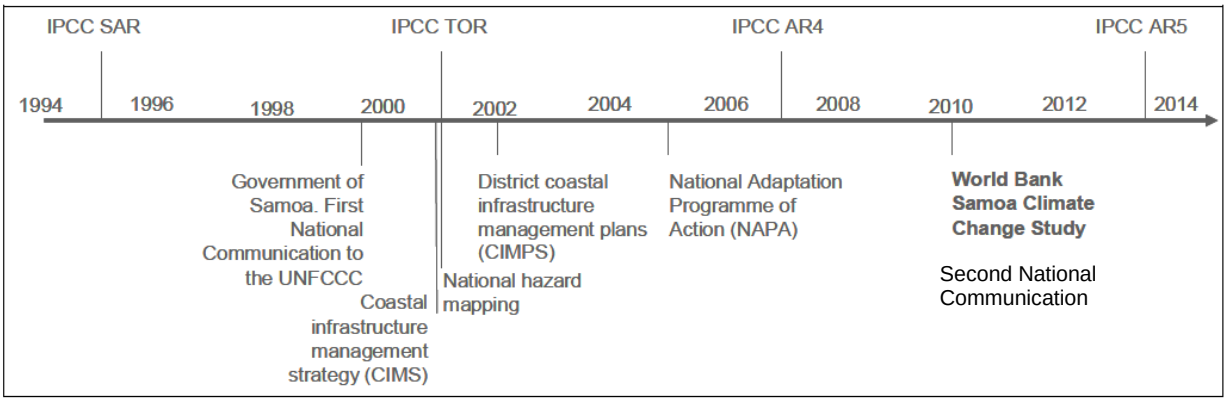
Extreme flooding also has strong implications for the health of national infrastructure as it erodes roads, damages and fells telegraph poles and compromises utilities like water and electricity. Samoa was hit by flooding twice in 2006, once in February and again in November. This is quite rare for Samoa, and may prove that return periods for extreme weather events are becoming shorter over time.

High-priority adaptation measures include creating a CIMP that will improve the resilience of coastal infrastructure against erosion and flooding. New developments must also be managed sustainably to ensure that infrastructure is efficient, environmentally friendly and supports Samoa’s economic growth.

Attachment 3

Stocktake of Current and Planned Adaptation and Related Interventions

A. Timeline of Key IPCC and Government of Samoa Reports[9]



B. Relevant Policies[10]

Samoa has been proactive in its assessment of climate change impacts, vulnerabilities and identification of current and possible future adaptation measures. There are a number of policies and directives which are seeking to understand the implications of climate change upon the country, and the integration and co-ordination of efforts to mitigate and respond to it. Examples of relevant legislation and policies that are relevant in this regard are:

National Adaptation Plan of Action (2005) (NAPA)

The NAPA provides an overview of climate change impacts and vulnerabilities, identifies adaptation strategies and outlines the process used to select and prioritise specific adaptation projects for priority sectors.

Planning and Urban Management Act (2004)

This Act is administered by the Ministry of Natural Resources and Environment (MNRE). The Act broadly defines development and considers its impacts on the 'total' environment (social, economic and bio-physical). The objectives are to provide for the fair, orderly, economic and sustainable use, development and management of land including the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity; to enable land use and development planning and policy to be integrated with environmental, social, economic, conservation and resource management policies at national, regional, district, village and site specific levels; to create an appropriate urban structure and form for the development of Apia and other centres so as to provide equitable and orderly access to transportation, recreational, employment and other opportunities; to secure a pleasant, efficient and safe working, living and recreational environment for all Samoans and visitors to Samoa; to protect public utilities and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community; and to balance the present and future interests of all Samoans.

[9] Samoa Climate Change Adaptation Study - Desk Top Review. Prepared for The World Bank by Beca International Consultants Ltd, 18 March 2010.

[10] Adapted from Samoa Climate Change Adaptation Study - Desk Top Review. Prepared for The World Bank by Beca International Consultants Ltd, 18 March 2010.

To meet these objectives, the Act provides, amongst other mechanisms, a process for the development of sustainable management plans and various co-ordination, education and promotional roles. In respect of the plans, a hierarchy of national, regional, district and village sustainable management plans is in place. The Act does not make any specific references to the effects of climate change or climate change adaptation, its wording may however be, in the main, specifically broad as to encompass those matters in its enactment.

National Policy to Combat Climate Change (2007)

The National Policy Statement on Climate Change is administered by the Ministry of Natural Resources and Environment. The policy outlines Samoa's response to climate change. It provides a national framework to help reduce the rate of global climate change as well as the adverse effects of climate change on Samoa by adapting to its impacts.

Disaster and Emergency Management Act (2007) and National Disaster Management Plan (2007)

The act is administered by MNRE. It requires the development of a National Disaster Management Plan (NDMP). The NDMP must include a comprehensive risk profile for all parts of Samoa and the arrangements to be implemented to reduce risk as well as preparedness, response and recovery arrangements. The definition of Disaster includes "(i) any naturally occurring event affecting the whole or any part of Samoa". The plan recognises climate change, sea-level rise, environmental degradation, pollution, coastal erosion, water quality and resource management as important environmental issues being managed by Samoa.

The emphasis of the disaster management plan are on those hazards that have the potential to create a significant disaster in Samoa, and would most likely require some degree of government
coordination to manage. The framework of the plan includes identification and ranking of risks, risk reduction and contingency planning, and recovery. Whilst 'climate change' per se is not identified as a discrete risk, key components of it are identified: cyclone, environmental crisis (evasive species), flood, landslide (e.g. as might be caused through extreme rainfall events), single asset failure – dam (e.g. as might be caused through exceedance of spillway design capacity), drought. A schedule of disaster risk reduction activities is maintained, and the agency responsibilities and relevant tools (e.g. legislation) identified. The Plan has been prepared with a maximum review timeframe of three years, and for identification and management of foreseeable threats and events of significant magnitude.

Whilst the Plan considers risks around climatic events (e.g. cyclones, heavy rain, storm surges), it appears that consideration of long term incremental risks falls outside of the plan's coverage – intentionally or otherwise. National contingency plans to address risks of more immediate concern (e.g. tsunami, flooding and fires) are noted as "not yet drafted" (the Invasive Species national contingency plan is complete), and this does suggest the long term incremental issues may not yet have received increased attention.

Coastal Infrastructure Management Strategy (2007) and Plans

The first Coastal Infrastructure Management Strategy (2001) provided a series of national and local principles for coastal management. The strategy developed objectives, policies and implementation methods for hazard and environmental information gathering and monitoring, education and awareness raising, use and management of resources and for undertaking intervention actions. The CIM Strategy also set out the need for Coastal

Infrastructure Management Plans (CIM Plans), and defined goals, objectives, policies and implementation methods across a broad range of coastal considerations.

C. Current and Planned Adaptation Interventions

All projects but NAPA 5 through 7 are under implementation. Implementation of NAPA 1 and 2 started first.

Project	Sectors	Priorities	New Proposals	Additional Funding needed (USD)
NAPA1	Climate Health Agriculture	• Early Warning System • Climate Health Programme • Agriculture Sustainability & Food Security	• EWS (data recovery) • Agriculture pilot - all farmers • NHS pilots – all villages	1 2 (SAP) 2
NAPA2	Climate Coastal	• Early Warning System • Coastal Protection	• EWS (storm surges, cyclone, tsunami) • Community-based Small Grants Scheme – hard & soft solutions	1 3
NAPA3	Climate Agriculture Forestry Environment	• Early Warning System • Agroforestry development – lowland areas • Terrestrial biodiversity conservation – upland customary lands	• EWS (reportings to farmers) • AusAID-funded Agroforestry • Conservation of PAs on public lands (Savaii) • CDM, REDD and LULUCF Options	1 10 2 0.5
NAPA4	Climate Landuse Planning Water Forestry Tourism	• Early Warning System • Zoning & Strategic Planning - surface flood Adaptation • Forest Fire Prevention • Sustainable Tourism adaptation	• EWS (Tourism Stakeholders and Urban residents) • Sustainable Tourism (LDC Fund) • CDM, REDD and LULUCF Options	1 3 (LDC) 0.5
NAPA5	Climate Coastal Environment	• DRR - DMO • Coastal Wetlands Rehabilitation • Marine Biodiversity Conservation - MPAs	• EWS • Marine Biodiversity conservation • CDM, REDD and LULUCF Options	2 2.5 (GEF 5) 0.5
NAPA 6	Tourism	• Building adaptive capacity	• EWS • Private Sector capacity building	3 (LDC)
NAPA 7	Health, DRR, Water	• CRD Survey nationally	• Health Sector CRD Baseline - 2010	15 (SGF)
SIAM II	Infrastructure	• Climate proofing	• CIM Plan pilots	2
EE	Transport	• Biodiesel production from coconuts planted	• Alternative fuels • CDM, REDD and	1.5

		on degraded lands to prevent soil erosion • Private sector pilots within agroforestry sector	LULUCF Options	0.5
Biomass	Forestry Electricity	• Waste biomass sourcing and biomass tree planting on degraded lands to prevent soil erosion, boosting socio-economic returns from value-adding agric products • Private sector pilots within agroforestry sector	• Gasification • Incentivisations • Dual Fuel • CDM options	0.5 1 0.5 0.5
Research and Governance	All	• CCA and DRR Policy Analysis • Aid Coordination (CC) • NCCCT Governance • Capacity Building (Tourism)	• Update Framework & SDS (MOF) • Sustainable Financing Mechanism, DNA, NIE • Secretariat • Tourism CC Working Group (STA)	1.5 1 1 0.5
PPCR	TBD	TBD	TBD	TBD

D. PROPOSAL FOR PARTICIPATION FROM THE MINISTRY OF AGRICULTURE AND FISHERIES (MAF)

Objective

Improved farmer resilience by accessing climate change resilient technologies.

Background

Some climate change resilient technologies are now available but at very limited amounts. They need to be multiplied to get the numbers for distribution to farmers before their adaptive potentials are realized.

The initial members are extremely small as they were introduced or developed from breeding programmes.

These materials are in high demand from farmers, especially in terms of their economic value as well as their adaptive capacity to adverse environmental conditions.

Specific gaps in climate resilient programmes:

1 Multiplication capacity of climate resilient technologies in crops:

Crop	Property	Strategy
Taro (5 varieties)	resistance to taro leaf slight	4 million per cultivation for

		1,000 acres
Cassava (2 varieties)	drought and advance	100,000 cuttings per vans for 1,000 farmers
Sweet potatoes (2 varieties)	drought tolerance	10,000 cuttings for 1000 farmers
Breadfruit (Sagosago+ maafala)	wind tolerant and good market potential	1000 plant materials for 500 families

2 Multiplication capacity of climate resilient technologies in Livestock:

Breed	**Property**	**Strategy**
Sheep (Fiji Fantastic)	Heat tolerant – fitting for the tropics	Introduced in 2004; need introduced male stock (20) to avoid inbreeding.

3 Multiplication capacity of climate resilient technologies in Fisheries:

Area	**Property**	**Strategy**
Hatchery	Germplasm and multiplication for restocking	No facility at present; need for aquaculture and inshore rehabilitation work

4 Awareness on PPCR activities in MAF

Area	**Property**	**Strategy**
Development of tool	dissemination	Wide public awareness

E. Priorities Of the Electric Power Corporation (EPC)

Climate Change adaptation projects (Priority for PPCR shown in yellow)

Proposed project	**Details**	**Approximate Cost ($SAT)**
Augmentation of Afulilo Reservoir	Increasing capacity of Dam/reservoir at Afulilo to ensure maximum water is retained to make the corporation more resilient to the impacts of climate change namely change in rainfall patterns, annual rainfall and frequency and severity of El Niño/ La Niña events.	$12 million

Relocation of transmission lines away from the coastal areas	Relocation of some of the transmission lines inland away from the vulnerable coastal areas. This was	$10million
Other Climate Resilience projects		
Alternatives to hydro power as the rainfall patterns change / Energy Security.	Renewables such as solar; local biofuels.	
Undergrounding of transmission lines		
Climate modeling for hydro / wind / solar etc		
Climate proofing equipment used for power transmission e.g transmission lines etc		

F. Land Transport Authority

A priority is re-assessment of Samoa's Road, Bridge, Seawalls, Drainage, Urban Facilities and Traffic Management Design and Construction Standards under this program. A specialist is needed in each of these areas to assist in reviewing and putting these standards together.

G. Ministry of Natural Resources and Environment

MNRE priority is on:

- Reviewing (done) and utilizing the national CC policy analysis framework (prepared by Dr. Emma Wong/Min Chiang - Vic Uni) – Emma to provide updated version to us all
- Ongoing Project Implementation – urgent actions/pilots on the ground, sector by sector
- Building on exciting adaptation activities (e.g. National Climate Related Disease [CRD] baseline – 2010) as health sector still needs this baseline – top priority
- More capacity building built into implementation activities – top priority
- Early Warning Systems expanded nationally with MD, DMO, FESA, UN Agencies with CC reportings to all sectors – top priority
- More engagement of GEF IAs and EAs to review emerging regional programmes (e.g. $30M CC Mitigation GEF 5 programme as $2M earmarked for each PIC) – top priority (SPREP or SPC to be invited to prepare regional thrust, with country specific activities piloted)
- Designing 'Ministry of CC, DMO, MD, FESA, etc.' to help streamline CC coordination
- Leveraging capital investment, especially for renewable energy technologies, but if there was an opportunity to plant agricultural crops/biomass crops on degraded lands to prevent soil erosion, etc, then possibly this concessional component could be used here because of the synergies between mitigation and adaptation – top priority
- Review of CIM Plans for infrastructure sector (SIAM I Project initially), and
- CC Trust Fund established, also attracting carbon credits.

H. Ministry of Health

Climate Change is projected to exacerbate many existing health problems and requires urgent strategic planning and coordination to ensure policies, sector and institutional plans reflect necessary prioritisation and interventions.

Adverse human conditions due to extreme weather events, vector-borne diseases and gastro-intestinal diseases due to inadequate access to safe water and good sanitation are of primary concern. Current high disease burdens due to typhoid, dengue, diarrhoeal diseases and filariasis may increase due to changing climate, as may the incidence of flooding, other natural disasters and associated impact on human lives.

Health was prioritised as the third ranking sector within the Samoa NAPA (2005), behind the Agriculture/Food Security and Forestry sectors.

A four-year project to integrate Climate Change into the Health and Agriculture Sectors (ICCHAS) is currently underway (2009-2013) funded by the Global Environment Facility. The implementing agency is the UNDP with the Ministry of Natural Resources and Environment coordinating implementation with the National Health Service as the main health service provider in collaboration with the Ministry of Health.

The overall goal of the health specific component within the ICCHAS project is to strengthen the capacity of Samoa's health planners and public health protection and population health workers to reduce the impact of climate change on population health.

The specific outputs of the project are:
(1) Strengthened information systems for climate-related disease data collection, storage and analysis
(2) Public health planners and public health workers trained in climate related health risk monitoring and management
(3) Revised public health plans and strategies to incorporate climate risk projections and adaptive planning
(4) Pilot rapid testing for climate related diseases in 3 high risk districts

Health Sector proposal for the PPCR project

An assessment of the initiation and consultation process of the current ICCHAS project including emerging challenges in implementation has shown the need for an overarching national strategy for addressing climate change within the health sector.

Just as the PPCR provides an opportunity for an overall national strategic program for climate resilience, to guide and prioritise different sectors' climate change adapation needs, so too is the need to ensure an overarching strategy within the health sector.

The ICCHAS project health component is institution based with its activities limited to the mandates of the National Health Service as a provider. The Ministry of Health on the other hand with its mandate for overall sector planning, policy development and monitoring, by necessity has to ensure climate change and health issues are addressed in a strategic manner that maximizes use of all resources and stakeholders within the sector. Having an overarching national strategy for addressing climate change within the health sector would also address the important issue of sustainability of developments.

In deference and acknowledgment of the PPCRs own budget limitations and intention to prioritise funding to various sectors, the Ministry of Health proposes the above initiative as a most appropriate and apt activity that complements the intentions of the PPCR initiative.

I. Samoa Umbrella for Non-governmental Organizations (SUNGO)

SUNGO is conducting an EU Non State Actors (NSA) and NZAID funded Capacity Building Programmers for Civil Society Organisations for the Management of Organisations and Projects that will be awarded to Community Based Organisations. These programmes are progressing back to back over the next 2 years.

In view of the PPCR, gaps have been identified in the Capacity Building of Community in Good Governance relating to climate resilience, community based adaptation and climate change are as follows:

That we propose to tailor a 5 day training programme on Climate Change Adaptations informing on:

- The goal of the workshops will be to increase the adaptive capacity of communities and individuals to the effects of climate change .
- Prior to 5 day meeting, conduct a RRA to prepare background information for the community consultation using the CIM plans and the aerial photography over a period of years.
- What is the science of climate change;
- What are options for adapting to Climate Change;
-
- Develop climate change strategies and projects in a participatory manner;
- Budgeting, project management and sustainability;

Some Example projects could be:

1. Human activities that have caused problems of severe flooding within community habitations.

Elevated road construction preventing storm-water drainage from low land areas typical of village abodes and also result in aggravated static unhealthy swampy conditions over longer periods in the low land areas which are commonly observed in areas behind villages.

The construction of roads into communities or to inland farming areas—these roads reflect the element of false economy as a result of poor planning when no roadside drainage is provided to allow for proper disposal of storm-water which causes extensive damages to these expensive infrastructure (roads).

2. The need for community leaders and the grassroots people to understand and comply with the proper Building Code of a Septic tank Construction as per specifications which is designed to breakdown solid waste and eliminate harmful bacteria endangering health and environment.

3. The need for community leaders and the grassroots people to understand the required safe distance of locating pit-toilets and septic tanks from water springs from which communities rely on for drinking and washing as water resources become more scarce in the face of climate change.

4. The need for community leaders and the grassroots people to understand that pit-toilets and septic tanks located on low ling areas prone to flooding will eventually be inundated with flood waters and its contents spread throughout the community—which is an unhealthy situation. Part of the consultation can identify these areas in a community.

5. The need for community leaders and the grassroots people to understand, that the current, legislated 30 meters buffer zone of trees along river embankments is insufficient and should be extended to 100 meters, eg: Togitogina River being dried-up as well as other rivers along the South-coat.

6. The need for community leaders and the grassroots people to understand, that the current practice of clearing our tropical forests for cattle farming and taro plantations present an irreversible situation where our rivers and coastal streams have died-up and effect siltation of the coral reef which is a natural defence to sea-level rise.

7. The need for community leaders and the grassroots people to understand, that the current practice of constructing homes that come with toilets etc over artesian water veins contribute to contamination of community coastal water pools.

8. The need for community leaders and the grassroots people to understand, that the current practice of sand-mining causes lengthy damaging results to beaches and coastline areas which are susceptible to climate change induced sea-level rise, wind direction change and changes in wave patterns.

9. The need for community leaders and the grassroots people to understand, that communities located along low-lying areas should progressively move to high elevation as the ultimate adaptation to climate change.

J. Samoa Tourism Authority (STA)

STA's proposal on projects which may coincide with PPCR's objectives:

Infrastructural Developments:

- Tree Propagation – 100,000 trees on an annual basis
  - Financial support in supplying trees for planting
  - Marketing Campaigns for promoting tourist 'carbon – off sets'
- Administrative costs for setting up 'volunteer task force' for tree planting

- Eco-Tourism:
  - Implementation costs for promotion of project 'Green Tourism'
- Beautification & Tree Planting within Conservational Areas, Attraction sites, Canopy Walk, etc.

- Climate Change Adaptation Awareness within Tourism Industry
- Training and awareness campaigns

- Tourism Climate Change Project Work Group
  - Implementation and Set up
  - Capacity Building
- 'Agency Response Plan' report, etc.

- National Tourism Adaptation Strategy 2010 – 2015
  - Consultation

Attachment 4

Possible PPCR Investment Opportunities[11]

- Further implementation of NAPA priorities
- Replicate and scale up the climate change mainstreaming process currently being implemented by MNRE for its planning, work programming and budgetary processes
- Scale up existing, successful pilot adaptation projects, including community-based adaptation
- Implementing CIM Plans (after updating if necessary)
- Addressing sector needs identified in the stocktake
- National trust fund for climate change grants
- Budget assistance to cover incremental costs of ensuring government development projects are climate proofed
- Contribution to a pooled donor fund for climate change adaptation initiatives
- Cross-cutting, multi-sectoral adaptation investments
- Joint adaptation and mitigation investment projects in forest, agriculture and energy sectors, to exploit synergies

[11] Phase 1 of PPCR would assess these and other options, prioritize them and reflect them in both the PPCR Strategic Program for Climate Resilience and in the proposed medium- and longer-term climate change strategy for Samoa.

Annex 2

Samoa
Pilot Programme for Climate Resilience (PPCR)
Technical Mission, July 12 - 16, 2010

AIDE-MEMOIRE

Introduction

42. Samoa is one of three countries selected for participation in the Pilot Programme for Climate Resilience (PPCR) for the Pacific region[12]. The Pacific PPCR is jointly implemented by the World Bank Group and the Asian Development Bank (ADB). The PPCR is structured in two phases. Phase 1 will strengthen the enabling environment and develop a Strategic Programme for Climate Resilience (SPCR). This will build on existing policies, plans, programmes, knowledge and experience, and provide a strengthened enabling framework to manage climate risks in Samoa. Phase 2 will implement the SPCR, mainly through investments in the private and public sectors.

43. Following Samoa's acceptance of the offer to participate in the PPCR, an informal scoping mission was held on November 16-17, 2009. The first joint mission, led by the Ministry of Finance (MoF) and including World Bank, ADB and AusAID/Department of Climate Change, was fielded in Samoa in early June, 2010. A technical mission[13], again led by MoF and including the World Bank and AusAID/Department of Climate Change, was fielded in Samoa from July 12 to 16, 2010. Both missions worked closely with the Ministry of Natural Resources and Environment (MNRE) and with UNDP.

44. Following the PPCR guidelines, the main objective of the technical mission was to carry out further broad-based consultations with national stakeholders and development partners, but this time with a focus on the specific content and implementation arrangements for Phase 1. A draft proposal for Phase 1 was circulated prior to the start of the mission. It provided the basis for the consultations, with the intention that feedback would lead to completion of a revised proposal soon after the mission concluded.

45. The mission held discussions with representatives of the public and private sectors, civil society and development partners, making effective use of four roundtables (government and private sectors, non-governmental organisations (NGOs)[14] and development partners) as well as conducting bi-lateral discussions with various stakeholder groups. In addition, a presentation was made to the National Climate Change Country Team (NCCCT), which then discussed the draft proposal.

46. Members of the mission wish to thank Mr. Tupa'imatuna Iulai Lavea, CEO MoF, and Mr. Taule'ale'ausumai La'avasa Malua, CEO MNRE, and their staff, for their excellent cooperation and assistance to the mission. A draft of this aide memoire was discussed at an exit meeting chaired by Ms Foketi Imo Evalu, Deputy CEO, MoF, on July 16, 2010.

Main Mission Findings

[12] The Pacific PPCR includes Samoa, Tonga and PNG, as well as a regional component.
[13] Ms. Silia Kilepoa-Ualesi (PPCR Coordinator, Economic Policy and Planning Division, Ministry of Finance); Prof. John E. Hay (Climate Risk Management Advisor, World Bank); and Mr. Cameron Darragh (Program Manager, Australian Department of Climate Change). Ms. Emilia (Milina) Battaglini and Mr. Sam Wedderburn (PPCR Co-team Leaders, World Bank) were unable to join the mission due to other commitments.
[14] The term "civil society" will be used in reference to the private sector and NGOs, jointly.

47. The mission found widespread interest in the PPCR, as evident by attendance at the four roundtables and at the meeting of the NCCCT (see Annex 1). There was also broad support for the content of the draft proposal, with especially useful suggestions being made as to how it might be strengthened. It was agreed that: (i) every effort be made to have the Phase 1 proposal ready for Government endorsement by the end of July, 2010; (ii) that Phase 1 will be of short duration (possibly six months) due to the strong enabling environment for adaptation that already exists in Samoa; and (iii) that every effort be made to commence Phase 2 around the end of the first quarter in 2011. It was also noted that funding for Phase 1 could be up to USD400,000 and for Phase 2 in the range of USD 17 million to 20 million, with these numbers subject to agreement amongst the Pacific PPCR countries and with the PPCR Sub-committee.

48. Three key messages arising from the discussions with national stakeholders were: (i) the PPCR must build on the extensive work undertaken in Samoa to date, and the wide experience that has resulted; (ii) there is a need to ensure effective coordination and integration of PPCR with Samoa's many ongoing and planned activities related to climate change; and (iii) to the extent possible, coordination and implementation are to be achieved by making use of existing institutions. The initial draft proposal had already identified and addressed these requirements. However, some of the feedback from stakeholders helped ensure that the revised proposal was even more effective in addressing these points. This includes providing a more detailed description of the implementation arrangements, to better distinguish between project management and managing the review and approval of policy and other planning instruments and recommendations that are outputs of PPCR activities.

Draft Proposal for Phase 1

49. The revised draft proposal for Phase 1 is attached as Annex 2. In addition to providing critical background and contextual information (e.g. participatory processes used in preparation of the proposal, climate diagnostics for Samoa, strategic context and institutional arrangements, coordination of development assistance related to climate change and PPCR linkages with national processes), the draft proposal describes in detail the activities planned for Phase 1. It also provides an early indication of what might be included in the SPCR, and hence in the Phase 2 activities (Figure 1).

50. Phase 1 will be aligned with, and build on, the relevant climate change policy frameworks (e.g. the Strategy for the Development of Samoa (SDS); the National Policy for Combating Climate) and implementation programmes and plans (e.g. the National Adaptation Programme of Action (NAPA)). It is agreed that Phase 1 comprise four components. The first component, **Acquiring and Disseminating Policy and Decision-relevant Information,** will (i) enhance the knowledge of both current and anticipated climate risks for the key sectors shown in Samoa's Second National Communication and the NAPA to be highly vulnerable to climate change; (ii) undertake an institutional analysis to help ensure that institutional arrangements are optimized in terms of both addressing needs and reflecting capacities, including the opportunities for greater integration of disaster risk reduction and climate change adaptation; and (iii) assess the social implications of climate change in Samoa by considering how best to optimize and facilitate the involvement of all non-government stakeholders in enhancing resilience to climate change, including the participation of communities, community-based and non-governmental organizations and the private sector. One focus would be community-based adaptation and a key aspect of the activity would be assessing and integrating gender considerations into climate change adaptation.

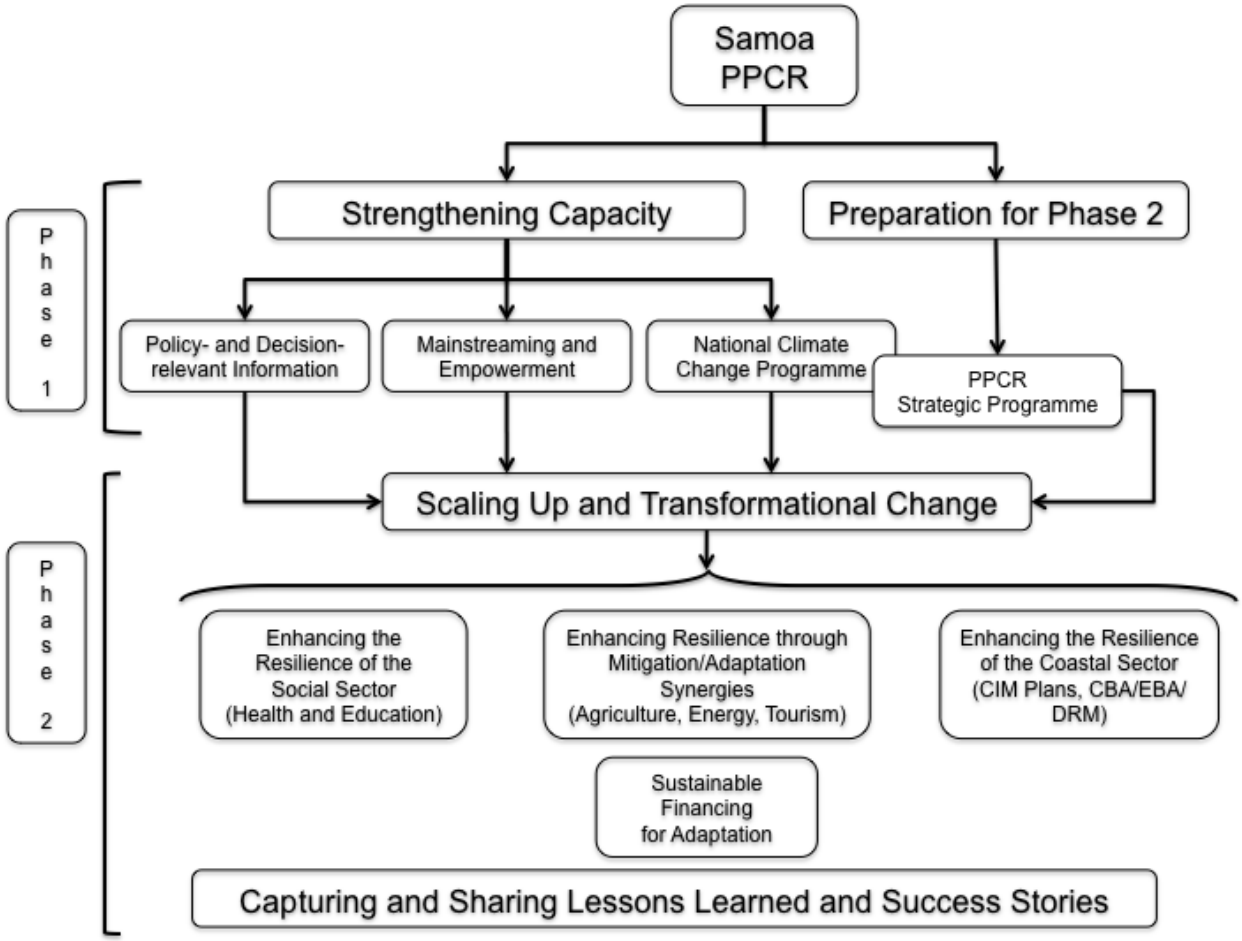


Figure 1. Proposed scope and content of Phase 1 and indicative focus of Phase 2.

51. The second Phase 1 component will be **Climate Change Mainstreaming and Empowerment,** and will include supporting the mainstreaming of climate change considerations into policy, planning and budgetary processes by replicating the experience of MNRE in mainstreaming climate change (inclusive of disaster risk reduction) considerations in its plans, work programmes and budgets and scaling this up throughout relevant government agencies and at the national level. Other activities under this component will build the capacity for climate risk management at national, institutional, enterprise, community and individual levels. This will include strengthening the institutional capacity to acquire, manage and disseminate climate risk information, increasing integration of disaster risk reduction and climate change adaptation at policy and planning levels, and identifying how best to up-scale community- and ecosystem-based adaptation in Samoa.

52. The second component of Phase 1 will also involve a significant outreach element, including development of a specific web-based information hub for improved access to climate and relevant sector data and analyses to be managed by the NCCCT (linked to the Google Adaptation layer, WeAdapt, and the UNDP Adaptation Learning Mechanism). It will also include the production of quarterly policy briefs on selected themes as well as community and national learning events linked to activities undertaken during both PPCR phases.

53. The third Phase 1 component will be **Preparation of a National Climate Change Programme.** This will be a medium- and longer-term strategic programme for Samoa,

building on the NAPA and other frameworks, including the SDS. It will capture the current and emerging needs of Samoa for both adaptation and mitigation interventions and investments, and lay out a road map as a plan for implementation. An important focus of the Programme will be enhancing integration of disaster risk reduction and climate change adaptation, and identifying and exploiting the synergies between adaptation and mitigation. Up-scaling community- and ecosystem-based adaptation will be another focus. As a result of this activity development partners will be better informed about where to target their assistance. The National Climate Change Programme will incorporate the SPCR as well as other investment opportunities.

54. The fourth Phase 1 component will cover **Preparation for Phase 2**, by preparing the SPCR. The SPCR will describe the portion of the overall national climate change programme to be supported directly through the PPCR. Inclusion of the SPCR as an integral part of the wider National Climate Change Programme will help ensure PPCR alignment with wider climate-related investments and also contribute to implementation of the SDS.

55. The indicative content of Phase 2 is further elaborated in Figure 2.

Implementation Arrangements for PPCR

56. As noted above, the draft proposal is to provide a more detailed description of the implementation arrangements, to better distinguish between project management and managing the review and approval of policy and other planning instruments and recommendations that are outputs of PPCR activities. This clarification is provided in Figures 3.

57. It is agreed that one agency of Government will be responsible for coordinating implementation, including project management. The MoF has the lead for coordinating the PPCR nationally and will be responsible for managing implementation of Phase 1. Implementation arrangements for Phase 2 will be further detailed in the SPCR, based on the experience of implementing Phase 1. For Phase 1 at least, PPCR will be executed in a joint partnership with the MNRE and other relevant agencies in order to take advantage of their comparative advantages and benefit from their synergies and complementarities. To the extent possible, the PPCR will use implementation frameworks that are already in place, such as the NCCCT and the sector coordinators

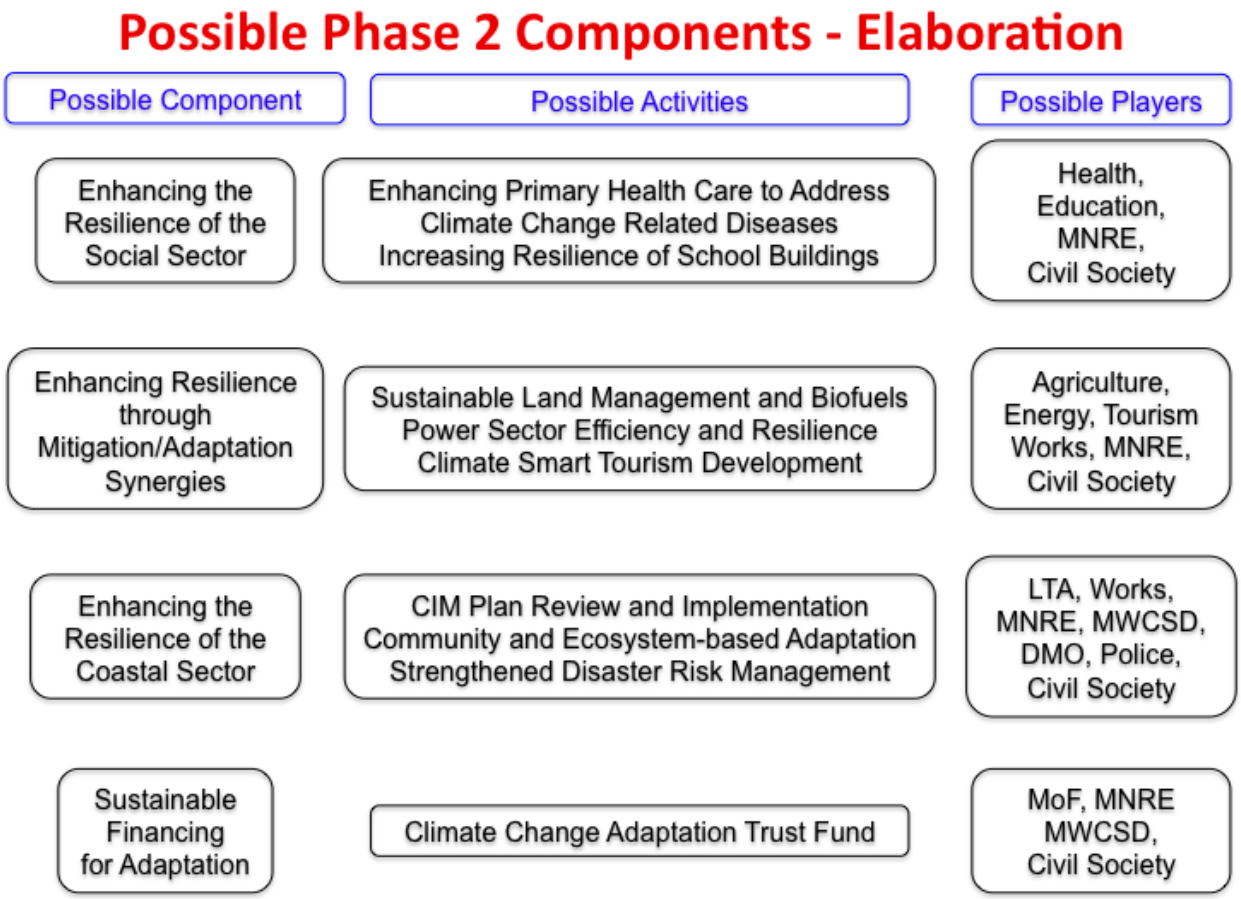


Figure 2. Elaboration of indicative content of Phase 2, including possible activities and key players.

Next Steps

58. The proposed next steps are shown in the following table.

Activity	Completed by
MoF consults with other agencies and provides consolidated comments on the draft aide-memoire and the revised draft Phase 1 proposal	July 23, 2010
Aide-Memoire and Phase 1 proposal finalized	July 30, 2010
Finalized proposal reviewed by the World Bank	August 6, 2010
Phase 1 proposal revised and subsequently endorsed by Government and submitted to PPCR Sub-Committee	August 13, 2010

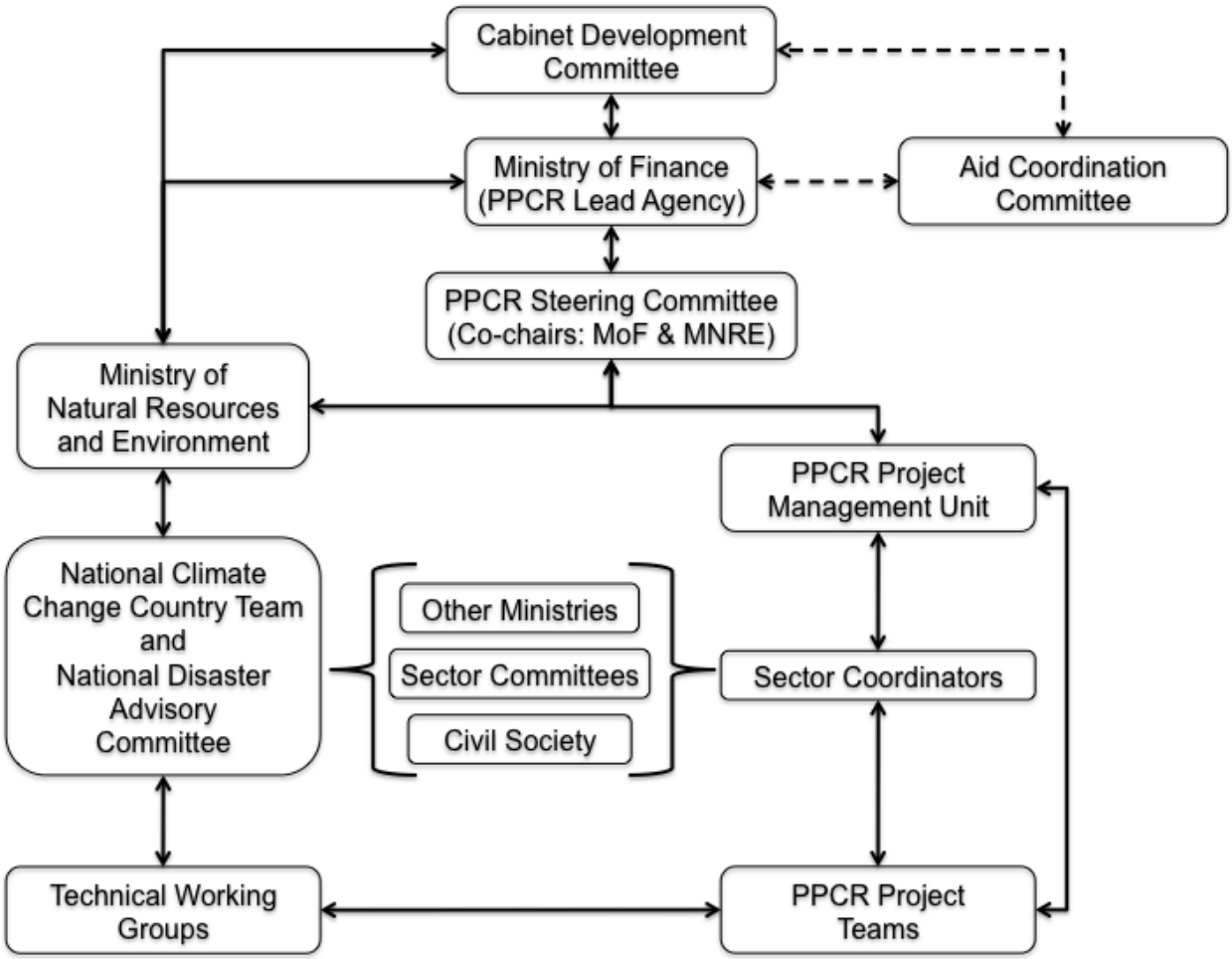


Figure 3**.** Implementation arrangements for Samoa's PPCR**.**

Attachment 1

Participants in Consultation Meetings

a) Meeting of NCCCT

	Names	Designation	Ministry/Organisation	Phone/Fax	Email Address
1	Ian Bignall	Counsellor	AusAID Apia	23411	ian.bignall@ausaid.gov.au
2	Margaret Fruean	Assistant Chief Executive Officer	Ministry of Commerce, Industry and Labour	20441	sipo@lesamoa.net
3	Walter Vermeulen	Executive Director	METI	30550	walter@meti.ws
4	Steven Mecartney	Program Management Officer	WHO	7772655	mecartneys@wpro.who.int
5	Gabor Vereczi	Adaptation Advisor	UNDP Samoa	23670/ 7280087	gabor.vereczi@undp.org
6	Stanley Dean	General Manager	NHS	66500	stanleyd@nhs.gov.ws
7	Taulealea Laavaasa Malua	Chief Executive Officer	Ministry of Natural Resources and Environment	23800/ 7529910	taulealea.malua@mnre.gov.ws
8	Mulipola Ausetalia Titimaea	Assistant Chief Executive Officer-MET	Ministry of Natural Resources and Environment	7711162	ausetalia.titimaea@mnre.gov.ws
9	Prof. John Hay	Consultant	World Bank		johnhay@ihug.co.nz
10	Fonoti Iupati Fuatai	Director CSS	NUS	7272196	l.fuatai@nus.edu.ws
11	Vaai Tupuola Vaa Potoi		NUS	7791444	v.potoi@nus.edu.ws
12	Steve Brown	GEF Services Assistant CEO	Ministry of Natural Resources and Environment	7771414	steve.brown@mnre.gov.ws
13	Mataia U. Silailai	ACEO-RE	Ministry of Natural Resources and Environment	7235449	uaine.silailai@mnre.gov.ws
14	Suluimalo Penaia	ACEO-Water Sector	Ministry of Natural Resources and Environment	7772519	
15	Sonja Hunter	Chief Executive Officer	Samoa Tourism Authority	63530	hunter@samoa.travel
16	Sunny Seuseu	PSO-Climate	Ministry of Natural Resources and Environment	20855	sunny.seuseu@mnre.gov.ws
17	Josephine Stowers Fiu	ACEO	Ministry of Natural Resources and Environment	23800	josephine.stowers@mnre.gov.ws
18	Tuulima Laiti		Ministry of Agriculture and		

		ICCRAHSS Coordinator	Fisheries	7785303	laitituulima@yahoo.com
19	Faainoino Laulala	DLM	Ministry of Natural Resources and Environment	7750119	aainoino.laulala@mnre.gov.ws
20	Silia Kilepoa-Ualesi	Energy Coordinator - PPCR	Ministry of Finance	34341	silia.kilepoa@mof.gov.ws
21	Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance	34341	heremoni.suapaia@mof.gov.ws
22	Ofeira Vitoria Faasau	Principal Sustainable Development Officer	Ministry of Natural Resources and Environment	23800	ofeira.faasau@mnre.gov.ws
23	Yvette Kerslake		Ministry of Natural Resources and Environment	23800	yvette.kerslake@mnre.gov.ws
24	Eira Elisara	Planning & Development Officer	Samoa Tourism Authority	63508	eira@samoa.travel
25	Tuulagi Latu Afioga	Principal Officer	Ministry of Women, Community and Social Development	23698	tlafioga@gmail.com
26	Sala Sagato Tuiafiso	PSO Weather	Ministry of Natural Resources and Environment	20856	sagato.tuiafiso@mnre.gov.ws
27	ElisaiaTalouli	Assistant Chief Executive Officer-Corporate Services	Ministry of Natural Resources and Environment	23800	
28	Anae Aokuso Leavasa	Principal Policy and Planning	Ministry of Natural Resources and Environment	23800	aokuso.leavasa@mnre.gov.ws

b. Government Sector

	Names	**Designation**	**Ministry/Organisation**	**Phone/Fax**	**Email Address**
1	Eira Elisara	Planning & Development Officer	Samoa Tourism Authority	63508	eira@samoa.travel
2	Tafeamaalii Philip Kerslake	Technical Manager	Samoa Water Authority	7776035	philip@swa.gov.ws
3	Peseta Frank Fong	Assistant Chief Executive Officer – Policy Planning Communication	Ministry of Agriculture and Fisheries	22561	frank.fong@maf.gov.ws
4	Mala Tanei	PEO-Projects	Ministry of Education, Sports and Culture	21911/7782859	tanei_mala@yahoo.com
5	Sinapati Ulberg	Assistant Chief Executive Officer-Planning & Procument	Land Transport Authority	34001	sulberg@lta.gov.ws
6	Sofia Silipa	Assistant Chief Executive Officer-Corporate Services	Samoa Bureau of Statistics	21372	sofia.silipa@sbs.gov.ws
7	Inu Amosa Pouoa	Assistant Chief Executive Officer-LTD	Ministry of Works Transport & Infrastructure	21611	amosa@mwti.gov.ws
8	Wairarapa Young	Renewable Energy Officer	Electric Power Corporation	65408	wairarapa.young@epc.ws

9	Leilani Matalavea	Information & Communication Specialist	Ministry of Health	68139 / 7531921	leilanim@health.gov.ws
10	Andrew	Assistant Chief Executive Officer- HPCSD	Ministry of Health	68139	AndrewP@health.gov.ws
11	Taulealea Laavaasa Malua	Chief Executive Officer	Ministry of Natural Resources and Environment	23800	taulealea.malua@mnre.gov.ws
12	Lita Iamafana	Prinicipal Aid Officer	Ministry of Finance	34399	lita.iamafana@mof.gov.ws
13	Cameron Darragh	PPCR Observer	Australian Govt – Department of CC	66279	cameron.darragh@sprep.org
14	Foketi Imo	Deputy Chief Executive Officer	Ministry of Finance	34336	foketi.imo@mof.gov.ws
15	Litara Taulealo	Prinicipal Officer- Projects and Sector	Ministry of Finance	34347	litara.taulealo@mof.gov.ws
16	Steve Brown	GEF Services Assistant CEO	Ministry of Natural Resources and Environment	7771414	steve.brown@mnre.gov.ws
17	Vitaoa Peleiupu Fuatai		Ministry of Natural Resources and Environment		peleiupu.fuatai@mnre.gov.ws
18	Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance	34341	silia.kilepoa@mof.gov.ws
19	Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance	34341	heremoni.suapaia@mof.gov.ws
20	Nick Roberts	Budget Support Adviser	MOF/AID	7205248	nick.roberts@mof.gov.ws
21	Prof. John Hay	Consultant	World Bank		johnhay@ihug.co.nz

c. NGO Sector

	Names	Designation	Organisation	Phone/Fax	Email Address
1	Vaasilifiti M Jackson	President	-SUNGO -Faasao Savaii Society	24322 7790956	sungomanagement@lesamoa.net vaasilimj@gmail.com
2	Raymond C. Voigt	- Treasurer - Environment Themetic Group	-Samoa Umbrella of Non Government Organization -Beekeepers' Association of Samoa Inc.	7771985 / 24322	rcvoigt@gmail.com sungo@lesamoa.net
3	Leiataualesa Katifa	Project Manager	Samoa Women's Committee Development Organisation	7611752	katifabryce@yahoo.com.au
4	Tavu'i Anne Laumea	Admin-Project Officer	PPSEAWA	7592121	aelaumea@gmail.com
5	Papalii Viopapa Annandale	President	PPSEAWA	7773093/25786	jon410@lesamoa.net
6	Seumanuula Moana Clake	President	Animal Protection Society	7774646	moana_clarke@yahoo.com
7	Cameron Darragh	Program Manager	Australia-Department of Climate Change	66279	cameron.darragh@sprep.org
8	Prof. John Hay	Consultant	World Bank		johnhay@ihug.co.nz
9	Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance	34341	silia.kilepoa@mof.gov.ws
10	Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance	34341	heremoni.suapaia@mof.gov.ws

d. Private Sector

	Names	Designation	Organisation	Phone/Fax	Email Address
1	Alberta Malielegaoi		Women in Business Development Inc.		albertam@womeninbusiness.ws
2	Faalai Eteuati		Women in Business Development Inc.		faalai@womeninbusiness.ws
3	Tolo Iosefa		Samoa Farmers Association	7503638	Iosefa_t@samoa.usp.ac.fj
4	Sala Sagato Tuiafiso		Samoa Farmers Association	7772456	sagato.tuiafiso@mnre.gov.ws samoastorm@gmail.com
5	Afoa Amituanai Faleulu Mauli	President	Samoa Hotel Association (SHA)	7774489/28738	faleulumauli@lesamoa.net
6	Prof. John Hay	Consultant	World Bank		johnhay@ihug.co.nz
7	Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance	34341	silia.kilepoa@mof.gov.ws
8	Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance	34341	heremoni.suapaia@mof.gov.ws
9	Cameron Darragh	Program Manager	Australian Government CCA	66279	cameron.darragh@sprep.org

. Development Partners

	Names	Designation	Organisation	Phone/Fax	Email Address
1	Ian Bignall	Counsellor	AusAID Apia	23411	ian.bignall@ausaid.gov.au
2	Ryan Medrana	First Secretary	AusAID Suva	6793388360	ryan.medrana@ausaid.gov.au
3	Peter Zwart	NZAID Manager	NZ High Commission	21711	peter.zwart@nzaid.govt.nz
4	Mehdi Kamyab	Programme Coordinator	UNDP Samoa	23670	mehdi.kamyab@undp.org
5	Gabor Vereczi	Adaptation Advisor	UNDP Samoa	23670	gabor.vereczi@undp.org
6	Prof. John Hay	Consultant	World Bank		johnhay@ihug.co.nz
7	Silia Kilepoa-Ualesi	Energy Coordinator	Ministry of Finance	34341	silia.kilepoa@mof.gov.ws
8	Heremoni Suapaia-Ah Hoy	Energy Officer	Ministry of Finance	34341	heremoni.suapaia@mof.gov.ws

Annex 3

Current and Planned Adaptation Interventions

All projects but NAPA 5 through 7 are under implementation. Implementation of NAPA 1 and 2 started first.

Project	Sectors	Priorities
NAPA1	Climate Health Agriculture	• Early Warning System • Climate Health Programme • Agriculture Sustainability & Food Security
NAPA2	Climate Coastal	• Early Warning System • Coastal Protection
NAPA3	Climate Agriculture Forestry Environment	• Early Warning System • Agroforestry development – lowland areas • Terrestrial biodiversity conservation – upland customary lands
NAPA4	Climate Landuse Planning Water Forestry Tourism	• Early Warning System • Zoning & Strategic Planning - surface flood Adaptation • Forest Fire Prevention • Sustainable Tourism adaptation
NAPA5	Climate Coastal Environment	• DRR - DMO • Coastal Wetlands Rehabilitation • Marine Biodiversity Conservation - MPAs
NAPA 6	Tourism	• Building adaptive capacity
NAPA 7	Health, DRR, Water	• CRD Survey nationally
SIAM II	Infrastructure	• Climate proofing
EE	Transport	• Biodiesel production from coconuts planted on degraded lands to prevent soil erosion • Private sector pilots within agroforestry sector
Biomass	Forestry Electricity	• Waste biomass sourcing and biomass tree planting on degraded lands to prevent soil erosion, boosting socio-economic returns from value-adding agric products • Private sector pilots within agroforestry sector
Research and Governance	All	• CCA and DRR Policy Analysis • Aid Coordination (CC) • NCCCT Governance • Capacity Building (Tourism)
Small Grants Programme – GEF, NZ and Australia	Communities	• Community-based adaptation

Annex 4

Proposed Outputs, Budget and Timetable for Phase 1

	Component	Outputs	Funding (USD)	Timetable (month) 1 6	2	3	4	5
1	Acquiring and Disseminating Policy and Decision-relevant Information	Preparation, dissemination and utilization of new or updated situation analyses, including risks profiles, institutional analysis, integration of CCA and DRR, participation plan and plan for up-scaling CBA and EBA	125,000					
		Sub total	**125,000**					
2	Mainstreaming and Empowerment	Functioning PPCR Steering Committee	18,750					
		Functioning Project Management Unit (CRICU)	106,250					
		Mainstreaming Climate Change Considerations in Policy, Planning and Budgetary Processes	62,500					
		Capacity Development for Climate Risk Management	31,250					
		Sub total	**218,750**					
3	National Climate Change Programme and Plan and Climate Resilience Investment Programme	National Climate Change Programme and Plan (NCCPP)	56,250					
		Climate Resilience Investment Program (CRIP), including Strategic Environmental and Social Assessment and Preparations for Phase 2	43,750					
		Sub total	**100,000**					
4	Monitoring, Reporting and Evaluation	Monitoring and Evaluation Framework	37,500					
		Periodic reports to the Steering Committee	18,750					
		Sub total	**56,250**					
		TOTAL	**500,000**					

Annex 5

Detailed Budget for Phase 1

Output	Consultants		Goods	Workshops and Training	Incremental Operating Costs	Total (USD)
	National	Inter-national				
Preparation, dissemination and utilization of new or updated situation analyses, including risks profiles, institutional analysis, integration of CCA and DRR, participation plan and plan for up-scaling CBA and EBA	56,250	31,250		25,000	12,500	125,000
Sub total	**56,250**	**31,250**		**25,000**	**12,500**	**125000**
Functioning PPCR Steering Committee				12,500	6,250	18,750
Functioning Project Management Unit (CRICU)	56,250	6,250	31,250	6,250	6,250	106,250
Mainstreaming Climate Change Considerations in Policy, Planning and Budgetary Processes	25,000	18,750		12,500	6,250	62,500
Capacity Development for Climate Risk Management	12,500	6,250		6,250	6,250	31,250
Sub total	**93,750**	**31,250**	**31,250**	**37,500**	**25,000**	**218,750**
National Climate Change Programme and Plan (NCCPP)	25,000	18,750		6,250	6,250	56,250
Climate Resilience Investment Program (CRIP), including Strategic Environmental and Social Assessment and Preparations for Phase 2	18,750	6,250		12,500	6,250	43,750
Sub total	**43,750**	**25,000**		**18750**	**12,500**	**100000**
Monitoring and Evaluation Framework	6,250	18,750		6,250	6,250	37,500
Periodic Reports to the Steering Committee	6,250			6,250	6,250	18,750
Sub total	**12,500**	**18,750**		**12,500**	**12,500**	**56,250**
TOTAL	**206,250**	**106,250**	**31,250**	**937,50**	**62,500**	**500,000**