



National Capacity Self Assessment (NCSA)

THEMATIC ASSESSMENT REPORT

United Nations Framework Convention on Climate Change  
(UNFCCC)

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## Acronyms and Abbreviations

CBDAMPIC	Capacity Building for the Development of Adaptation Measures in Pacific Island Countries
CBD	Convention for the Protection of Biodiversity
CDM	Clean Development Mechanism
CIMP	Coastal Infrastructure Management Plan
CIMS	Coastal Infrastructure Management Strategy
COEP	Code of Environmental Practices
COP	Conference of the Parties
DC	Development Consent
EIA	Environmental Impact Assessment
ENSO	El Nino Southern Oscillation
EPC	Electric Power Corporation
GEF	Global Environment Facility
IAMP	Infrastructure Asset Management Project
IPCC	Intergovernmental Panel on Climate Change
IRETA	Institute of Research, Extension Training and Agriculture
LDC	Least Developed Country
MEA	Multi-lateral Environment Agreement
METI	Matuaileoo Environment Trust Inc.
MoF	Ministry of Finance
MNREM	Ministry of Natural Resources, Environment and Meteorology
NAPA	National Adaptation Programme of Action
NCCCT	National Climate Change Country Team
NCSA	National Capacity Self Assessment
NEMS	National Environment Management Strategies
NUS	National University of Samoa
OLSSI	O le Siosiomaga Society Inc.
PICCAP	Pacific Islands Climate Change Assistance Programme
PIC	Pacific Island Country
PI-GCOS	Pacific Islands Global Climate Observing System
PIGGAREP	Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project
PIREP	Pacific Islands Renewable Energy Programme
POP	Persistent Organic Pollutant
PUM	Planning and Urban Management
RE	Renewable Energy
SDS	Samoa Development Strategy
SNC	Second National Communication
SOPAC	South Pacific Applied Geoscience Commission
SPCZ	South Pacific Convergence Zone
SPREP	Secretariat for Pacific Regional Environment Programme
SST	Sea surface temperatures
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
USP	The University of the South Pacific
WMO	World Meteorological Organization

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## **1. Introduction and background on NCSA**

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### **1.1 Introduction**

Samoa, like other Least Developed Countries (LDCs) inherits high vulnerability to natural disasters and to external economic and trade developments for which it has no control. These natural disasters include tropical cyclones, prolonged periods of drought, extreme flooding, pests and sudden outbreak of diseases, storm surges and sea level rise.

Climate change and sea level rise are serious concerns given that 70% of Samoa's population and infrastructure are located on low-lying coastal areas. Samoa's economy largely depends on natural resources, which also rely on favourable climatic conditions for growth and sustenance.

The projected climate change for Samoa includes reduced overall annual rainfall with higher occurrences of high intensity rainfall; increased average temperature, prolonged periods of drought; sea level rise; and the intensification and increased frequency of tropical cyclones.

In recognition of the significant threat posed by climate change the Government of Samoa has signed and ratified both the United Nations Framework on Climate Change (UNFCCC) and its associated Kyoto Protocol. Since ratifying these international agreements in 1998 and 2000 respectively, Samoa has made good progress on their implementation. However, as a LDC, Samoa's capacity to implement these international agreements is somewhat limited, and external support has been relied upon in certain areas.

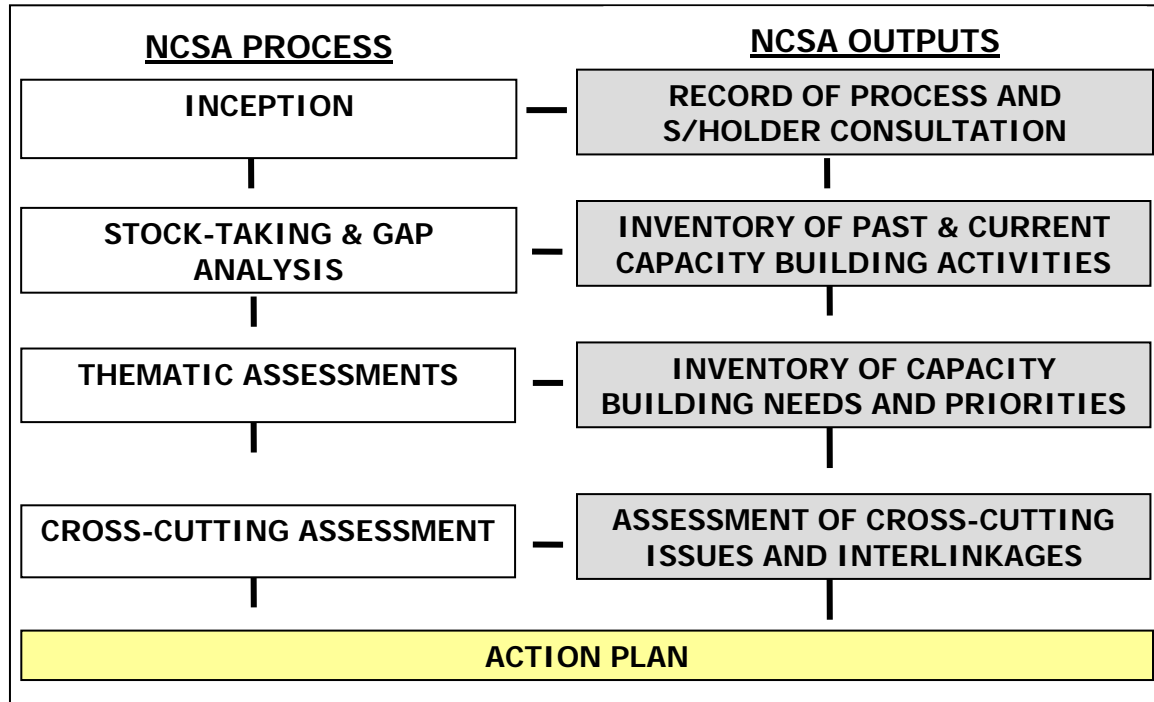
The Government of Samoa recognises the importance of building national capacity to implement the UNFCCC and the Kyoto Protocol, and to achieve other objectives relating to climate change. The National Capacity Self Assessment (NCSA) project provides a unique and timely opportunity to highlight these specific capacity building requirements.

### **1.2 Background on the NCSA Project**

The NCSA project is a capacity building initiative, funded by the Global Environment Facility (GEF), with the United Nations Development Programme (UNDP) as the implementing agency. The Ministry of Natural Resources, Environment and Meteorology (MNREM) is executing the project on behalf of the Government of Samoa.

The main purpose of the NCSA is to review and assess Samoa's capacities to implement requirements under the three environmental conventions adopted at the Rio Earth Summit. These are the UN Convention on Biological Diversity (CBD), the UN Convention to Combat Desertification (UNCCD) and the UNFCCC. The NCSA provides an opportunity for Samoa to take stock of its existing capacity to implement these conventions, as well as to identify additional capacity building requirements.

The process followed for the NCSA project is outlined in Figure 1.



**Figure 1: Overall process for the NCSA project.** (Source: Frank Wickham (SPREP)).

As well as identifying capacity building requirements under each of the conventions, the NCSA provides an opportunity for Samoa to identify cross-cutting issues and synergies between the three conventions. Linkages to other multilateral environment agreements (MEAs) will also be identified. This enables the establishment of an overarching framework to oversee the implementation of Samoa's international environmental obligations, along with associated national programmes. Ultimately, the NCSA will assist Samoa to achieve its national goals and at the same time fulfil its international obligations.

### 1.3 Objectives of the Thematic Assessment Report

There are four key objectives of Thematic Assessment Report:

- i. To provide a detailed and comprehensive overview of the progress made by Samoa in implementing the UNFCCC
- ii. To highlight the key gaps in Samoa's capacity to implement the UNFCCC and to achieve its national climate change objectives
- iii. To identify the root causes of these capacity gaps; and
- iv. To come up with solutions or actions to address these gaps at the systemic, institutional and individual levels.



#### 1.4 Methodology for the Thematic Assessment Report

The Thematic Assessment Report was developed in the four step process, corresponding to each of the objectives outlined above (refer to Table 1).

<b>STEP 1</b>	A detailed and comprehensive overview of Samoa's progress on implementing the UNFCCC was prepared, using information gathered during the NCSA stock-taking phase, as well as through additional research and consultations.
<b>STEP 2</b>	The NCSA stock-taking and gap analysis process provided a basis to analyse activities and review what has been done by Samoa to meet the requirements under the UNFCCC. This assessment focussed on the national capacity to undertake particular functions required under the UNFCCC at the individual, institutional and systemic levels.
<b>STEP 3</b>	The capacity gaps identified during the NCSA stock-taking phase were grouped into 6 key themes and analysed further using the problem-tree approach. This approach allowed the root causes and subsequent impacts of these capacity gaps to be identified. This problem-tree analysis was carried out during a workshop so that input from a wide range of stakeholders could be gathered.
<b>STEP 4</b>	Once the root causes of capacity gaps were identified it was possible to devise actions that will overcome these root causes and thus help to overcome the capacity gaps. These actions have been presented in this report under each of the six thematic areas and include actions at the systemic, institutional and individual levels.

**Table 1: Steps taken to prepare the Thematic Assessment Report.**

## 2. National Context

### 2.1 Geographic and socio-economic information relevant to climate change

Samoa is a small island developing country in the southwest Pacific with a population of approximately 174,140 people. There are four main inhabited islands and six smaller uninhabited islands, with a combined land area of 2,935 km<sup>2</sup> (Figure 2). The capital, Apia, is located on the second largest island Upolu and has a population of approximately 40,000 people. Samoa's economy is based on agriculture, fisheries, forestry and tourism.

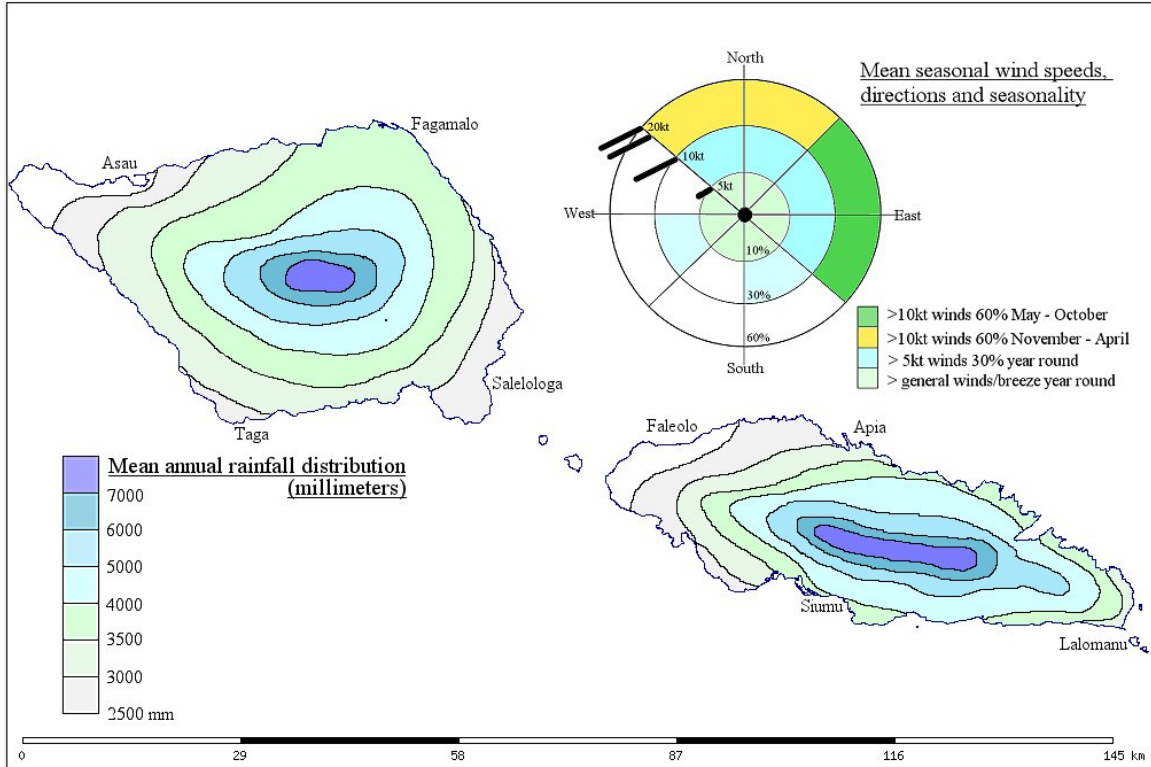


Figure 2: Map of Samoa (Source: Wikipedia, 2004)

Samoa's climate is typical of small tropical islands, geographically isolated from big landmasses. The climate is tropical and marked by two distinct seasons: wet and warm (November-April) and dry and cool (May-October). Temperatures are typically tropical (ranging from 24-32°C daily) and generally uniform throughout the year with little seasonal variation due to Samoa's near-equatorial location. The rainfall and humidity are usually high with the average annual rainfall about 3,000mm with approximately 66% of the precipitation occurring during the wet season.

Samoa experiences southeast trade winds at almost all times of the year. However severe tropical cyclones occur during the summer months of December to February bringing destructive northerly winds. Samoa is also vulnerable to anomalously long dry spells associated with the El Nino Southern Oscillation (ENSO) phenomena.

Climatic variation within the Samoan islands is illustrated in Figure 3, which shows substantial differences in rainfall from one part of the country to another



**Figure 3: Illustration of 30-year climatic normals (1961 – 1990) of rainfall and wind distribution in Samoa (Source: Meteorology Division)**

## 2.2 Projected Climate Change in Samoa

Global warming and associated climatic changes have been observed in Samoa and throughout the Pacific region. Some of these trends and expected future changes are summarized below.

### Temperature and Precipitation Trends

Samoa and other Pacific Island Countries have observed trends and variability in climate derived from long term climate data collected in the region. This data shows that mean island near-surface air temperature increased by between 0.3-0.8°C during the 20<sup>th</sup> century, with the largest increase in the zones south west of the South Pacific Convergence Zone (SPCZ) (Griffiths, 2005). Samoa is often located south and or near this zone during the wet and cyclone season.

The global average temperature is projected to increase by 1.4-5.8°C over the period 1990 to 2100 (IPCC, 2001). The recent SST trends project a warmer eastern tropical Pacific relative to the western tropical Pacific. These longer term conditions are similar to the interannual El Nino ocean and atmospheric states that correspond to an eastward shift of precipitation (IPCC, 2001). The result of the latter is in lower annual rainfall in the western Pacific including Samoa.

A study of Samoa’s meteorological data collected over 101 years finds the mean temperature during this period increasing by 0.59°C (refer Table 2). The maximum and minimum temperature also increased by 0.67°C and 0.18°C respectively (Meteorology Division, 2003). It is projected that Samoa will continue to experience increases in average temperature.

<b>Climate Element:</b>	<b>Trend (1901-2001)</b>
Maximum Temperature	0.67 °C increase
Minimum Temperature	0.18 °C increase
Mean Temperature	0.59 °C increase
Precipitation	49.28 mm decrease

**Table 2: Climate Parameters in Apia** (Source: Meteorology Division, 2003)

Samoa experienced a decrease in precipitation levels by 49.28mm over the period that records have been collected (refer Table 2). Global model simulations show an increase in global average water vapour concentration and precipitation during the 21<sup>st</sup> century. However, regional model simulations show that ENSO and interdecadal variability indicate drier conditions for the south west Pacific that includes Samoa. This clearly relates to the analysis results of local rainfall data and interannual variability projections.

*Tropical Cyclones*

Recent studies and tracking of cyclones in and around Samoa has found an increase in the frequency of tropical depressions, gale wind forces, and tropical cyclones during the cyclone season. The worst cyclones to seriously hit Samoa in recent times were Ofa in 1990 and Val in 1991. Considerable damage was also caused when Tropical Cyclone Heta struck Samoa in February 2004. During 2005, five tropical cyclones developed around Samoa’s region, the highest number formed far east of the traditional warm pool in a single season. These included Lola, Meena, Nancy, Olaf and Percy with the latter two tropical cyclones classified as Class 5 (Major Hurricanes), and the closest near misses for Samoa.

*Sea Level Rise*

The rise in sea level is due primarily to thermal expansion and the melting of glaciers and ice caps (IPCC, 2001). In Samoa there is already anecdotal evidence on sea level rise, with some village communities already observing considerable coastal recession of their land due to severe coastal erosion. Furthermore, the most recent publication from the South Pacific Sea Level and Climate Monitoring Project found the following:

The sea level trend to date is +4.6 mm/year (as compared to a global average of 1-2 mm/year) but the magnitude of the trend continues to vary widely from month to month as the data set grows. Accounting for the geodetic survey results, the trend is +3.4 mm/year. A nearby gauge, with longer records but less precision and datum control, shows a trend of +1.43 mm/year (AusAid, 2003).

### *El Niño Trends*

Global warming is believed to be causing more pronounced El Nino events. The variations in the amplitude of El Nino events will generally dictate Samoa's climate. From recent experience, a weak El Nino event in the Samoa region often spells periods of below average rainfall for over a month. A sustained weak El Nino event over Samoa will mean extended periods of dry weather that trigger drought.

## **2.3 Impacts and Vulnerability of Climate Change for Samoa**

Climate change and sea level rise are serious concerns for Samoa given that 70% of the country's population and infrastructure are located on low-lying coastal areas. Samoa's economy largely depends on its natural resources, which must rely on favourable climatic conditions for growth and sustenance.

The direct and indirect impacts of climate change on all sectors include:

- Climate induced disasters such as tropical cyclones (its increase in frequency and intensity), flooding in low lying and coastal areas, saline intrusion, coastal erosion and increased rates of coral bleaching mean higher demands and unstable levels of food production affecting income generating activities for communities and country at large;
- Drought is the most obvious and hard felt impact on water resources especially relation to quality and quantity. Sea level rise increases the possibilities of seawater intrusion into underground water aquifers as already experienced by many coastal communities;
- The common occurrence of tropical cyclones and drought temperature fluctuation and changes in precipitation patterns lead to changes in the habitats of endangered and endemic species highly affecting Samoa's biodiversity. The intense wave activity of storms overturned much of the coral near shore and severely damaged corals to depth of up to 10 meters (30ft);
- There is anecdotal evidence of growth in vector borne and water borne diseases that reconfirms the already changing climate and the impact it has on the health sector. The conditions for the occurrence and spread of these diseases are favored by the changes in climate;
- Prolonged periods of drought – usually lasting for three months or more, severely affect forests from high risk of forest fires. Samoa experienced four major forest fires from the drought/dry periods of 1982-83, 1997-98, 2001-02 and 2002-03;

- Lowland and coastal flooding and severe coastal erosion impact on the coastal infrastructure as well as the management of the coastal watershed areas especially those which supply the urban areas.
- The droughts in 2002 and 2003 led to rationing of electricity. Frequency in drought due to climate change will leave Samoa with diesel as the only option but then operation cost will be high and it will affect usage rate; and
- The impacts of climate change on the tourism sector widely include loss of beaches, inundation, and degradation of the coastal ecosystems, saline intrusion and damage to critical infrastructure. The loss of attractiveness of coral due to bleaching and heat stress that is triggered by high humidity is often referred to by the communities as a result of climate change.

The sectors considered most vulnerable to climate change are:

- Agriculture and food production
- Water supply and quality
- Biodiversity and ecological conservation
- Health (due to increases in climate related health problems)
- Forestry (affecting watershed management, biodiversity, timber resources).
- Infrastructure
- Energy production; and
- Tourism

### **3. Samoa's National Framework for Dealing with Climate Change**

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Climate change and its associated negative consequences pose a major threat to the economic, social and environmental well-being of Samoa. In response to this threat, Samoa has been proactive at the international and national levels. Initially, Samoa's focus, along with other Pacific Island Countries (PICs), was to lobby developed countries to make large scale reductions in greenhouse gas emissions. However, in recent years, while still pushing for mitigation, Samoa has broadened its response to climate change to include adaptation. At the international level Samoa has lobbied hard for increased funding for adaptation activities. Domestically, Samoa has made significant progress in recent years to identify adaptation needs and testing practical adaptation measures and actions. The key framework for climate change activities in Samoa is outlined below.

#### **3.1 Strategy for the Development of Samoa**

The Strategy for the Development of Samoa is the overarching strategy to guide development activities in Samoa. In the 2005-2007 SDS the key vision of the SDS is "Improved quality of life for all". The key strategies for the SDS are: (i) Strengthening the private sector, (ii) agriculture development, (iii) tourism development, (iv) community development, (v) education development, and (vi) health development. The SDS is an extremely important document as it provides guidance for investment by development partners.

Climate change objectives are not explicitly mentioned in the SDS. However, it is well understood that fulfilling climate change objectives will contribute to the SDS objectives, especially through improvements in energy efficiency, renewable energy and adaptation to the adverse impacts of climate change. A key priority is to ensure climate change objectives are explicitly mentioned in the next SDS.

#### **3.2 National Environment Management Strategies**

The government endorsed four National Environment Management Strategies (NEMS) initiating a positive support towards tackling its environmental concerns. These are (1) Waste Management; (2) Land Use; (3) Water Resource; and, (4) Population and Sustainable Development, all of which have common interests in promoting sustainable development with regards to any type of development that takes place in Samoa, and most importantly minimize any adverse impact on the natural, social and cultural environment. The NEMS that were endorsed by Cabinet in 1994 raised the issue of climate change as a major concern for Samoa on the premise that the majority of the population reside within one kilometer (1km) of its coastline.

#### **3.3 National Climate Change Policy**

Samoa has prepared a draft National Climate Change Policy, which is expected to be submitted to Cabinet for endorsement in 2006. This draft policy has been developed in consultation with a wide range of stakeholders and although yet to be formally adopted, provides a good indication of the national climate change objects. In summary, these are:

- Create public awareness and improve stakeholder understanding of the causes and effects of climate change
- Strengthen the management of climate change information
- Build national capacity to respond to climate change
- Incorporate climate change issues into environmental planning and development assessments
- Promote international partnerships on climate change matters

### **3.4 Other Supporting Legislation, Policies and Strategies**

There is no specific climate change legislation in Samoa. However, there are a number of key pieces of legislation that provide the legal mandate for climate change activities and provide legislative opportunities to strengthen adaptation and mitigation activities. In particular, this includes the *Land Survey and Environment Act (1989)* and the *Planning and Urban Management Act (2004)*.

Although not a strategy as such, Samoa's *First National Communication to the UNFCCC*, completed in 1999, has provided an important basis for the country's climate change activities. This document was the first attempt to compile all relevant climate change information and was instrumental in helping Samoa to deal with climate change.

The recently completed *National Adaptation Programme of Action (NAPA)* is a major achievement for Samoa as it provides a clear framework for adapting to climate change. The NAPA was adopted by Cabinet in late 2005 and submitted to the UNFCCC Secretariat in that same year. Already, the NAPA has attracted significant interest from development partners and efforts are underway to secure funding for its implementation.

Samoa developed 15 Coastal Infrastructure Management Strategies (CIMS) and Plans (CIMPs) for 15 districts through an Infrastructure Asset Management Project (IAMP). Consultations for the remaining 28 districts are currently underway. The aim of the CIMS is for communities within these districts to be 'adaptive, responsive and quick to recover from natural hazards so that they are environmentally, socially and economically sustainable'. There is a rapidly growing need, to increase capacity for mainstreaming adaptation measures as part of the CIMS, where climate change has been one of the common issues raised in previous and ongoing consultations of the CIMS development process.

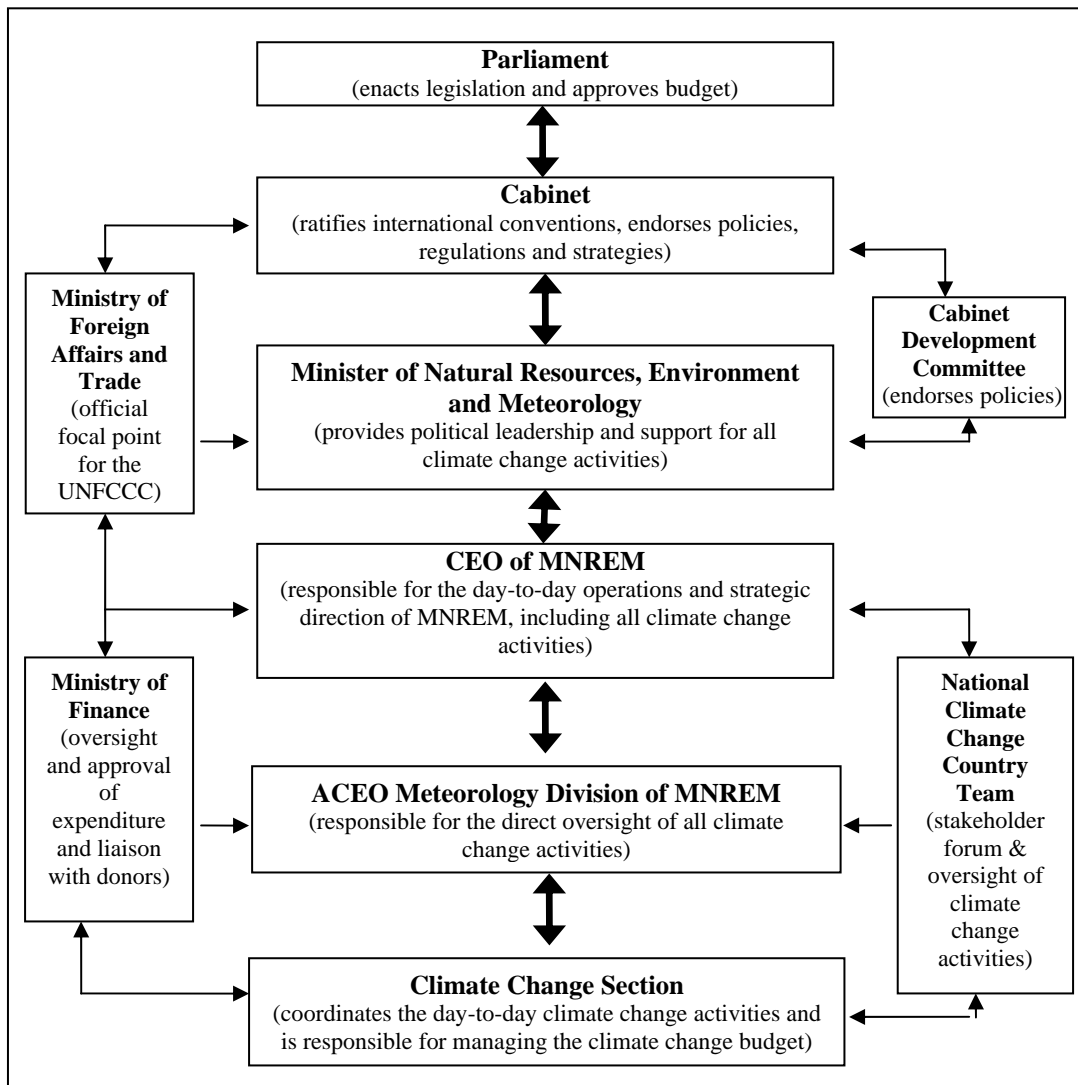
### **3.5 Institutional Structure**

Samoa's climate change activities are coordinated by the Climate Change Section of the Meteorology Division which is part of the Ministry of Natural Resources, Environment and Meteorology (MNREM). This section consists of three staff members: (i) Principal Climate Change Officer/ National Climate Change Coordinator, (ii) Climate Change Officer/ SNC Project Assistant and (iii) Climate Change Technical Officer. The salaries for each of these positions are funded by UNDP-GEF, through the Second National Communication Project. MNREM funds the office space, administrative support and other costs associated with the operations of the Climate Change Section.



The National Climate Change Country Team (NCCCT) acts as a steering committee for all the climate change activities in Samoa. The NCCCT is made up of all relevant stakeholders, including government agencies, academic institutions and NGOs. The NCCCT meets as required, which is generally at least once a quarter. As well as providing a useful consultative forum, the NCCCT has also been called upon to endorse draft documents before they are submitted for formal approval. This has helped to build support and ownership amongst all stakeholders.

Figure 4 below illustrates the institutional structure for the coordination of climate change programs in Samoa.



**Figure 4: Institutional structure and hierarchy for Samoa’s climate change activities**

### 3.6 National Stakeholders

#### *Government Ministries and Agencies*

<b>Institution</b>	<b>Stakeholders interests/responsibilities</b>
Ministry of Agriculture and Fisheries	The Ministry performs activities related to agriculture and fisheries. They have an important role to play in the preparation of GHG inventories and in the adaptation activities in the agriculture and fisheries sectors. Member of the NCCCT
Ministry of Women, Community and Social Development	The Ministry is responsible for promoting the social and economic development of villages through formulation of policies, programmes and guidelines relevant to their needs. Together with MNREM the Ministry promotes programmes that heighten the awareness of the villages about the adverse effects of climate change and sea-level rise. Member of the NCCCT
Ministry of Foreign Affairs and Trade	Political focal point of the GEF, the UNFCCC and other MEAs and is responsible for other trade agreements. National coordination related to international cooperation and climate change. Member of the NCCCT.
Office of the Attorney General	Mainly responsible for legislation pertaining to government polices and programs. Member of the NCCCT. Responsible mainly for legal matters relating to the implementation of the UNFCCC and other Conventions.
Ministry of Health	Responsible for surveillance and early warning for vector-borne and water-borne diseases. Member of the NCCCT. Has collaborated with MNREM on public awareness on the effects of climate variability and extremes
Ministry of Works, Transport and Infrastructure	Responsible for design and development of infrastructure of public works in communities, coastal zone management and implementation and management of “code of environmental practice”. The ministry administers the Planning & Urban Management (PUM) Act 2004. Responsible for enforcing environmental impact assessments and development consents which encourage integration of climate change issues into sustainable development activities. Responsible for transport control. Member of the NCCCT.
Ministry of Education, Sports and Culture	Responsible for the development of education curriculum which includes subjects relating to climate change, climate variability and sea-level rise. Member of the NCCCT.
Samoa Electric Power Corporation	Responsible for supplying electricity to commercial and residential sectors. Member of the NCCCT. Manages power plants that run on diesel and hydro. Currently carrying out trials on other renewable energy options (coconut-diesel hybrid fuel, solar energy and wind energy assessments)
Samoa Water Authority	Responsible for the supply and distribution of water to residential and commercial areas, except those communities who manage their own supply. Has an important role to play in the adaptation projects related to the water sector. Member of NCCCT.

*Academic Institutions*

<b>Institution</b>	<b>Stakeholders interests/responsibilities</b>
National University of Samoa	Education, research and training. Member of the NCCCT. Participated in the preparation of SNC. Started research work on monitoring of air quality and wastewater treatment. Assisted with the POPs project.
University of the South Pacific – Alafua Campus	Education, research and training. Member of the NCCCT. Has a strong agriculture research and training program, which is highly relevant to the adaptation component of the SNC. Institute of Research, Extension Training and Agriculture (IRETA) is part of this campus.
Institute of Higher Learning (School of Technology) – merging of Samoa Polytechnic and NUS	Responsible for organizing and delivering post-school education and training to prescribed standards. Teaching of horticulture that involves the use of fertilizers and pesticides and a refrigeration course which involves maintenance, service and disposal of waste. Also in business administration and IT.

*Non-Government Organizations and Other Stakeholders*

<b>Institution</b>	<b>Stakeholders interests/responsibilities</b>
Matuaileoo Environment Trust Inc. (METI)	METI is an independent Samoan Environment Trust set up in June 2000 and provided valuable support to the NAPA and CBDAMPIC projects.
O le Siosiomaga Society Inc. (OLSSI)	OLSSI is an active environmental NGO and an important stakeholder for all climate change activities in Samoa.
Samoa Red Cross Society. Inc	Mainly involved in pre-disaster planning and post-disaster Member of the National Climate Change Country Team. In collaboration with the MNREM , it conducts disaster preparedness training and climate change awareness in village communities relief work

## 4. International and Regional Support

### 4.1 International and Regional Institutions

Samoa's climate change activities are supported at the international level by a number of organizations. The role of these institutions is summarized below.

<b>Institution</b>	<b>Stakeholders interests/responsibilities</b>
Secretariat of the Pacific Regional Environment Programme (SPREP)	Responsible for climate change, climate variability and sea-level rise activities for the Pacific islands region. Climate Change Programme established to provide assistance and support to Pacific island countries. Assisted Samoa in the preparation of First National Communication. Currently assisting Samoa to prepare community vulnerability assessments, NAPA, Pacific Island Renewable Energy programme, removal of POPs in PICs and PI-GCOS programme.
South Pacific Applied Geoscience Commission (SOPAC)	SOPAC provides regional support on a number of areas relevant to climate change. This includes energy efficiency, renewable energy, water sanitation and disaster management. SOPAC is currently supporting Samoa in all of these areas.
Pacific Islands Forum Secretariat	The Forum Secretariat provides support at the political level and has played a role in helping to develop a regional policy on climate change.
Bilateral Donors	There are a number of bilateral donors active in Samoa, providing support and funding for climate change related activities. This support ranges from technical assistance, capital investment as well as funding for capacity building projects.
United Nations Development Programme (UNDP)	The UNDP has a sub-regional office in Apia and has been an active supporter of many climate change activities in Samoa. In particular, the UNDP acts as the implementing agency for GEF funded climate change projects (e.g. SNC, NAPA etc). In addition, UNDP is implementing a number of renewable energy projects (e.g. Asia Pacific Regional Energy Programme for Poverty Reduction). The UNDP also provides technical support and advice as required.
Global Environment Facility (GEF)	GEF is a major funding source for climate change activities in Samoa. These include the First National Communication, SNC, NAPA and Community Based Adaptation projects.
World Meteorological Organisation – Sub-Regional Office for South-West Pacific	Responsible for supporting national meteorological and hydrological services. Providing support to Samoa Meteorological Services in data rescue programme and assists Samoa in climate-related projects
UNFCCC Secretariat	Responsible for overseeing and supporting the implementation of the UNFCCC and Kyoto Protocol. Organizes meetings, workshops and trainings, which Samoa attends.
University of South Pacific (USP)	Conducts various research activities relevant to climate change in the Pacific. USP is also provides tertiary education to Samoan students, helping to build the skills and knowledge base in this field.

## 4.2 Pacific Islands Framework for Action on Climate Change

The Pacific Islands Framework for Action on Climate Change provides a strategic platform for use by policy and decision makers at all levels. The framework allows for the development and strengthening of partnerships for implementation of national and regional initiatives to address climate change issues in the context of sustainable development.

The framework's vision emphasizes resilience of Pacific people's livelihoods and environment to the risks and impacts of climate change. Its main goal is to ensure that the Pacific island people build their capacity to be resilient to the risks and impacts of climate change.

The framework's focuses on the following key areas:

- implementing adaptation measures;
- governance and decision making;
- improving understanding of climate change;
- education, training and awareness;
- contributing to global greenhouse gas reduction; and
- partnerships and cooperation.

## 4.3 Execution of regional projects

Samoa has participated in a number of regional climate change projects. The Pacific Islands Climate Change Assistance Programme (PICCAP) ran from 1997 to 2000 and was funded by GEF and implemented by SPREP. PICCAP was essentially a capacity building project, designed to assist Pacific Island Countries to develop their first national communications to the UNFCCC.

The Pacific Islands Renewable Energy Programme (PIREP) was implemented by SPREP from 2003-2005, with funding from GEF. The project aimed to remove barriers to uptake of renewable energy in Pacific island countries. This project helped to build the capacity of Samoa in the area of renewable energy and produced a number of useful technical reports.

The Canadian funded Capacity Building for the Development of Adaptation Measures in Pacific Island Countries (CBDAMPIC) project was implemented from 2002 to 2005. Two pilot villages (Saoluafata and Lano) participated in the project. Vulnerability and adaptation assessments were carried out for each village and priority adaptation measures implemented.

The Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP) project has been developed by SPREP and is being considered for funding by GEF.

## 5. Implementation of the UNFCCC and Kyoto Protocol

### 5.1 Background

Samoa signed the UNFCCC in June 1992 and proceeded with ratification in November 1994. In addition, Samoa has signed (March 1998) and ratified (November 2000) the Kyoto Protocol to the UNFCCC. Implementation of these international agreements has proceeded through a range of activities. The following timeline (Figure 5) highlights some of the key milestones in Samoa's implementation of the UNFCCC.

<b>1992</b>	Samoa signed the UNFCCC
<b>1994</b>	Ratification of the UNFCCC
<b>1998</b>	<b>Samoa signed the Kyoto Protocol</b>
<b>1997-00</b>	Samoa participated in PICCAP Project
<b>1999</b>	First National Communication completed
<b>2000</b>	<b>Ratification of the Kyoto Protocol</b>
<b>2003-05</b>	Samoa participated in PIREP Project
<b>2002-05</b>	Samoa participated in the CBDAMPIC Project
<b>2003-05</b>	NAPA prepared
<b>2005</b>	NAPA endorsed by Cabinet
<b>2005</b>	UNDP/GEF Community Based Adaptation project begins in Samoa
<b>2005-06</b>	Samoa conducts capacity assessment for UNFCCC as part of NCSA
<b>2006</b>	Work begins on SNC

Figure 5: Key milestones in Samoa's implementation of the UNFCCC.

## 5.2 Implementation of the UNFCCC: Highlights and Lessons Learnt

As discussed above, Samoa has undertaken a wide range of climate change activities that contribute to the implementation of the UNFCCC and Kyoto Protocol. Table 3, below, outlines the status of implementation for those convention provisions relevant to Samoa.

**Table 3: Status of UNFCCC and Kyoto Protocol implementation in Samoa**

	<b>Highlights</b>	<b>Lessons Learnt</b>
<b>Preparing national communications</b>	<ul style="list-style-type: none"> <li>▪ Completed First National Communication in October 1999</li> <li>▪ Established institutional framework for preparation of the Second National Communication (SNC)</li> <li>▪ UNDP-GEF funding has been provided to Samoa for the SNC project</li> <li>▪ Draft SNC report expected to be ready by mid-2008</li> </ul>	<ul style="list-style-type: none"> <li>▪ Preparation of national communications has proven to be useful exercise, but requires a lot of resources. For both the first and recently started second national communications, funding has been provided by external sources.</li> <li>▪ A key benefit of the funding to prepare national communications is that it provides an opportunity to build capacity in specific areas.</li> </ul>
<b>Developing national climate change programmes</b>	<ul style="list-style-type: none"> <li>▪ Samoa has implemented three climate change programs: PICCAP completed in 1999; NAPA Project implemented in 2003 – 2005; and CBDAMPIC Project completed in 2002 – 2005</li> </ul>	<ul style="list-style-type: none"> <li>▪ These projects have only been possible with the funding provided by development partners.</li> </ul>
<b>Preparing and managing greenhouse gas inventories including emission database management</b>	<ul style="list-style-type: none"> <li>▪ First National GHG inventory was published in 1999, as part of the First National Communication and covered emissions from the year 1994.</li> <li>▪ Work is now underway to complete Samoa's second greenhouse gas inventory. This inventory is expected to cover emissions from the year 2000. The inventory will be completed by mid-2008, as part of the SNC project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Preparing a detailed greenhouse gas inventory helps when identifying and quantifying potential mitigation projects (such as renewable energy)</li> <li>▪ However, preparing the inventory takes a significant amount of time and money. It is always important to assess the benefits and costs for a country of Samoa's size to invest too heavily in preparing the inventory.</li> </ul>
<b>Assessing vulnerability and adaptation</b>	<ul style="list-style-type: none"> <li>▪ The national assessment of vulnerability and adaptation was completed under the NAPA. Further detailed vulnerability and adaptation assessments will be carried out under the SNC implementation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Although these V&amp;A assessments revealed a huge amount of information, a number of important limitations were identified: (i) lack of locally relevant</li> </ul>

		<p>data; (ii) limited skills and knowledge of staff conducting V&amp;A assessments; and limited resources to conduct detailed assessments of <u>all</u> sectors and communities.</p>
<p><b>Developing and implementing adaptation plans and measures</b></p>	<ul style="list-style-type: none"> <li>▪ The NAPA was endorsed by Cabinet in 2006 and includes a series of project profiles for Samoa’s most vulnerable sectors.</li> <li>▪ Work is now underway to implement the NAPA document.</li> <li>▪ A trial of community-level adaptation measures was undertaken as part of the CBDAMPIC project.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Arguably the most significant lesson learnt through the adaptation activities is the importance of integrating adaptation objectives with sector plans. Adaptation to climate change is a cross-cutting issue that will have to be addressed by just about every sector in Samoa. As such, rather than running a parallel process, it is vital that adaptation objectives are imbedded and interlinked into the core business of each sector (e.g. water, health, agriculture etc).</li> <li>▪ The CBDAMPIC project highlighted the importance of community based adaptation actions. Specifically, it was found that with some guidance, local villagers are best placed to identify vulnerabilities and adaptation options for their villages.</li> <li>▪ However, the CBDAMPIC project also highlighted how development priorities and adaptation objectives can sometimes compete with each other. This, arguably, highlights the need to improve public awareness about the long-term need to integrate adaptation to climate change as a core development priority.</li> <li>▪ The CBDAMPIC and NAPA projects also highlighted the need to build Samoa’s</li> </ul>



		<p>technical capacity in the area of adaptation. In particular, it was found that experts from each sector need training in adaptation.</p>
<p><b>Assessing mitigation options, including renewable energy</b></p>	<ul style="list-style-type: none"> <li>▪ A number of projects have assessed mitigation options for Samoa, focusing particularly on renewable energy. These include: PIREP, and PIGAREP.</li> <li>▪ The Meteorology Division is also currently helping to conduct research to ascertain the viability of wind power in Samoa.</li> <li>▪ The Electric Power Corporation (EPC) is trialing fuel made from coconut oil (coco-oil) as an alternative to diesel</li> <li>▪ Agencies working on mitigation projects include UNDP, SPREP and EPC.</li> <li>▪ The Ministry of Finance (MoF) has overall responsibility for all energy related projects in Samoa.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Samoa is a developing country and a substantial proportion the population have only limited access to electricity and other energy resources.</li> <li>▪ Strengthening and expanding Samoa’s energy resources is a major development objective for the country.</li> <li>▪ The challenge for Samoa is to expand energy production, while also reducing greenhouse gas emissions.</li> <li>▪ A major focus is on renewable energy resources, which increase energy supply, with minimal greenhouse gas emissions.</li> </ul>
<p><b>Research and systematic observation of climate and other functions</b></p>	<ul style="list-style-type: none"> <li>▪ MNREM is the technical focal point for climate variability and change information.</li> <li>▪ There are currently 6 climate stations and 28 rainfall stations forming the national climate observation network in progress.</li> <li>▪ Samoa is also a WMO member country in fulfilling reporting requirements of weather information exchange.</li> <li>▪ PI-GCOS in Pacific (Samoa involved closely with the SPREP)</li> <li>▪ A SEAFRAME gauge was installed in Apia, Samoa, in February 1993. It records sea level, air and water temperature, atmospheric pressure, wind speed and direction. This is part of the AusAID-sponsored South Pacific Sea Level and Climate Monitoring Project.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Although Samoa has a well established climate monitoring and weather observation system, which has been in place for more than 100 years, it is currently suffering from limited resources.</li> <li>▪ Climate monitoring stations are need of replacement and maintenance.</li> <li>▪ Some of the older records are yet to be transferred into electronic form, which means they cannot be included in the analysis of climate trends.</li> </ul>
<p><b>Developing and transferring technology</b></p>	<ul style="list-style-type: none"> <li>▪ The NAPA document is seen as the avenue for the transferring and developing of adaptation technology and measures.</li> <li>▪ Under the Kyoto Protocol, the Clean Development Mechanism is the</li> </ul>	<ul style="list-style-type: none"> <li>▪ This is recognized an important objective, but there have yet to be any serious investigations into how to promote adaptation and mitigation technology</li> </ul>

	<p>method for developing and transferring of technology for mitigation. However, the CDM is still in the early stages of implementation and Samoa has yet to have any CDM projects implemented. Samoa has a representative on the CDM committee.</p>	<p>transfer to Samoa.</p>
<p><b>Improved decision-making including assistance for participation in international negotiations</b></p>	<ul style="list-style-type: none"> <li>▪ Samoa has a good record of attending Conference of Parties (COP) meetings for the UNFCCC.</li> <li>▪ Samoa also participates in the Subsidiary Body Sessions twice a year.</li> <li>▪ Workshops, seminars and trainings are attended when necessary and when funds are available</li> </ul>	<ul style="list-style-type: none"> <li>▪ Staff who have attended international meetings and negotiations benefit greatly from this experience.</li> <li>▪ Through attending these meetings and negotiations, Samoa has been able to ensure its interests are upheld.</li> <li>▪ Attending these meetings requires a significant investment in time and money.</li> <li>▪ Need ongoing training for negotiators</li> </ul>
<p><b>Clean Development Mechanism</b></p>	<ul style="list-style-type: none"> <li>▪ No CDM projects planned for Samoa, although this is an option now that the Kyoto Protocol is in force.</li> <li>▪ Samoa has a representative on the CDM review committee</li> </ul>	<ul style="list-style-type: none"> <li>▪ At this stage, it is unclear how feasible CDM projects are for Samoa, given its relatively small GHG emissions.</li> <li>▪ However, RE projects are possible options for investing under CDM of the Kyoto Protocol</li> <li>▪ Potential RE projects include coconut oil –diesel project, solar and wind project.</li> </ul>
<p><b>Needs arising out of the implementation of Articles 4.8 and 4.9 of the Convention</b></p>	<ul style="list-style-type: none"> <li>▪ The formulation and implementation of the NAPA and the development of the SNC is considered the avenue to identify needs arising from implementing Articles 4.8 and 4.9 of the Convention. It provides opportunities for communities to access funding to finance implementation of adaptation measures to respond to climate change, transfer of technology and know-how.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The international community is still negotiating the implementation of articles 4.8 and 4.9 of the Convention</li> <li>▪ Samoa can be better prepared for implementing both articles.</li> </ul>
<p><b>Education, training and public</b></p>	<ul style="list-style-type: none"> <li>▪ National Climate Change and Ozone Awareness Day, an annual event</li> </ul>	<ul style="list-style-type: none"> <li>▪ While all of these education activities have played an</li> </ul>

<p><b>awareness raising</b></p>	<ul style="list-style-type: none"> <li>▪ Overseas trainings and workshops</li> <li>▪ CBDAMPIC education activities: This involved a relatively intensive education program for village leaders and school children in the villages of Lano and Saoluafata.</li> <li>▪ MRNEM Capacity Building Section activities: The Capacity Building team publish regular articles and assist in other awareness initiatives.</li> <li>▪ Regular articles in Tapu magazine: A sub-regional magazine based in Samoa that is distributed in Hawaii, Australia, NZ, Niue, American Samoa, Tokelau, and the USA.</li> </ul>	<p>important role in raising public awareness, there is a need for a integrated strategy/ action plan to improve the effectiveness of education activities.</p> <ul style="list-style-type: none"> <li>▪ There is also a need to better integrate education activities into the formal education framework provided by schools and universities.</li> <li>▪ There is also a need to carry out a national survey on how effective the awareness activities are the lessons learned.</li> </ul>
<p><b>Information management and networking</b></p>	<ul style="list-style-type: none"> <li>▪ Data has been kept, but no central database exists.</li> <li>▪ Set up climate change webpage under the meteorology website / server (<a href="http://www.meteorology.gov.ws/sections/climatechange.htm">www.meteorology.gov.ws/sections/climatechange.htm</a>).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Information sharing and networking is viewed as an important avenue through which to mainstream climate change objectives.</li> <li>▪ There is a need to improve the existing information system</li> </ul>
<p><b>Institutional arrangements</b></p>	<ul style="list-style-type: none"> <li>▪ Samoa’s climate change program has been coordinated by a series of project staff, employed by the government’s Ministry of Natural Resources, Environment and Meteorology and funded by various development partners.</li> <li>▪ Establishment of National Climate Change Country Team (NCCCT)</li> <li>▪ Draft National Climate Change Policy</li> <li>▪ Established of institutional framework for Preparation of the Second National Communication Report</li> </ul>	<ul style="list-style-type: none"> <li>• It is important to acknowledge that project staff members have been employed specifically for the project and funding for their salaries is limited to the duration of the projects.</li> <li>• The need for the government to establish permanent staff positions, funded from the MNREM core budget. This will ensure that Samoa’s climate change program can be sustained beyond the duration of projects.</li> <li>▪ The NCCCT has proven a successful mechanism for consultation and collaboration with relevant stakeholders. However, there are some key limitations of the NCCCT such as:             <ul style="list-style-type: none"> <li>○ The difficulty in maintaining high levels of participation and ensuring those who participate are</li> </ul> </li> </ul>

		<p>the most appropriate representatives;</p> <ul style="list-style-type: none"> <li>○ Consistency of representatives participating in climate change programmes;</li> <li>○ Coordination of the NCCCT requires significant resources and staff time, the burden of which often falls on climate change projects and project staff;</li> <li>○ Lack of high-level support amongst the members of the NCCCT</li> <li>○ A need for a high-level steering committee.</li> <li>○ A need to integrate climate change concerns into existing sector high-level steering committee e.g. Water Sector Steering Committee</li> </ul>
<p><b>International negotiations</b></p>	<ul style="list-style-type: none"> <li>▪ Samoa has been an active participant in international negotiations dealing with climate change, including Conference of the Parties, subsidiary bodies and working groups. Some of the key highlights include: Attendance at all COPs, representatives on CDM Committee, Spokesperson on adaptation working group, attending WMO meetings, IPCC meetings and other technical workshops. Samoa has also worked hard with its regional neighbours to develop a regional voice on climate change.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reliance on donor support to attend meetings means that there is always some uncertainty about whether Samoa will participate in international meetings.</li> <li>▪ Limited number of representatives at international meetings means that Samoa cannot fully participate in all the relevant sub-activities. This prevents Samoa from ensuring all of its interests are fully pursued.</li> <li>▪ Limited staff capacity means that every time a representative attends an international meeting, national implementation efforts are delayed.</li> <li>▪ Staff turn-over and limited staff resources means that it is difficult to maintain consistency in representation at international meetings.</li> <li>▪ Limited staff capacity means</li> </ul>

		that Samoa and the region are often under-prepared for international meetings.
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## 6. Thematic Assessment of Capacity Gaps

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### 6.1 Background

Detailed consultation with relevant climate change stakeholders, revealed a wide range of perceived gaps in Samoa's capacity to achieve its national climate change objectives and to implement the UNFCCC. These gaps were categorized into six key themes and their root causes were identified using the problem tree approach. These key themes are:

- Theme 1: Mainstreaming of Climate Change Objectives
- Theme 2: Adaptation
- Theme 3: Mitigation
- Theme 4: Research and Systematic Observation
- Theme 5: Data Management
- Theme 6: Education and public awareness

### 6.2 Theme 1: Mainstreaming of Climate Change Objectives (UNFCCC Article 4)

#### Description of capacity gap:

An overarching capacity gap for Samoa is that **climate change objectives are inadequately mainstreamed**. This means that climate change is still treated as a separate, isolated issue, rather than an issue of concern and importance for all sectors. Not all sectors and stakeholders affected by climate change are taking responsibility for this issue. Some of the root causes of this capacity gap are outlined below.

#### Root Causes

- Inadequate lobbying from relevant stakeholders to raise the profile of climate change in national development strategies, actions and measures
- Inability of government and communities to sustain climate change projects
- Inadequate high level exposure of the climate change issues

### 6.3 Theme 2: Adaptation (UNFCCC Article 4)

#### Description of capacity gap:

As outlined above, adaptation to the adverse impacts of climate change is a major priority for Samoa. However, recent adaptation efforts have highlighted a **limited capacity of relevant sectors and stakeholders to implement adaptation strategies**. The root causes of this limited capacity are outlined below.

#### Root Causes

- Ineffective cooperation and coordination between government agencies and other stakeholders
- Climate Change Section not mainstreamed into government institutional structure
- Limited awareness and understanding of the importance of adaptation
- No or lack of legal framework and regulatory support for climate change program
- Limited skills, human and technical resources
- Limited funds

- Limited coordination of Meteorology Division with all sectors and vice versa,
- Ineffective promotion of the works of the Meteorology Division
- Limited knowledge and skills to develop early response measures to deal with outbreaks of climate related diseases
- Limited of climate-health related data
- Lack of system to coordinate climate-health program
- Limited resources to implement early warning systems
- Inconsistent coordination between communities and water management agencies such as Samoa Water Authority
- Lack of coordination and limited awareness for sustainable forestry practices
- Limited integration of climate change issues into development planning regulations and statutory compliancy (DCS, EIA, Building Code, COEPs)

#### **6.4 Theme 3: Mitigation (UNFCCC Article 4 and Kyoto Protocol)**

##### *Description of capacity gap:*

Climate change mitigation essentially involves reducing greenhouse gas emissions. As outlined above, Samoa has focused its mitigation efforts on increasing renewable energy production. However, a number of other mitigation options also have some potential in Samoa, including energy efficiency and the use of carbon sinks (forests). The NCSA consultations revealed an **inadequate capacity to identify mitigation opportunities and implement actions**. The root causes of this limited capacity are outlined below.

##### *Root Causes*

- Limited technical knowledge and skills
- Limited access to technology to allow abatement of GHG
- Limited understanding of mitigation opportunities for all sources of greenhouse gase emissions (ie. waste, industries, energy, agriculture and land use change and forestry).
- Insufficient financial support for mitigation
- Low level of priority towards mitigation activities
- Ineffective coordination between government agencies
- Limited examples of mitigation activities e.g. trials and success stories
- Energy policy yet to be endorsed Limited skills and knowledge monitor GHG reductions from forest sinks

#### **6.5 Theme 4: Research and Systematic Observation (UNFCCC Article 5)**

##### *Description of capacity gap:*

Research into all areas relating to climate change is important as it helps to enhance the understanding of how climate change will affect Samoa and what activities can be taken to adapt. Systematic observation of climate change is also important as it helps to monitor Samoa's climatic trends and to provide locally relevant climate predictions. Consultation with relevant stakeholders has revealed that overall Samoa has a **limited capacity to conduct research and systematic observations into areas related to climate change**. The root causes of this limited capacity are outlined below.

### Root Causes

- Limited availability and accessibility of data from climate related sectors to assist with research and systematic observations
- Limited technical and financial resources
- Limited human resources (number of staff, skills and knowledge in all areas relating to climate change research)
- Inadequate data sharing between stakeholders
- Limited focus on climate change research in academic and research institutions
- Limited access to hydrology field monitoring sites
- Lack of training opportunities and funding for research staff
- Lack of funding to maintain and upgrade the climate and hydrology monitoring network in good working order

## **6.6 Theme 5: Data Management**

### Description of capacity gap:

All climate change activities depend on the availability of relevant data. For example, this data includes climate data, agricultural production data, and energy consumption data. While Samoa has been collecting a lot of relevant data, there is a **limited capacity to manage this data effectively**. This limited capacity has a number of root causes, which are listed below.

### Root Causes

- Lack of skilled and qualified staff to manage data and information resources
- Lack of funding to implement and maintain data and information management systems
- Inadequate baseline data

## **6.7 Theme 6: Education, and Public Awareness (UNFCCC Article 6)**

### Description of capacity gap:

Education and public awareness is important as it helps to build understanding of climate change issues and to strengthen Samoa's capacity to adapt to the adverse impacts. However, to date, there has been **inadequate education and public awareness**. The root causes of this capacity gap are outlined below.

### Root Causes

- Insufficient funds for awareness and education programmes
- Lack of educational resource materials for teachers and other public educators
- Poor networking between government agencies, private sector, NGO's, and civil society



## 7. Priority Actions to Address the Capacity Gaps

### 7.1 Background

The root causes listed above were analysed and, where appropriate, turned into actions which are aimed at improving Samoa's capacity to implement the UNFCCC. These actions are to be undertaken at the systemic, institutional and individual levels. The systemic level actions are those designed to improve coordination between stakeholders, particularly government agencies. Activities at the institutional level are aimed at building the capacity of individual institutions. The individual level refers to the capacity of individual people, such as government employees, who have a role to play in implementing the UNFCCC.

The priority actions to address gaps in Samoa's capacity to implement its international climate change obligations have been grouped under specific themes and are listed below.

### 7.2 Theme 1: Mainstreaming of Climate Change Objectives

Actions at the Systemic Level	Actions at the Institutional Level	Actions at the Individual Level
<ul style="list-style-type: none"> <li>➤ Establish high-level steering committee to oversee the incorporation of climate change objectives into all relevant sector plans.</li> <li>➤ Existing high-level sectoral steering committees to integrate climate change objectives into sectoral plans e.g., National Water Sector Plan</li> <li>➤ Ensure climate change objectives are explicitly addressed in the SDS.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Lobby for Climate Change Section to be mainstreamed into govt. institutional budget &amp; planning</li> <li>➤ Seek annual funding for relevant sectors to incorporate climate change into their work programs</li> <li>➤ Develop media and communications strategy to increase the exposure/awareness of climate change projects</li> </ul>	<p><i>Not applicable</i></p>

### 7.3 Theme 2: Adaptation

Actions at the Systemic Level	Actions at the Institutional Level	Actions at the Individual Level
<ul style="list-style-type: none"> <li>➤ Review existing legislations to ensure that adaptation to impacts of climate change is addressed, (e.g. DCs, EIA, Building Code &amp; COEPs)</li> <li>➤ Develop legal instruments to ensure adaptation objectives are taken into consideration as part of the development planning approval process (i.e. to ensure future developments do not exacerbate vulnerabilities)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Strengthen awareness of all sectors (health, agriculture, water, etc) on the importance of integrating adaptation to climate change in their work programmes</li> <li>➤ Review institutional arrangements to strengthen coordination between Meteorology Division and all other sectors</li> <li>➤ MNREM to seek funding to implement adaptation activities outlined in the NAPA</li> <li>➤ Establish a system for monitoring and responding to climate-related health concerns</li> <li>➤ Integrating water resource management systems with the Water Sector Support Programme (WaSSP) for villages currently not serviced by SWA</li> <li>➤ CIM Plans to include climate change</li> <li>➤ Improve awareness of sustainable forestry and agricultural practices (check NAPA if it includes this)</li> <li>➤ Work with academic institutions to incorporate climate change adaptation education</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide training and education opportunities for individuals in relevant sectors to improve their knowledge and skills in the area of climate change adaptation such as adaptation planning, adaptation technology and vulnerability &amp; adaptation assessments.</li> <li>➤ Provide training for village leaders (chiefs, women’s committee, church ministers, untitled men’s groups and youth groups) to help them understand and integrate adaptation actions and measures into their business as usual activities.</li> </ul>

## 7.4 Theme 3: Mitigation

Actions at the Systemic Level	Actions at the Institutional Level	Actions at the Individual Level
<ul style="list-style-type: none"> <li>➤ Strengthen high level support for mitigation</li> <li>➤ Develop financial and technological incentives for technology transfer such as subsidies, rebates and reduced tariff rates</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop and deliver training on renewable energy and energy efficiency for all relevant stakeholders</li> <li>➤ Investigate financial incentives for conserving and expanding forest sinks</li> <li>➤ Ministry of Finance to seek Cabinet endorsement for National Energy Policy</li> <li>➤ Compile all existing information on mitigation options for Samoa and make available for all stakeholders</li> <li>➤ Prepare stock-take of existing technology and update regularly. Distribute to all stakeholders.</li> <li>➤ Seek funding for trial projects to show benefits/potential of mitigation initiatives</li> <li>➤ Develop a system to monitor GHG savings resulting from mitigation activities</li> <li>➤ Incorporate training on renewable energy technology into Polytechnic courses (installation and maintenance).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide training and education opportunities for individuals in relevant sectors to improve their knowledge and skills in the area of climate change mitigation (especially renewable energy and energy efficiency)</li> </ul>

## 7.5 Theme 4: Research and Systematic Observation

Actions at the Systemic Level	Actions at the Institutional Level	Actions at the Individual Level
<ul style="list-style-type: none"> <li>➤ Integrate climate change research into the Research and Development Institute work programme</li> <li>➤ Strengthen the national research capacity by promoting and sponsoring climate change adaptation and mitigation academic research programs</li> <li>➤ Ensure climate change research is included as a priority in the Climate Change Policy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Seek funding to improve and maintain access to hydrology monitoring sites</li> <li>➤ Lobby for annual government funding to maintain and upgrade climate and hydrology stations</li> <li>➤ Promote research collaboration between academic institutions and government agencies</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide on going training for government staff to conduct systematic observations of climate change related trends (i.e. hydrology, climate, sea level)</li> </ul>

## 7.6 Theme 5: Data Management

Actions at the Systemic Level	Actions at the Institutional Level	Actions at the Individual Level
<ul style="list-style-type: none"> <li>➤ Develop MoUs or protocols to facilitate and govern data sharing between relevant stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>➤ Conduct a comprehensive stock-take of all relevant climate change data and establish central climate change information database</li> <li>➤ Seek funding for a staff member to manage and upgrade climate change information database</li> <li>➤ Lobby for annual funding for data management</li> </ul>	<ul style="list-style-type: none"> <li>➤ Provide training for staff to improve knowledge and skills for data collection and management</li> </ul>

## 7.7 Theme 6: Education and Public Awareness

Actions at the Systemic Level	Actions at the Institutional Level	Actions at the Individual Level
<ul style="list-style-type: none"> <li>➤ Develop a comprehensive and integrated national action plan for raising awareness about climate change</li> <li>➤ Improve cooperation between government ministries and corporations, NGO's, private sector and civil society to increase awareness of climate change</li> </ul>	<ul style="list-style-type: none"> <li>➤ Seek financial assistance to purchase education materials (i.e. text books and journals) for libraries and schools</li> <li>➤ Seek funding to produce education resource materials relevant to Samoa i.e. teachers manuals, posters, and pamphlets</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop incentives for individuals to carry out study in the climate change field.</li> <li>➤ Provide training for appropriate staff in the area of environmental education, public education and social marketing</li> </ul>

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## **8. Conclusion**

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### **8.1 Recap of the Thematic Assessment**

This report provides a detailed analyses of Samoa's capacity to implement the UNFCCC. Capacity gaps and their root causes have been identified and grouped into six thematic areas. These are: (i) mainstreaming of climate change objectives, (ii) adaptation, (iii) mitigation, (iv) research and systematic observation, (v) data management, and (vi) education and public awareness.

For each of these thematic areas, a series of actions have been presented, which address the root causes of Samoa's limited to capacity to implement the UNFCCC. Ultimately, by implementing these actions, Samoa's capacity to fulfil its national and international climate change objectives will be greatly enhanced.

### **8.2 Next Steps**

The Thematic Assessment Report represents the third to last phase of the NCSA project. The next phase will involve an assessment of the cross-cutting issues. This includes capacity gaps and root causes that are relevant to all of the thematic areas outlined in this report, as well as those outlined in the reports prepared for the UNCCD and CBD. Once the cross-cutting capacity gaps and root causes have been identified, the next step is to identify which actions are common for each of the three conventions. It is anticipated that a large number of the actions will have benefits for all three of the conventions.

Once the cross-cutting assessment has been carried out, the final phase of the NCSA project is the preparation of an action plan. This action plan will provide a framework for implementing the priority actions to strengthen Samoa's capacity to implement the three conventions.

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## 9. References

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