MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

SAMOA'S NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN 2015-2020

Convention on Biological Diversity

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List of acronyms

ABS	Access and Benefit Sharing
ABT	Aichi Biodiversity Targets
ASP	Agriculture Sector Plan
CBD	Convention on Biological Diversity
CC	Climate Change
CEPF	Critical Ecosystems Protection Fund
CI	Conservation International
CIM Plans	Coastal Infrastructure Management Plans
COP	Conference of the Parties
CSO	Civil Society Organizations
DMO	Disaster Management Office
DPSIR	Drivers-Pressures-States-Impacts-Responses
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMC Bill	Environment Management and Conservation Bill
EPC	Electric Power Corporation
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEF NFP	GEF National Focal Point
GCRMN	Global Coral Reef Monitoring Network
GD	Gangwon Declaration on Biodiversity for Sustainable Development
GHG	Green House Gases
GoS	Government of Samoa
IUCN	International Union for the Conservation of nature/World Conservation Union
KBA	Key Biodiversity Areas
LPG	Liquefied Petroleum Gas
MAF	Ministry of Agriculture and Fisheries
METI	Matua-ile-Oō Environment Trust Inc.
MNRE	Ministry of Natural Resources and Environment
MOF	Ministry of Finance
NAPA	National Adaptation Plan of Action
NECSAP	National Environment Capacity Strategy and Action Plan
NESP AC	NESP Advisory Committee
NPSAP CG	NBSAP Coordinating Group
NP	National Park
NESP	National Environment Sector Plan 2013 - 2016
OLSS	O le Siosiomaga Society Inc.
PEAR	Preliminary Environmental Assessment Report
PUMA	Planning and Urban Management Agency
RE	Renewable Energy
SATFP	Samoa Agroforestry and Tree Farming Project
SBS	Samoa Bureau of Statistics
SDS	Strategy for the Development of Samoa
SMEC	Snowy Mountains Engineering Corporation
SOE	State of the Environment
SOPAC	South Pacific Applied Geoscience Commission
SPC	Secretariat for the Pacific Community
SPREP	Secretariat for the Pacific Regional Environment Programme
STDP	Samoa Tourism Development Plan
STMPD	Samoa Tuna Management Development Plan
TBK	Traditional Biological Knowledge

TLB	Taro Leaf Blight
TWG	Technical Working Group
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
WRD	Water Resources Division, MNRE

Foreword

It is my sincere pleasure on behalf of the Government of Samoa, to endorse its updated National Biodiversity Strategy and Action Plan (NBSAP) 2015 – 2020. Samoa's biodiversity plays a fundamental role to the physical, social, cultural and economic well-being of its people. The updated NBSAP sets out Samoa's priorities for biodiversity protection, conservation and the sustainable management of our biological resources to 2020. It builds on from the original NBSAP (2001) reporting on achievements made so far in parallel with proposed outcomes in the last NBSAP and importantly, addressing challenges and issues raised for improvements following a series of consultations with its relevant stakeholders for the updated NBSAP.

Samoa's NBSAP recognises S.A.M.O.A Pathway: the Outcome statement of the 2014 Small Islands Development States conference emphasising on the importance of building partnerships with stakeholders to support the effective implementation of NBSAP and acknowledging its links to sustainable tourism and climate change resilience building [Any reference to the recently endorsed Sustainable Development Goals especially Goals 14 and 15]? .

The updated NBSAP also recognizes and takes on board the concerns of the 2014 Gangwon Declaration (GD) on Biodiversity for Sustainable Development at its twelfth meeting of the Conference of the Parties (COP 12) to Convention on Biological Diversity (CBD). These concerns include, inter alia, the conclusions of the fourth edition of the Global Biodiversity Outlook stressing on; slow progress of works so far in relations to the achievement of the Aichi Biodiversity Targets, biodiversity loss continues with increasing adverse impacts on the well-being of humans and the importance for parties to link the implementation of the post 2015 development agenda to other relevant processes including NBSAPs.

The objectives set forth in this plan are based on nationally established goals and are designed to address National priorities. It is envisaged that with strong support, collaboration and appreciation of Samoa's biodiversity that we as a Party to the Convention on Biological Diversity will be able to contribute towards the achievement of the Strategic Plan for Biodiversity and the Aichi Biodiversity Targets by 2020.

Realistically, climate change is irreversible coupled with the increase in anthropogenic activities continues, to threaten our biological resources. This updated National Biodiversity Strategy and Action Plan addresses these issues, acknowledges the value of our biodiversity to human livelihood and most importantly recognizes the importance of having a strategic approach on having a shared vision, a mission and strategic goals and targets that will inspire broad-based actions by all parties and stakeholders to undertake urgent actions that effectively reduce the rate of, halt and reverse the loss of biodiversity.

Last but not the least; a healthy Samoa is in our own hands. Our decision today makes a big difference tomorrow.

Soifua

Hon. Faamoetauloa Lealaiauloto Taito Nanai Dr.FaaleTumaalii
Minister of Natural Resources & Environment

Executive Summary

Samoa' updated NBSAP adopts the Global Strategic Plan for Biodiversity 2011 – 2020 template and the Aichi Biodiversity Targets (ABT) as a flexible framework in compliance with the tenth Conference of the Parties (COP 10) Decision X/2. In doing so, Samoa's NBSAP is now properly aligned with the Global Strategic Plan and Aichi Biodiversity Targets, recognizing the strategic importance of doing so, to facilitate global biodiversity monitoring and assessment based on the three main objectives of the Convention – *conservation of biodiversity, sustainable use and equitable sharing of its benefits* with clear linkages to the National Environment Sector Plan and Strategy for the Development of Samoa (SDS).

The updated NBSAP also recognizes and takes on board the concerns of the 2014 Gangwon Declaration (GD) on Biodiversity for Sustainable Development from the twelfth meeting of the Conference of the Parties (COP) to the CBD. These concerns include, inter alia, the conclusions of the fourth edition of the Global Biodiversity Outlook that, current progress is not sufficient to achieve the ABTs and that biodiversity loss is continuing with adverse impacts on human well-beings; and the importance for Parties to link the implementation of the post 2015 development agenda to other relevant processes including the NBSAPs.

Similarly the updated NBSAP takes cognizance of the 2014 Small Island Developing States (SIDS) Conference S.A.M.O.A pathway Outcome Statement and the importance placed on building partnerships in its funding arrangements to support NBSAP implementation including links to sustainable tourism and climate change resilience building.

Process
Stakeholder consultations for the NBSAP followed in the wake of other environmental planning exercises namely the State of Environment Outlook (SOE) Report 2013 and the National Environment and Development Sector Plan (NESP) 2013 – 2016. In doing so, the NBSAP process benefited from the results of earlier consultations, in addition to its own, often times using these to validate its consultations findings. A review of the previous NBSAP also provided insight into gaps in implementation and issues underpinning the lack of progress in some of the 2001 NBSAP objectives. Individual experts also commented extensively on the initial drafts.

Extensive public and in-government consultations were carried out in two separate rounds following the completion of the first draft document. The second round in January 2015 focused on reviewing targets and actions, and in ensuring that all relevant partners in implementation are recognised and included. The result is a finalized NBSAP with strong ownership by MNRE and its implementing partners. Targets have also been re-adjusted and actions and indicators revised and added to, to reflect priorities and improve achievability.

Relevance of biodiversity
The relevance of biodiversity conservation to Samoa's ecological and economic well-being is highlighted by an event of major economic impact i.e. the total decimation in the early 1990s of Samoa's main export and staple food crop (taro (*Colocasia esculenta*)) – by an introduced virus (Taro Leaf Blight (TLB)). This incident demonstrated the extreme vulnerability of an island economy dependent on a species of limited genetic variability. It also highlighted the importance of broadening the genetic pool of such key species as part of strategies for economic resilience and food security.

Learning from this setback, Samoa's agrobiodiversity has since been significantly diversified in a calculated strategy involving the introduction of targeted species of new fauna and flora. Introduced taro varieties have since produced hybrids resistant to the TLB, are high yielding and of export quality. Introduced fruit trees and livestock varieties and species included rambutans, Tahitian limes, as well as goats, sheep and new breeds of heifers for local breeding. Similar introductions have diversified timber tree species including sandalwood.

The threat of extreme events associated with induced climate change, other invasive species, unsustainable harvesting and poorly planned developments are the major pressures threatening Samoa's biodiversity. The updated NBSAP addresses these threats under Strategic Goal B - *Reduce the direct pressures on biodiversity and promote sustainable use*. It also deals with the underlying drivers to these pressures under Strategic Goal A, promoting, inter alia, improved awareness and advocating for consolidating the place of environmental sustainability as a national development priority. The NBSAP promotes the case that ecological stability is an indispensable part of economic resilience. Biodiversity conservation and sustainable use of natural resource systems are fundamental and essential strategies. Moreover, the NBSAP challenges the Government to show that the mainstreaming of the environment extends beyond the political rhetoric and plans, into local budget allocation and accounting.

Vision, Goal and Targets

Samoa's vision for biodiversity conservation is maintained from its initial NBSAP. The vision is:

"Samoa's biological and genetic resources are protected, conserved and sustainably managed so that they will continue to flourish and regenerate, for present and future generations."

A mission statement is expressed as follows:

"To protect, conserve and sustainably manage Samoa's biological and genetic resources so that they will continue to flourish and regenerate, for present and future generations."

Of targets, all 20 Aichi Targets are adopted with appropriate albeit minor modifications to reflect local circumstances and capabilities. Aichi Target 16 – ratifying the Nagoya Protocol – was achieved in 2014, and the focus of implementation would be on developing and adopting supportive national legislation. Samoa's NBSAP strategic goals and targets are as follow:

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	
Target 1: By 2020, at the latest, the people of Samoa are aware of the values of biodiversity, the threats its faces, and the steps the Government and the people can take to conserve, protect and use it sustainably.	**Target 3:** By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are reduced significantly, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	**Target 4:** By 2020, at the latest, Government agencies, private sector organizations and groups, NGOs, civil society and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use	
Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	**Target 8:** By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	**Target 9:** By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
Target 7: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring the conservation of biodiversity.	**Target 10:** By 2020, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	
Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.	**Target 13:** By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is at least maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
Target 12: By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.	
Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, local communities, and the poor and vulnerable.	**Target 16:** By the end of 2015, Samoa has ratified and or acceded to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization with national legislation enacted to support its implementation.
Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.	
Target 17: By 2020 Samoa has developed, adopted as a policy instrument, and is actively implementing an effective , participatory and updated national biodiversity strategy and action plan.	**Target 19:** By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are fully protected by national legislation and relevant international obligations, and fully integrated and reflected in national and sector plans and budgetary processes.	**Target 20:** By 2020, at the latest, the mobilization of financial resources for effectively implementing the Samoa's NBSAP 2015 – 2020, from all sources, is increased substantially from the current (2015) levels.

Priorities strategies for funding and implementation

Proposed actions for each target reflect a strong emphasis and priority on expanding the network of protected areas - building on the 8% of total land area already under protection in pursuit of the 17% target in the updated NBSAP. Other priorities are invasive species, species conservation, public awareness and education and reducing overexploitation and promoting sustainable use. The low level of implementation in the previous NBSAP of actions under the Access and Benefit Sharing thematic area and Traditional Knowledge, biosecurity and in securing long term financial sustainability, are given emphasis.

Resource mobilization

Despite the high priority now assigned to environmental sustainability in the Strategy for the Development of Samoa (SDS), local funding for biodiversity conservation is limited to salaries and wages

for staff, and local operating costs for the Division of Environment and Conservation (DEC) of MNRE. As in previous years, the Global Environment Facility (GEF) and other conventions-based funding mechanisms are the major sources of funding for NBSAP implementation. This is expected to continue although local funding is keenly sought to strengthen local capacities of key government agencies especially MNRE, who will spearhead and lead NBSAP implementation. The Updated NBSAP also encourages the exploration of payment of ecosystem services including those on land under customary control, as incentives to reinforce community participation and commitment to conservation objectives, and to demonstrate the links between conservation, sustainable use and livelihoods of local resource owners.

Part I: Setting the Context

1. Introduction

This updated National Biodiversity Strategy and Action Plan (NBSAP) sets out Samoa's priorities for biodiversity conservation to 2020. It updates the original NBSAP (2001), building on that document and taking on board trends and issues reported in the Samoa State of Environment 2013 and the National Environment Sector Plan 2013 – 2016, as well as issues raised during the consultation process for the updated NBSAP.

1.1 Links to the CBD

Parties to the Convention on Biological Diversity (CBD) are required under Article 6 Section (a) to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity. Samoa became a Party when it ratified the Convention in 1993. It formulated and approved its first National Biodiversity Action Strategy and Plan (NBSAP) in 2001. The 2001 NBSAP provided the overall framework of vision, mission, goals, priorities and key actions that has since guided Samoa's pursuit of the three objectives of the Convention, namely: (i) the conservation of biological diversity, (ii) the sustainable use of resources and (iii) the fair and equitable access to and distribution of benefits arising from the use of genetic resources and traditional knowledge.

In the Tenth Conference of the Parties (COP; Decision X/2)[1] in Nagoya, Japan, governments including Samoa, reiterated their commitment to the achievement of the three objectives of the Convention on Biological Diversity and called for urgent actions that effectively reduce the rate of, halt and reverse the loss of biodiversity. They recognized the importance of having a strategic approach based on having a shared vision, a mission, and strategic goals and targets that will inspire broad-based action by all Parties and stakeholders. This logic is reflected in the rationale underpinning the adoption by the 10th COP of the Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets. The COP also urged all parties to, *inter alia*, to commit themselves:

".. . to develop national targets, using the Strategic Plan and its Aichi Targets, as a flexible framework, in accordance with national priorities and capacities and taking into account both the global targets and the status and trends of biological diversity in the country,..,

… to review and, as appropriate, update and revise, their national biodiversity strategies and action plans in line with the Strategic Plan for Biodiversity 2011–2020, including national plans related to biodiversity, and to report thereon to the Conference of the Parties at its twelfth meeting;[2]

The Twelfth meeting of the Conference of the Parties (COP) in the Republic of Korea in October 2014, reaffirmed, *inter alia*, the Parties' commitment and determination to fully implement the Strategic Plan for Biodiversity 2011-2020 and to achieve the Aichi Biodiversity Targets, recognizing that this requires a range of measures and policy coherence across government departments and economic sectors. It also called on Parties to link the implementation of post-2015 development agenda to other relevant processes, including the NBSAP and to integrate implementation of the Strategic Plan and Aichi Biodiversity Targets with national development plans.

This document therefore updates Samoa's 2001 NBSAP to reflect COP 10 Decision X/2, and those aspects of the Gangwon Declaration 2014 that are relevant to Samoa's circumstances. It adopts the flexible framework recommended by the CBD COP 10, and the Aichi Targets with amendments to reflect and

[1] CBD.Conference of the Parties (COP) 10 Decision X/2.X/2. Strategic Plan for Biodiversity 2011 – 2020.

[2] UNDEP/CBD/COP/11/35 – Annex 1: Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its Eleventh Meeting (Hyderabad, India 8 – 19 October, 2012.

better suit Samoa's circumstances. To the extent possible, Samoa's NBSAP also seeks to incorporate recommended indicators into its national level monitoring.

The substance of Samoa's NBSAP - the issues, the analysis of drivers and pressures on Samoa's biodiversity, as well as the priorities and actionable measures, are derived from and based on recent studies and assessments of Samoa's environment including the 2013 State of Environment Report, the 2013-2016 National Environment Sector Plan, plans of related sectors such as agriculture and consultations conducted as part of the NBSAP update exercise. It also took on board findings of an assessment of the previous NBSAP's implementation of actions that were implemented and completed, and others that weren't, and some of the issues and reasons contributing to the gaps.

2. Samoa - Background Information

2.1 Geographic features and location

The Independent State of Samoa forms the larger and western part of the Samoan Archipelago which lies in the south-west Pacific between 13º 25' and 14º 05' south of the equator, and between 171º 23' and 172º 48' west longitudes. The capital Apia is located about midway on the north coast of Upolu, and lies about 130 km from Pago Pago, American Samoa, 3,000 km from Auckland, New Zealand, and 4,500 km from Sydney, Australia.

The topography of Samoa is rugged and mountainous, with about 40 per cent of Upolu and 50 per cent of Savaii characterised by steep slopes and descending from volcanic crests. The interior of both main islands is still covered with montane forests and, in the case of the highest altitudes on Savaii, cloud forest. These areas also contain volcanic peaks with the Upolu crestal ridge rising to 1,100 m. Savaii has more and younger volcanic cones with the highest peak reaching 1,848 m at Mt Silisili. West Savaii and north-west Upolu are almost devoid of surface streams.

2.2 Land, Sea and Land tenure system

Samoa comprises of two main islands, seven smaller islands, and islets and rocks. Its total land area is about 2,820 km^2 with the two main islands of Upolu and Savaii containing 1,115 and 1,700 km^2 respectively.

The country has an Exclusive Economic Zone of 120,000 km^2. It is the smallest EEZ amongst those of the Pacific Island Countries, and is bordered to the north by Tokelau, south by Tonga, east by Cook Islands and American Samoa, and west by Wallis and Futuna.

2.3 Population

The 2011 national census recorded a total population of 187,820 reflecting a growth rate of 0.4% over the 2006-2011 population. It is projected to increase to 245,000 by 2050. There is a split of 76% (142,418) and 24% (44,402) residing in Upolu and Savaii, respectively. Around 80% of people live along the coastal areas with 36,735 (19.6%) living in the Apia Urban Area and 151,085 (80.4%) in the rural areas. Women and men comprise 48% and 52% respectively and 56% of the total population is between the age of 16 and 64 years of age.

Past and recent censuses do not collect data on ethnicity. It does however provide data on citizenship, with the number of non-Samoan citizens[3] totalling 3,597 or 1.9 percent of the total population in the 2011 census. Two recent reports estimate the ethnic make-up of Samoa's population, both estimating native Samoans at 93%[4,5] of total population. Other ethnic groups are Euronesians (persons of European and

[3] Non-Samoan citizens are those reported in the census as falling under the following categories of citizenship (i) New Zealand and Australia (1246) (ii) USA (1184) and (iii) Others (1167). (SBS, 2011; p.60).

[4] www.nationsencyclopaedia.com/Asia-and-Oceania/Samoa_ETHNIC-GROUP. Downloaded 5 Jan 2014.

[5] Amosa, Desmond & Samson, Michael. 2012. *Samoa Country Case Study – AusAID Pacific Social Protection Series: poverty, vulnerability and social protection in the Pacific.* AusAID, Canberra. Commonwealth of Australia.pp.70.

Polynesia descent) (0.7%), and Europeans (0.4%) most of whom live in the capital of Apia and its surrounding environs.

Table 1 below presents the salient features of Samoa's population.

Table 1: Salient features of Samoa's Population

	TOTAL	MALE	FEMALE
Total Population (Nov 7, 2011)	**187,820**	**96,990**	**90,830**
- Percentage of males & females		52	48
- Sex ratio (no. of males per 100 females)	107		
- Growth rate (%) of total population, 2006-2011	0.4		
- Population density (no. people/km2)	67		
- Median age	20.7		
- Total population 0 - 14	71,890	37,349	34,541
- Percentage of 0 – 14 over total population	38.3	38.5	38.0
- Total population 15 - 64	106,615	55,523	51,092
- Total population 65+	9,285	4,094	5,191
- Age dependency ratio	76		
- Urban population (Apia Urban Area region)	36,735	18,485	18,250
- Percentage of urban population	19.6		
- Rural population	151,085	78,505	72,580
Average household size	**7**		
Crude birth rate/1000	**30.4**		
Average life expectancy at birth	**74.2**	**72.7**	**75.6**
Economically active population (age 15+)	**47,881**	**34,763**	**13,118**
- Percentage of employed in subsistence work	35.6	46.0	7.6
- Percentage of unemployed population	5.7	67.1	32.9
Not economically active population (age 15+)	**67,990**	**24,836**	**43,154**

Source: Samoa Bureau of Statistics, 2012.

2.4 Social organization

Samoa's population lives in 362 villages including the Apia Urban Area. Over 98% of these are traditional villages or villages that are governed by the *Fono* or Council of Chiefs. Villages are largely autonomous of the National Government and may have a population ranging in size from less than a 100 to as many as 500 people, sometimes more in larger villages in the peri-urban areas. A traditional village consists of a number of extended families each of which is headed by a chief or *matai* and consisting of close kins (brothers and sisters) and their families, often living in a number of houses clustered together on extended family land. Non-traditional villages are communities where family units or households live on mainly freehold lands. In these communities, there is no Council of Chiefs present with households organizing themselves around local church affiliations or congregations. These communities are found around the urban and peri-urban areas.

The traditional village organization and governance consist of three main bodies (i) the Council of Chiefs or *Fono* which include all chiefly title holders and is the paramount authority; (ii) the untitled men or '*aumaga*' or *malosi o le nu'u* (which literally translates to 'the strength of the village") and (iii) the *aualuma ma tamaita'i* often referred to as the women's committee. All three have well defined functions and responsibilities.

The Council of Chiefs makes bylaws and adjudicates on matters of law and order, and ensures the proper allocation and use of communal resources especially village owned lands. The Council also generally oversees village participation in government-led and funded development activities such as the development of physical infrastructure and government services such as health and education. The

Council also appoints a *Sui-o-le-Nu'u*[6] (village mayor) and a *Sui o le Malo* or women's representative. The Village Fono Act 1990 empowers the Council to make rules and by-laws for the maintenance of village hygiene, the development and use of village land for the economic development of the village. The same Act also requires the Court to recognize and take into account penalties imposed by the Village Fono in respect of village misconduct, if the same person is convicted by a Court of a crime or offence in respect of the same matter. Village Fono normally meets monthly.

The *'aumaga'* or *'malosi ole nuu'* are the enforcers of Council decisions and the implementers of physically demanding community activities including cultivation and fishing. The *aumaga* is always present whenever the Council is convened to prepare food, prepare the *ava* and participate in the *ava* ceremony, and generally serve the needs of the *Fono.*

The Women's Committee is directly assigned the responsibility for hygiene, but their more important traditional role is as the weavers of highly valued fine mats (*ie toga*) that is the main currency of value for exchange in traditional occasions including weddings, funerals and the bestowing of chiefly titles and others. The Committee generally meets on the same day as the *Fono*, in a separate *fale* to discuss women related issues.

2.5 Political System

Samoa's political system is a parliamentary representative democracy with a unicameral legislative assembly consisting of 49 members, 47 of whom are *matai* (chiefly titleholders) elected by citizens aged 21 years and over, and 2 members representing the part and non-Samoan population. The Prime Minister of Samoa is the head of government who appoints 12 other parliamentarians to form a Cabinet. General elections are held every five years. There are effectively two political parties in Parliament, the Human Rights Protection Party (HRPP) who has been in power for an interrupted 25 years, and the Tautua Party, a minority party of about 12 members.

The national government (*malo*) generally controls the legislative assembly as it is formed from the party which controls the majority seats in the assembly. Executive power is exercised by the government. Legislative power is vested in the assembly, but the government generally controls legislation through its weight of numbers in the Parliament. The Judiciary is independent of the executive and the legislature.

Central to understanding Samoa's political system is the indigenous *fa'amatai* chiefly system of socio-political governance and organisation which exists alongside the country's Westminister based political system. The *fa'amatai* chiefly system governs the daily affairs of villages with respect to the maintenance of village law and order, allocation and management of communally owned resources, in particular land, and the regulation of social relations and communally shared services and amenities. The *fa'amatai* system in villages consists of a Council of Chiefs, the paramount authority consisting of all chiefly title holders, the untitled men or *malosi ole nu'u* (literally translated 'the strength of the village') and the *nuu o Saoao ma Tamaitai* (Women's committee).

With some exceptions, national development initiatives especially the development of physical infrastructure, public utilities of water[7], electricity and social services for education, health, etc are the responsibility of the national Government. But there are recognized roles of villages, led by the Councils of Chiefs, hence consultations between national planners and implementers on one hand and village representatives on the other, are an essential and integral part of the overall national development process. This relationship is most critical and necessary where customary owned village lands are involved.

[6] Previously officially known as Pulenu'u

[7] Some villages prefer to operate their own drinking water schemes.

Map 1: Location of Samoa within the Pacific Ocean. Source: MNRE.

The State and Trends of Samoa's biodiversity is provided in details and is referred to from pages 15 – 18 of Samoa's Fifth National Report.

2.6 Forest distribution

Samoa's remaining forests consist of native forests found mainly in the larger and less developed island of Savaii, and non-native dominated forests on the more populated island of Upolu. The following distribution divides Samoa's terrestrial vegetation into three main habitats – upland and cloud forests, lowland forests and coastal vegetation.

The distribution of Samoa's existing forests is given in Tables 1, 2 and 3 below.

Table 1: Upland and Cloud forests in Upolu and Savaii (elevation of 600m and above)

	Native Forests		**Non-native forests**		**Total forested area**		**Non-forested areas**	**TOTAL AREA**
	% (a)	ha	% (a)	ha	% (a)	ha	ha	ha
Savaii	91.2	49,038	8.8	4,732	100	53,770	0	53,770
Upolu	0	0	99.0	11,489	99.0	11,489	121	11,610
Samoa	75	49,038	0.23%	16,221	99.8%	65,259	121	65,380

Source: MNRE. 2013. Samoa's State of Environment Report, 2013.

Table 2: Lowland forest cover in Upolu and Savaii (60 – 600m elevation)

	Native Forests		Non-native forests		Total forested area		Non-forested areas	TOTAL AREA
	% (a)	ha	% (a)	ha	% (a)	ha	ha	ha
Savaii	0.08	146	48	80,784	48.08	80,930	0	80,930
Upolu	0	0	69	73,460	69.0	73,460	200	73,660
Samoa		146		154,190		154,190	200	154,390

Source: MNRE. 2013. Samoa's State of Environment Report 2013.

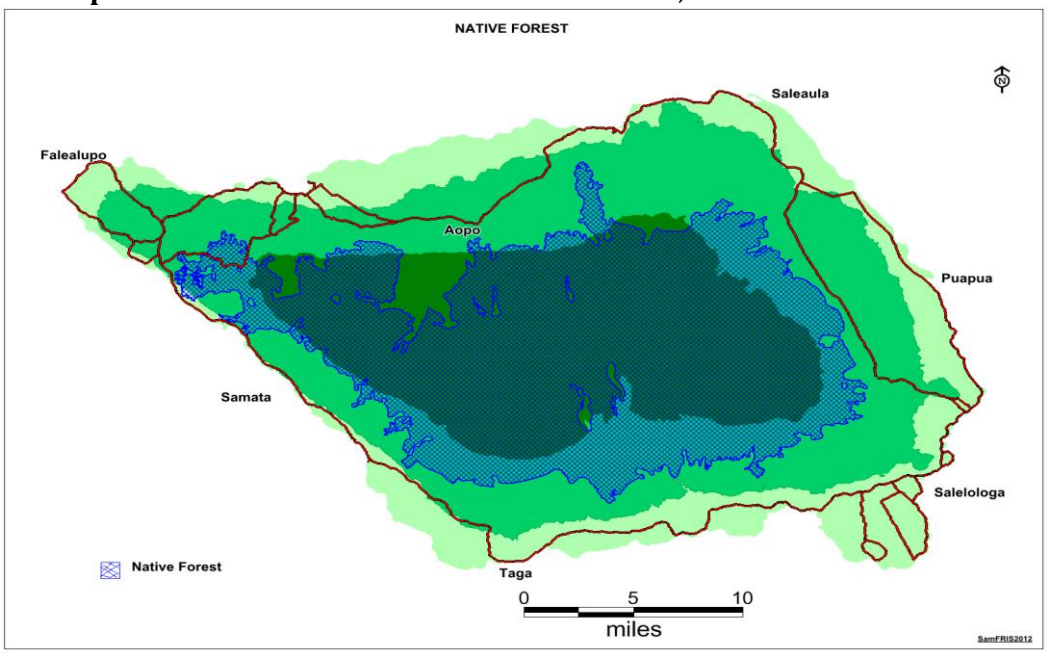
Table 3: Coastal habitats forest cover in Upolu and Savaii (0 – 60m asl)

	Native Forests		Non-native forests		Total forested area		Non-forested areas	TOTAL AREA
	%	ha	%	ha	%	ha	ha	ha
Savaii	0.0	0	20	34,596	20	34,596	1,804	36,400
Upolu	0.0	0	20	22,085	20	22,085	5,644	27,730
Samoa		0	20	56,682	20	56,682	7,448	64,130

Source: MNRE. 2013. Samoa's State of Environment Report 2013.

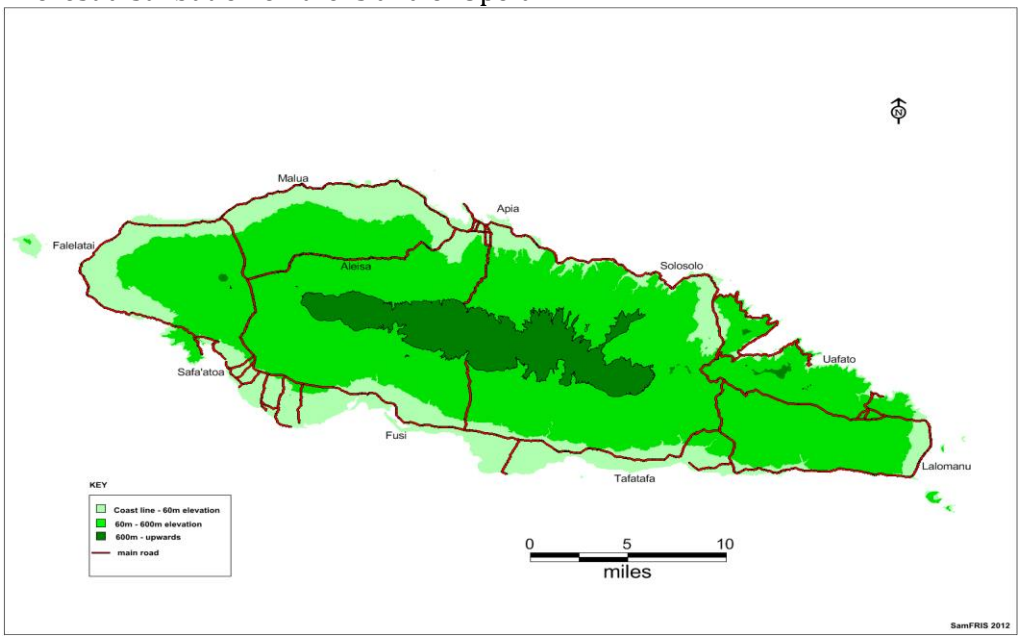
The forest distribution are depicted in the following maps –

Map 2: Native forests distribution on Savaii Island, Samoa



Source: MNRE. 2013. Samoa's State of Environment Report, 2013.

Map 3: Forest distribution on the island of Upolu



Source: MNRE. 2013. Samoa's State of Environment Report, 2013

3. Understanding Biodiversity

Biodiversity*, or *biological diversity, is the variety of all life forms. There are three levels of biodiversity:

- genetic diversity—the variety of genetic information contained in individual plants, animals and micro-organisms
- species diversity—the variety of species
- ecosystem diversity—the variety of habitats, ecological communities and ecological processes.

Biodiversity occurs in all environments on Earth—terrestrial, aquatic and marine.

Biodiversity is not static; it is constantly changing. It can be increased by genetic change and evolutionary processes, and it can be reduced by threats which lead to population decline and extinction. Samoa's native biodiversity is currently declining because of the impacts of a range of threats including invasive species, habitat degradation and over-exploitation.

Conserving biodiversity is an essential part of safeguarding the biological life support systems on Earth. All living creatures, including humans, depend on these life support systems for the necessities of life. For example, we need oxygen to breathe, clean water to drink, fertile soil for food production and physical materials for shelter and fuel. These necessities can be described collectively as *ecosystem services*. They are fundamental to our physical, social, cultural and economic well-being.

Ecosystem services are produced by the functions that occur in healthy ecosystems. These functions are supported by biodiversity and its attributes, including the number of individuals and species, and their relative abundance, composition and interactions (see Figure 2, page 19).

Ecosystem services can be divided into four groups:

- provisioning services (e.g. food, fibre, fuel, fresh water)
- cultural services (e.g. spiritual values, recreation and aesthetic values, knowledge systems)
- supporting services (e.g. primary production, habitat provision, nutrient cycling, atmospheric oxygen production, soil formation and retention)

- regulating services (e.g. pollination, seed dispersal, climate regulation, pest and disease regulation, water purification).

Ecosystem resilience is the capacity of an ecosystem to respond to changes and disturbances, yet retain its basic functions and structures. The resilience of ecosystems in Samoa is constantly threatened by a number of threats:

- habitat loss, degradation and fragmentation
- invasive species
- unsustainable use and management of natural resources
- poorly planned development activities
- climate change and climate variability

For ecosystems to be resilient to these and other threats, they need a healthy diversity of individuals, species and populations.

The Strategy is a guiding framework for biodiversity conservation over the coming decades for all sectors—government, business and the community.

The Strategy sets out priorities which will direct our efforts to achieve healthy and resilient biodiversity and provide us with a basis for living sustainably.

4. Biodiversity and ecosystem services and their relevance to Samoa's development –

Our biodiversity is, in essence, the ecological foundation upon which our country exists physically, culturally, socially and economically. The ecological services provide for the production of our foods, fibre, fuel, fresh water, medicinal plants, building materials. They renew and contribute to the supply of our water resources, atmospheric oxygen, the formation of fertile soils, and the essential conditions for the existence of our fauna and flora. Its regulatory services provides for the pollination of our flowers and crops, the dispersal of our forest and plants seeds, the regulation of our microclimates, and the removal of carbon from the atmosphere that is so important to mitigating the impacts of climate change. The natural beauty of our island environments enriches our senses, inspires our spirituality and gives wealth to the cultural and oral traditions that are central to our sense of self and identity.

With most of our population (~80%) largely subsistence directly dependent on the land and sea for food and income, our biodiversity does indeed play a vital if not central role in all aspects of our nation's well being - social, economic, cultural and spiritual.

The following discussion briefly examines the specific contribution of different aspects of our biodiversity to our country's social, economic, cultural and spiritual well-being.

4.1 Agricultural biodiversity or agrobiodivesrity

Agriculture was often referred to as the backbone of Samoa's economy and until the early 1980's, was the most dominant sector accounting for nearly 90% of our exports and around 60% of the country's total employment (MAF, 2011)[8]. Three main crops; copra, cocoa and bananas, accounted for about 80% of all agricultural exports during the same period (*ibid*.).

However during the last 30 years, agriculture's contribution to the national economy declined[9] both in terms of GDP contribution and local employment. The most visible cause of this decline was the

[8] Employment levels in the sector had also declined over the last two decades from 60% in the early 1980's to 39% in 2006 according to the population census conducted that year (MAF, 2011, op cit).

[9] "…from one half of GDP in the 1980's and one third of GSP in the 1990s to only 11% in 2009" (GoS, 2011).

decimation of our taro export industry in 1993 by the Taro Leaf Blight (TLB) – a deadly non-native fungus (water mold) that caused extinctions to all Samoan taro varieties within a year (1992-1993) of its arrival.

The demise of our taro export industry illustrates the high level of economic vulnerability of an agricultural economy based on a limited agrobiodiversity. It also highlights the ecological vulnerability of islands biodiversity where species endemism may be high, but – limited in genetic diversity – with poor defensive mechanisms against introduced species and diseases. Efforts to re-introduced new taro leaf blight resistance varieties, have resulted in a remarkable recovery in taro export since 2009, as well as contributing to food security. This in part has been the Government's efforts to expand the taro genetic pool and diversity[10]. This case clearly demonstrates the need to protect and build the genetic diversity of food crops, as a strategy for ecological and economic resilience.

Samoa's economic and food crop diversity has been expanded with the deliberate introduction of new varieties and species of fruit trees, vegetable, and livestock to broaden and diversify the sector's export potential, and to enhance food security and quality for the people. Some of these species include a range of citrus varieties (Tahitian lime and maya), lychee, mangosteen, pumello, starfruit, rambutan, papaya and pele (Aibika). Introduced livestock includes sheep and goats from Fiji, and new breeds of heifers and bulls from Australia to improve local stocks[11].

4.2 Fisheries and marine species

Fish and shell fish is an important source of protein for most Samoan households. Approximately 24.8% of all households are engaged in fishing (MAF, 2011; op cit), with 66% in these fishing for home consumption. Thirty-two percent sell fish to supplement income and 22% of households' fish commercially. Of the average households (42%) have at least one fisherman. Such high percentages indicate our high level of dependence on fisheries resources and marine biodiversity.

Fisheries statistics show that 86% of all fishing occurs in the reef and the inshore area[12] which also strongly correlates to where the diversity of our marine species and sensitive habitats are found. It is not surprising that our fisheries have shown the biggest declines in the lagoons and on the reefs[13]. Overfishing is the major cause. This situation is often attributed to the fact that most of the fishing within our inshore areas and reefs is not well regulated, or otherwise open to anyone to fish for as much as he or she could. Such 'open access fishing' is shown worldwide to inevitably results is overexploitation and depletion – a situation referred to as the 'tragedy of the commons' (Boulding, 1966)[14].

There have been active efforts to reverse this situation. With donor and Government funding support and enlisting the support and involvement of local Council of Chiefs and communities, around 75 coastal villages (~ 30% of all villages) have established fisheries reserves with no take zones wherein fish populations are replenished. Many reserves have reintroduced species that have been locally depleted such as trochus and giant clams. Developments in aquaculture have also seen tilapia being promoted by MAF as an alternative protein source for local consumption and to reduce local dependence on marine fish as a protein source.

An important part of our fisheries is the tuna stocks that migrate through our exclusive economic zone (EEZ). Frozen tuna is an important export commodity, and a source of income and employment for the

[10] Over 50 sub-species and varieties were introduced and tested, with germplasm sourced from other Pacific islands and South Asia. Today, after extensive inter-breeding, Samoa's taro agro-biodiversity now boasts a significantly expanded gene pool with 5 superior varieties widely propagated and cultivated for commercial and subsistence cultivation and forming the backbone of a rejuvenated taro export industry

[11] Ibid. p. 76.

[12] Samuelu-Ah Leong, Joyce and Sapatu, Maria. 2008. *Status of Reefs in Samoa 2007*. In: Whippy-Morris (ed.). 2009. South West Pacific Status of Coral Reefs Report 2007. Coral Reefs Initiative for the Pacific.SPREP, USP, GCRMN and ReefBase Pacific. SPREP, Apia.

[13] MNRE, 2013.Samoa's State of the Environment Report.

[14] Boulding, K. 1966. "The economics of the coming spaceship Earth." In: Holden, P and Ehrlich, P.R. (eds.) 1971. Global Ecology: Readings Towards a Rational Strategy for Man. Harcourt Brace Jovanovich, Inc. New York. P. 180-187.

local fishing industry, many of whom are local 'alia' (double hull catamarans) owners, operators and fishermen. This fishery is, according to Government reports, is being harvested within sustainable levels[15].

4.3 Forests

Forests serve a vital role in supporting local livelihoods as a source of traditional building materials, herbal medicine, firewood, and nuts and fruits. Forests also play a central role in the provision of ecosystem services including water, soil stabilization, atmospheric carbon sequestration and storage. Commercial logging and local timber milling had declined markedly since the late 1980's with the near depletion of merchantable forests.

The growing importance of the role of forests in climate change mitigation is increasingly recognized, hence also the call for its protection, and where it is degraded, restoration. The fluctuating and often increasing price of imported petroleum products is often cited as a reason for the development of small hydropower plants hence also the need for catchment area protection. Biofuels including the use of foliage such as from *Merremia peltata* has been demonstrated as an inexpensive source of fuel for electricity and methane gas for cooking.

The use of traditional healing methods using herbal medicine is still widely used as an alternative to modern medicine. The bark , leaves, roots, flowers and other parts of trees, ferns, herbaceous plants and others are used in various forms and concoctions in the treatment of external wounds and boils, and or otherwise mix in solutions that are taken orally.

4.4 Terrestrial and marine fauna

There is limited dependence on bird fauna for food, although some bird species such as the Pacific pigeon are considered special traditional delicacies and are seasonally harvested. The most vulnerable species are the Pacific pigeon (*Ducula pacifica*) *(lupe)*, and the only native mammal flying foxes *(pe'a).* Many villages where bird and bat harvesting was once common, are increasingly banning this practise as a conservation measure. Feral pigs are also hunted on a small scale, sometimes as a recreational activity, but the level of hunting is not considered a conservation threat to the existing population. Other species of importance are freshwater prawns and mangrove crabs, which are harvested for food and income generation.

Birds and marine fauna feature prominently in the cultural folklores and the oral traditions of Samoa. Many traditional proverbs and expressions are associated with the traditional methods of fishing and hunting and human interactions with the natural environment.

4.5 Biodiversity and tourism

Since the early 1990s, tourism Samoa has been promoting the culture and environment of the country. For example, the Tourism Development Plan 1992-2001 advocated "… a cautious, planned approach to tourism" (STDP, 2002)[16] that was 'conservative' and 'low impact" (*ibid.*). Recent tourism development plans (STDP 2009-2013) promote the concept of sustainable tourism as:

> "… conserving and enhancing the country's natural and built environment, and respecting and supporting the *fa'a-Samoa*"; the use of environmental impact assessment tools to assess all new and existing tourism projects; the identification, protection and management of important natural, cultural and historic sites, and the preparation of information promoting tourist awareness of the *fa'a-Samoa* (GoS, 2002).

The essence of this philosophy is a brand of tourism that the Samoa Tourism Authority (STA) markets as the 'Samoan Experience' - a unique blend of traditional Samoan culture, pristine natural environment, a

[15]MNRE. 2013. ibid.

[16]Notably the key issues discussed in the stakeholder consultations for the sector plan, was the scale of tourism - how much tourism is appropriate and what scale of facilities is desirable.

safe, relaxing and welcoming social environment, in addition to the usual attractions of sand, sun and surf that most tropical island destinations typically offer.

The impacts on our biodiversity are seen in the interest in and emphasis on nature-based or ecotourism activities. Most are operated by households and village committees, offering activities such as snorkelling and diving, bird watching and canoe tours in mangrove forests and forest walks. For village reserves, these activities generate income from access fees and from the sale of local produce and souvenirs. Public parks and reserves, especially those in the vicinity of the Apia urban area, are popular venues for hiking and other recreational activities.

5. Analysis of the causes and consequences of biodiversity loss –

The following analysis of causes and consequences of biodiversity loss is extracted and summarized from the Samoa's State of Environment Report 2013. Readers are referred to that report for a fuller discussion.

5.1 Drivers of biodiversity loss

5.1.1 Geographical smallness and isolation

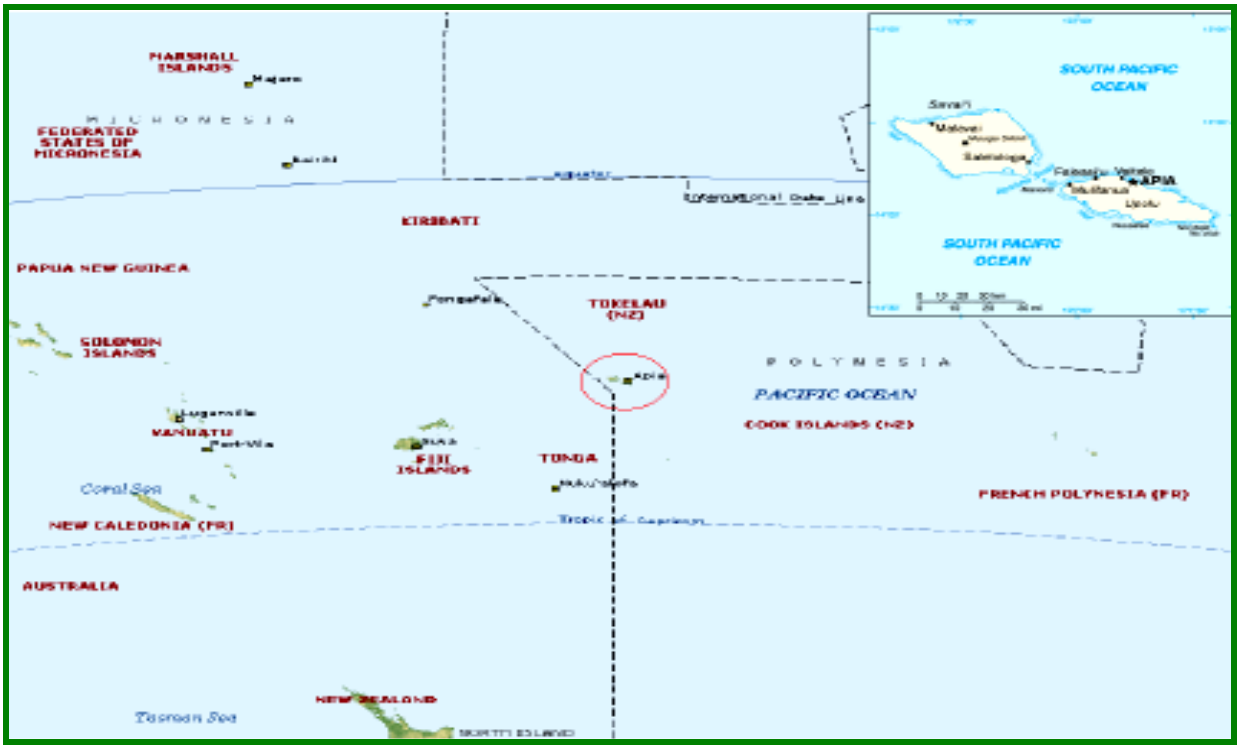
Samoa is centrally located in the southwest Pacific, (refer to Figure 1). Its volcanic origin means it arose from the sea-floor without any land connection with continental land masses.

Like many similar islands in the Pacific Ocean, the physical remoteness and isolation from continental landmasses played a key role in the evolution of its biodiversity. Millions of years of isolation from other genetic influences, and from natural predators and related competitors, allowed the uninterrupted and gradual evolution of sub-species and species in its fauna, giving rise to the relatively high level of endemism in its biodiversity. The flip side is the endemic species have limited defensive mechanisms against aggressive introduced competitors, and predators, or to rapid environmental changes. With advances in modern-day travel and easier contact with the outside world, many foreign species are introduced either accidentally or deliberately, putting native and endemic species under increased risk of extinction.

The collapse of the taro export industry in Samoa in the mid 1990s highlighted the extreme vulnerability of one species – *Colocasia esculenta* - that evolved out of this isolation and the drastic consequences on a dependent economy where it plays an important role.

Our small geographical area and EEZ is also at the root of many of the observed pressures facing biodiversity. For instance, being of small islands, the coastal zone assumes a disproportionately large role in our islands' biogeography, and the interface between the coastal area and the marine environment is a prominent feature. Most of our population and physical infrastructure are concentrated along the coast, and creating a highly active zone where coastal habitats and species are constantly under pressure from land-based pollution, exploitation, the impacts of sea-level rise and other impacts associated with extreme climate change-induced events.

Map 3: Geographical location of Samoa in the Pacific Ocean



5.1.2 Demographics

Our population at the latest count (2011) stands at 187,820, having grown at an average rate of 0.6% since the last census was taken in 2005. Before that, since the 1961 census, Samoa's population growth rate has been declining at around 0.4% per year over the last 48 years. The annual growth rate of 0.6% since 2006 continues a declining trend that, to a large extent, is attributed to the influence of emigration (MalaefonoTa'aloga, pers comm.., MAF and SBS, 2012[17]).

There is however an increase in the number of people moving to the urban and peri-urban areas. There is also the high level of concentration of our population along the coastal areas. In synergy with increasing incomes, our changing population is showing changes in consumption patterns and lifestyles, that is putting pressure on our coastal and marine environment. These include increase in air pollution, non-biodegradable waste, overharvesting of inshore marine resources, coastal pollution from poor sanitation and waste disposal, and increasing demand on environmental amenities and services.

5.1.3 Access to resources and land tenure system

The way our communally owned resources are allocated contributes to the loss and fragmentation of forest habitats and environmental degradation. Access to environmental resources is intricately linked to the traditional land tenure system which controls over 80% of Samoa's land resources. The rules governing the allocation of access, use and ownership rights to land and resources under communal ownership are sometimes complicated, and is a subject of several published research and scholarly investigations[18].

[17] Ministry of Agriculture and Samoa Bureau of Statistics. 2012. Agriculture Census – Analytical Report 2009. Economics Statistics Division, SBS.

[18] O'Meara, J.T. 1987. "Samoa: Customary Individualism." Pp. 74-113 in R.G.Crocombe (ed.). Land Tenure in the Pacific. University of the South Pacific, Suva, Fiji.

Table 1: Land Distribution by Tenure in Samoa

	1989	1999	2009
Customary land	94%	90%	86%
Leased customary land	1%	1%	1%
Leased government land	2%	2%	3%
Own freehold land	3%	6%	9%
Leased freehold	0%	0%	1%
Others/not stated	0%	1%	1%

Source: Samoa Bureau of Statistics Census of Agriculture

In many cases, communal ownership of resources encourages open access regimes or a free-for-all situation wherein there is limited or no effective control on exploitation. Village inshore marine resources are a classic example where fishing effort is often unregulated. The inevitable result is overfishing and ultimately, resource depletion (Samuelu-Ah Leong, 2000; Kendall, M and Poti, M.(eds), 2011). The same laxity in the way access and user rights are allocated is observed in the way use-rights to village customary lands are acquired - in particular the customary rule where the right of use (and de-facto ownership) of village communal land is acquired through the establishment of usage. With the wide availability of efficient technologies for land clearing, this method of use-rights allocation encourages land profiteering and indiscriminate deforestation to establish land claims.

The environmental consequences of these traditional arrangements are severe and are often manifested in the form of lost habitats, habitat fragmentation through deforestation, and loss of vegetation cover in sensitive environments including catchments and erosion-prone areas. Recent studies also show that access roads into the interior (commonly associated with land clearing) directly correlates to the spread of invasive weeds into native forests[19].

5.1.4 Economic development

The scope of economic development includes the process and policies by which a nation improves the economic, political, and social well-being of its people (O'Sullivan, A and Sheffrin, S.M.2003)[20]. Its role as a driver of environmental change is all pervasive and often times indirect and discreet. It encompasses the policies, strategies and priorities, and the allocation of public funds and human resources, as defined by the Government and its agencies, the self-serving activities of profit-motivated organizations and companies in the private sector, as well as actions of civil society and economically rational individuals.

In Samoa, while the Government promotes and fosters an enabling environment for a private sector driven economy, the Government itself remains the main developer. Its policies dictate and influence the way natural resources are allocated and use at all levels. This extends to the behaviour of economically rational individuals at the household level with respect to choices to make on the use of land, forests, and marine areas under their control and in the choices of technologies to invest in. Government plans on infrastructure development are similarly critical. All of these contribute to changes in the biophysical environment in ways that are sometimes sustainable, but more often not.

The early 1960's to the early 1990s saw a period marked by unsustainable exploitation of natural capital, particularly forests. More recently, environmental sustainability is a high SDS priority and there is a greater emphasis on environmental protection, across all sectors as a result. The continuing emphasis on pro-growth policies in the main economic sectors will continue to challenge the environmental safeguards now in place, and Government's commitment to sustainable development.

[19] Atherton, J and Jeffries, B. 2013.Rapid Biodiversity Assessment of Upland Savaii, Samoa.MNRE.

[20] O'Sullivan, A and Sheffrin, S.M. 2003.Economics: Principles in action. Pearson Prentice Hall, New Jersey.

5.1.5 Changing consumption patterns and lifestyles

Samoa's vision for the 2012 – 2016 SDS is 'improved quality of life for all'. The intended outcome is that of a population that is healthier, better educated and prosperous. Inevitably however, the unintended consequence of this outcome is a population that often aspires to lifestyle changes and consumption choices that are environmentally challenging. Samoa has seen its per capita income growing steadily over the last fifteen years[21] (Rath, 2011)[22]. It has also made considerable progress over the years with most of the other MDG indicators. Not surprisingly, there is a direct correlation with changes in public consumption of several key basic needs. For instance, in the case of house construction, there is an obvious shift towards the use of imported construction materials. In energy consumption, biomass is increasingly being replaced by petroleum products and electricity for cooking[23]. Imported labour-saving technologies and household consumer goods comprise a major portion of Samoa's import bill. Increased consumerism and a throw-away mentality add to the proliferation of non-biodegradable wastes, pollution of the atmosphere and increases in greenhouse gas emission[24].

Some consumer choices have direct and indirect environmental benefits. For instance, the reduced dependence on biomass for cooking fuel should lead to lesser deforestation. A growing population of health conscious consumers are demanding organically grown agricultural produce. Recent declines in the use of agricultural chemicals in farming are partly attributed to this (MAF, 2009; p. 41). There is also growing interest in renewable energy and energy efficient technologies eg, use of biogas digesters, solar panels and energy saving light bulbs that collectively, will contribute to national efforts to reduce fossil fuel imports.

Changing lifestyles associated with urbanization is a contributing factor. Urban dwellers are less engaged in agricultural activities, including backyard cultivation, more integrated into the cash economy, and more likely to use electricity and LPG for lighting and cooking.

5.1.6 Climate change and climate variability

Climate change and climate variability are both a driver and a stressor of environmental change in Samoa. In a nutshell, climate change occurs when short -term weather patterns are altered — for example, through human activity. Global warming is one measure of climate change, and is a rise in the average global temperature.

Climate variability refers to variations in the mean state and other climate statistics (standard deviations, the occurrence of extremes, etc.) on all temporal and spatial scales beyond those of individual weather events. Variability may result from natural internal processes within the climate system (internal variability) or from variations in natural or anthropogenic external forces (external variability). **Climate change** refers to any change in climate over time, whether due to natural variability or anthropogenic forces. Climate variability goes hand in hand with climate change.

The impacts of both climate change and variability on biodiversity are mainly in agriculture, fisheries and in the health of sensitive ecosystems, habitats and species already under some level of threat. These impacts on different economic sectors and biodiversity can be summarised as:

- *Agriculture and Food Production* – 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

[21]from S$3,650 in 1994 to S$6,969 in 2006 (GoS, 2008)[21] to S$7,138 (~ US$3,121) in 2009 (Rath, 2011)[21], making Samoa a medium human development country with a global Human Development Index (HDI) ranking of 94 out of 182 countries (ibid.).
[22]Rath, Amitav. 2011. Acceleration of Millennium Development Goals in Samoa: Policy Analysis with a Focus on Requirements for Industrial Growth. Final Report Prepared for UNDP – Samoa & UNDP Pacific Centre. UNDP.
[23]Government of Samoa. 2007. *Samoa National Energy Policy*. Ministry of Finance – Economic Policy and Planning Division. Apia.
[24]Greenhouse gas emission in the road transportation sector increased by 38% between 1994 and 2007 according to the Second National Communication report to the UNFCCC.

- *Biodiversity and Ecological Conservation* – 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). The changes in sea surface temperature causes bleaching of the corals impacting the habitats of fish species.

- *Forestry* – 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; and more recently, 2011/12.

- *Tourism* – The impacts of climate change on the tourism sector is directly related to the loss or degradation of tourism resources such as beaches, pristine forest habitats, coral reefs, coastal infrastructure and scenic villages. Causes are inundation, flooding, heat related stresses, wind damage, and saline intrusion.

5.2. Pressures on Samoa's biodiversity

5.2.1. Invasive species

Alien invasive species have caused serious economic, environmental and health impacts to Samoa. In most cases of invasion, the species are beyond eradication and cost for ongoing management can easily exceed millions of talas. The taro leaf blight presence in Samoa in the early 1990s, caused the extinction of local taro varieties, and led to the collapse of taro exports and loss of revenue for the country (loss of US$3.2 million)[25]. The giant African snail is a voracious predator feeding on most plants. Its introduction caused considerable damage and loss to vegetables and fruits. Please refer to the 5NR on page 18 for further details.

Considerable efforts to maintain many of Samoa's reserves and protected areas, are spent on managing invasive plants that are outcompeting native trees. The faster growing trees are susceptible to cyclones, and considerable damage to infrastructure from Cyclone Evan in 2012, was attributed to tamaligi (*Albizzia*) being washed down from the hills (MNRE, 2012).

Aquatic invasive species are poorly researched but it is expected that an introduction from an invasive aquatic organism can have serious impact on food security, given that a big proportion of Samoan household relies on the coastal inshore reefs for protein. With the increased movement of ships due to trade and movement of people, opportunities for the introduction of aquatic invasive species have likewise increased.

5.2.2. Natural disasters

Samoa is prone to natural disasters and in particular cyclones, earthquakes and fires. Climate change and climate variability has exacerbated this vulnerability with future cyclones and other extreme weather events predicted to be more frequent and more intense.

Samoa's vulnerability is partly due to its geographic location (south of the equator) which is an area known for the frequent occurrence of tropical cyclones with damaging winds, rains and storm surges between the months of October and May (SPC-SOPAC, 2011)[26]. Cyclones within living memory include cyclones Ofa and Val (1990 and 1991), Heta (2004) and Evan (2012). They caused extensive damage to

[25] Cited by MNRE.2008. *National Invasive Species Action Plan 2008-2011*. Division of Environment and Conservation, MNRE.
[26] SPC-SOPAC. September 2011.*Country Risk Profile – Samoa.*Pacific Catastrophe Risk Assessment and Financial Initiative. SPC, Noumea.

important terrestrial and marine habitats and species populations, as well as infrastructure, settlements and crops.

As with previous cyclones, the impact on the biophysical environment will be severe degradation of terrestrial and marine habitats of high conservation value, loss of vegetation cover for critical catchment areas, loss of fauna populations including species that are already threatened, and the overall fragmentation to ecosystems that diminish their ability to function optimally as ecological services providers

The degradation of the environment caused by natural disasters often creates conditions favourable to the establishment and spread of invasive vines and trees, leading to irreversible loss of habitats, extinction of endemic species and the increasing human cost of rehabilitation efforts.

Table 4: Natural Disaster Record of Samoa 2004 - 2009

Date	Location	Type	Disaster Name	Killed	Affected	Estimated Damage US$
13 Dec 2012		Tropical Cyclone	Evan	4 (not including 10 missing)	2088 households, in 164 villages , approx. 14,777 people (based on 2011 Census)	$480 million SAT ($210.7 million USD)
29 Sep 2009	Eastern and South Eastern Coast of Samoa	Tsunami	Tsunami	143 (excluding including 5 missing)	Approx. 5274 people, approx 685 households	Damage – SAT$211.96 (USD$84m) and losses – SAT98.16m (USD$39m)
8 – 16 Sep 2008	Asau and Aopo, Savaii	Bush fire	Asau and Aopo Bush fire	0	0	SAT$163,995.07
25 Jan 2008	Apia	Flash flood	Apia flood	0	0	0
6 Feb 2006	Apia	Flash flood	Apia Flood	0	Approx. 20 – 30% of 38,836 population of Apia (2001 Census)	Approx. SAT$300,000.00
16 Feb 2005	Savai'i and Upolu Islands	Tropical Cyclone	Olaf	0	0	0
05 Jan 2004		Tropical Cyclone	Heta	1	30,000	500,000

Source: MNRE. 2013. Samoa's State of Environment Report 2013.

5.2.3 Unsustainable exploitation of resources

Unsustainable exploitation of resources will continue to add stress to Samoa's biophysical environment. It has already significantly altered the distribution and composition of Samoa's forests, coastal and marine environment and water resources.

The unsustainable exploitation of native forest resources for sawmilling and agriculture is well documented (Sesega, S. 2005). It is the result of a combination of factors including food production, cash income generation, expansion of settlements and land profiteering (*ibid*.). At present, the low volumes extracted in the few remaining logging activities[27] are indicative of the largely depleted nature of Samoa's native merchantable forests. Existing logging is small scale and centres around the salvaging of remnant trees in previously logged areas and in agricultural lands. In the foreseeable future, the low level of logging is not expected to be an important environmental issue except where it may affect water catchment areas, areas prone to soil erosion, and habitats earmarked for conservation within approved

[27] Estimated at around 3,000 – 5000m3 per year

Key Biodiversity Areas. There are also recurring reports of harvesting of mangroves in some communities for fuel.

In the fisheries sector, overfishing in the inshore area is a major issue that will continue to threaten the integrity and sustainability of coastal resources and coral reefs. The underlying drivers are the combined effect of population, the open access nature of coastal fisheries resources, and the increasing demands of an increasingly cash based lifestyle in rural communities. Recent statistics (MAF, 2011)[28] showed that 24.8% of households were engaged in fishing. Ah Leong et al (2009)[29] noted that 86% of all fishing is carried out in the reef area. The catch per unit effort has steadily increased, from 1.8kg/hr in 1990, to 2.1kg/hr in 1997 to 2.24kg/hr in 2007 (Valencia et al. 2007)[30] which Ah Leong et al (op cit.) noted as indicating overfishing.

Of Samoa's tuna resource, MAF Fisheries Annual report (2011) reported that the total annual tuna catch is within sustainable levels (i.e. within the Maximum Sustainable Yield), but there is overfishing of larger and older albacore stock. Langer (op cit) attributes this to the combined effect of a high level of fishing effort from Samoa's domestic longlining fleet and a small and restricted EEZ. The result of both is a dwindling stock of large and older albacore as the natural process of stock diffusion and replenishment from neighbouring seas lags behind the rate of exploitation.

5.2.4. Poorly planned development activities

Despite efforts on the part of the Government to provide a framework within which all development activities are properly screened and vetted for environmental sustainability, many local initiatives and activities are occurring without proper vetting. Many are coastal in nature involving sand mining, coastal reclamations and constructions within hazardous zones. Many mangrove areas are destroyed to make way for construction, or as a result of waste dumping and for firewood. Cultivation in sensitive habitats including catchments, forests of high conservation value and on steep erosion-prone slopes is widely observed.

On the other hand, notable strides have been made in Samoa's legal and policy framework to strengthen development planning to protect the environment and to promote sustainable resource use. The PUMA Act 2004, PUMA (EIA) Regulation 2006 and the Environment Code of Practice (2006) define statutory requirements for a development consent permit process based on environmental assessment. Another PUMA legislation requirement for the development of Sustainable Management Plans (SMPs) was recently tested using the Vaitele peri-urban area. District Coastal Infrastructure Management (CIM) Plans are being updated and provide a useful guide with specific recommendations to Government, private developers and communities for improving the resilience of coastal communities and developments.

Other regulatory frameworks in operation are for sand mining and coastal reclamation activities and for underground water exploration and abstraction. Both are administered by MNRE. In agriculture, the pesticides registry lists approved agricultural chemicals that are safe and environmentally friendly for importation. MAF has also developed the technical capacity for matching crops to land use productivity to optimize land use and productivity and this advisory service is available to farmers to guide crop selection. Risk assessment procedures are in place for screening potential biosecurity threats posed by any imported living modified organisms.

[28] Ministry of Agriculture and Fisheries. 2011. Agriculture Sector Plan 2011-2015.Vol 1. MAF Apia.

[29] Samuelu-Ah Leong, Joyce and Sapatu, Maria. 2008. *Status of Reefs in Samoa 2007*. In: Whippy-Morris (ed.). 2009. South-West Pacific Status of Coral Reefs Report 2007.Coral Reefs Initiative for the Pacific.SPREP, USP, GCRMN and ReefBase Pacific. SPREP, Apia.

[30] Cited by Ah Leong et al (2008).

6. Legal and institutional framework for biodiversity conservation –

6.1 Legislation

The legal and policy framework governing the protection, conservation and sustainable use of Samoa's biodiversity is defined by the following laws and regulations –

1. Constitution of Samoa

There are no specific references in Samoa's Constitution to biodiversity or environment but the Constitution provides a definition of the boundary of state owned land as including all lands under the 'high water mark'. This helps define the physical boundaries of MNRE's jurisdiction.

2. The Lands, Surveys and Environment Act 1989

This Act consolidates The Land Ordinance 1959 and its amendments and also makes provision for the conservation and protection of the environment and the establishment of National Parks and other forms of protected areas. It also enlarges the functions of a Department of State to establish a Division of Environment and Conservation to be responsible for the conservation and protection of the environment and for matters incidental thereto.

3. Environmental Management Bill 2013

This Bill seeks to repeal and update the Lands, Surveys and Environment Act 1989 and upon enactment will be the principal legislation defining the powers and functions of the Ministry of Natural Resources and Environment. The primary purposes of the legislation is to "…protect and manage the environment and to promote sustainable development, and to facilitate compliance with Samoa's international environmental obligations, and for related purposes". The Bill introduces the principle of precautionary principle, and expands the functions of the Ministry to include sections of bio-prospecting and biosafety.

4. The Forest Management Act 2011

This Act provides for the effective and sustainable management of Samoa's forestry resources, and for related purposes. It promotes the sustainable management of forestry resources; the development of plantation and farm agro-forestry and the implementation of international forestry related agreements. Part V Section 47 empowers the Minister to impose special conditions to protect and or conserve any specific species of tree or forest resource.

5. National Parks and Reserves Act 1974

This Act provides for the establishment, preservation, and administration of national parks and reserves for the benefit of the people of Samoa.

6. PUM Act 2004 and PUMA (EIA) Regulation 2010

The Act and Regulation ensures that biodiversity values are assessed thoroughly as part of the environmental impact assessment process, for all application for development consents, with appropriate mitigation measures required or non-approval if there are significant adverse impacts and threats of biodiversity loss.

7. Waters Resources Act 2004

This Act (Part VIII Section 18(g) protects downstream biodiversity values from water diversion or abstraction schemes for development purposes by requiring the determination of a minimum environmental flow, as part of a Water Resources Management Plan.

8. Protection of Wildlife Regulation 2004

This regulation protects 'flying endemic species' from harm (meaning trapping, shooting, killing or otherwise destroying) and prescribes penalties for non-compliance. Endemic species covered are flying foxes, pigeon, crimson crown fruit doves, wattled honey eater and the cardinal honey eater.

9. Marine Wildlife Protection Regulation 2009

This regulation elaborates on the Lands, Surveys and Environment Act 1989 with respect the protection of marine mammals (whales and dolphins), turtles and sharks. It stipulates a licensing requirement for regulating eco-tourism operations based on whales, dolphins and turtle watching ors a proper license makes mandatory and sets fines/penalties for non-compliance.

10. Quarantine (Biosecurity) Act 2005

This Act consolidates the law relating to the importation of regulated articles and associated biosecurity risk, and the control of pests and diseases of animals, plants and the wider environment. It is of particular importance in protecting Samoa's environment against the accidental introduction of alien species capable of threatening and or damaging sensitive ecosystems, habitats or species of high conservation value.

11. Fisheries Act 1998

An Act for the conservation, management and development of Samoan fisheries, for the licensing and control of foreign fishing and for related matters. Under Part II, Section 3 (1) the purpose and scope of the Act is defined as -

(a) To promote the conservation, management and development of the fisheries of Samoa;
(b) To promote the exploration of the living resources of fishery waters;
(c) To promote marine scientific research; and
(d) To promote the protection and preservation of the marine environment.

Under Part II Section 3 (2) and (3), the Chief Executive Officer of the MAF is empowered, among other things, to prepare and promulgate by-laws not inconsistent with this Act for the conservation and management of fisheries, including limiting or banning the use of particular methods of fishing - in consultations with fishermen, industry and village representatives.

6.2 Relevant Sector Policies and Plans

Relevant policies, sector plans etc that form the legal and policy framework for biodiversity conservation are listed below –

- Samoa Tuna Management Plan 2011-2015
- National Policy on the Conservation of Biological Diversity
- Samoa National Invasive Species Action Plan 2008-2011
- NBSAP
- National Environment and Development Sector Plan (NESP) 2013 – 2016
- Samoa's State of Environment (SOE) Report 2013

6.3 Multilateral Environmental Agreements (MEAs)

Samoa is a party to the following international conventions that have formed part of the legal and policy framework for biodiversity conservation.

i. Convention on Biological Diversity (CBD) 1994
ii. World Forest Charter (WFC) 1994
iii. UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks 1996
iv. World Heritage Convention on Cultural and Natural Heritage Sites (WHC) 2001
v. Cartagena Protocol on Biosafety (CPB) 2002
vi. Ramsar Convention on Wetlands 2004
vii. Conventions on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 2005
viii. United Nations Framework on Forestry 2003
ix. Convention on the Conservation of Migratory Species of Wild Animals 2005
x. Nagoya Protocol 2014

6.4 Relevant regional biodiversity policy frameworks

Samoa is a member of key regional organizations that coordinate and implement regional policy frameworks and programmes that are relevant to Samoa's NBSAP. The following are regional instruments which provide regional perspectives and guidance on issues that may have an impact on Samoa's biodiversity particularly those that are transboundary in nature:

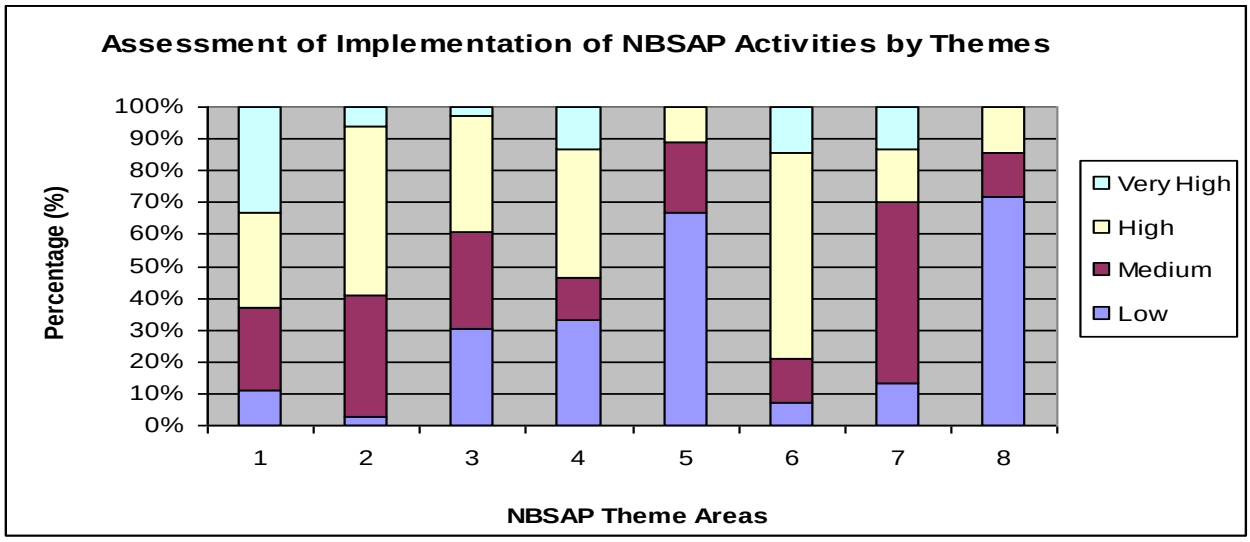
- Framework for Nature Conservation and Protected Areas in the Pacific islands region 2014-2020;
- Pacific Oceanscape Framework
- Guidelines for Invasive Species Management in the Pacific
- Pacific Islands Marine Species Programme

7. Previous NBSAP – Achievements, lessons and the process for NBSAP Updating

7.1 NBSAP Implementation

An analysis showing the extent of implementation of the previous NBSAP is annexed in Annex 3. Main findings are summarized below. The extent of implementation of all prescribed Objectives and Activities by Theme Areas are represented in the graph below:

Graph 1: *Stacked Bar Graph illustrating Implementation by Theme Areas.*



Legend:

Themes	Implementation ratings:
Theme 1: Mainstream biodiversity	**Low** - Either no actions taken and or completed or minimum and marginally relevant actions are reported
Theme 2: Ecosystem management	**Medium** - Some marginally relevant actions have been completed, and or continuing
Theme 3: Species management	**High** - A number of directly relevant actions have been completed and or continuing/on-going
Theme 4: Community	**Very High** - Directly prescribed action(s) have been undertaken and successfully completed, and or continuing.
Theme 5: Access and Benefit Sharing from the Use of genetic resources	
Theme 6: Biosecurity	
Theme 7: Agrobiodiversity	
Theme 8: Financial Resources & Mechanisms	

The analysis also shows that the major gaps in implementation are in Theme Area of (i) Access to and Equitable Benefit Sharing from the Use of Genetic Resources and (ii) Financial Mechanisms. The NBSAP

implementation matrix (Annex 3) also shows that Samoa's implementation emphasis had been on (i) conservation of biodiversity and (ii) sustainable use of resources and biodiversity. Very little investment and effort was made to pursue recommended actions prescribed under the NBSAP in the area of Equitable Access to and Sharing of Benefits from the use of genetic resources. There are no clear explanations found for this other than that limited funding was found to enable wider implementation.

7.2 Main Findings

i. There was no systematic approach and on-going program for monitoring the implementation of the NBSAP. A review of the NBSAP was carried out in 2004 that identified actions taken in implementation since 2001, and made a number of recommendations for on-going monitoring to 2010 but its recommendations for NBSAP monitoring for the period 2005 – 2010 were not implemented.

ii. Significant gains have been made in identifying and setting aside high value areas for protection, and extending Samoa's terrestrial and marine protected area network. Since 2001, Samoa's protected area network has increased and 8% of Samoa's total terrestrial and marine areas are under protection and conservation management. The NBSAP 2001 target is 15%. Further review of the protected area network was completed in 2009 with funding from the Conservation International (CI) coordinated Critical Ecosystems Protection Fund (CEPF). This review identified gaps based on criteria of representativeness and degree of threat/rarity of ecosystems and species, and identified new areas for an expanded network. The expanded network of Key Biodiversity Areas (KBAs) comprises 33% of Samoa's terrestrial and inshore areas.

iii. A number of key scientific studies have been completed and our knowledge of the status of some of our important biomes and endemic species is updated. Of particular importance is improved knowledge of our cloud forests, and the current status of some of our most threatened species namely, the *manumea*, the *ma'oma'o* and the *puna'e*.

iv. Significant progress was made in mainstreaming the environment generally into the national planning framework, and indirectly through this, biodiversity conservation. Similar progress is observed in the mainstreaming of environmental priorities including biodiversity conservation into the plans of other sectors in particular agriculture, tourism, education, infrastructure and water resources.

v. Biodiversity monitoring have been largely *ad hoc* for most terrestrial species of conservation importance and narrowly focused on specific projects or species and habitats associated with specific projects. Consequently, the gaps now identified were only revealed in the course of preparation of the fourth national report to CBD, and now resurfaced in the course of this NBSAP review and update. . This deficiency is partly indicative of the lack of capacity and resources, as opposed to the lack of commitment and information. Having said this, there is nothing on record to suggest that any attempt was made to launch a whole-of-NBSAP monitoring exercise at any time since the adoption of the document in 2001.

vi. Most of the NBSAP implementation is donor funded, mostly from GEF sources and bilateral support. It indicates that while biodiversity conservation mainstreaming has progressed in terms of planning, there is still some way to go for integration into national accounting and local budgetary processes.

vii. All biodiversity aid funding have been project based and the sustainability of many projects after aid funding is an on-going challenge. This includes funding support for community based conservation areas including the Marine Protected Areas in Safata and Aleipata.

viii. The increasing involvement of local communities, and agencies including the Ministry of Agriculture and Fisheries, is a healthy indication of wider involvement in biodiversity conservation beyond the MNRE. This bodes well for future implementation given the predominantly customary nature of land and resource ownership including many areas hosting biodiversity of high conservation value.

ix. Terrestrial flora and forest cover assessment is based on relatively dated information (1999 aerial photos). Up-to-date spatial data is needed to support assessment and conservation planning.

x. The establishment of the Samoa National Invasive Species Task-Team (SNITT) and the adoption of the Samoa National Invasive Species Action Plan 2008-2011 marks an important step forward in addressing the NBSAP objective in Invasive Species management.

Process of Updating the NBSAP

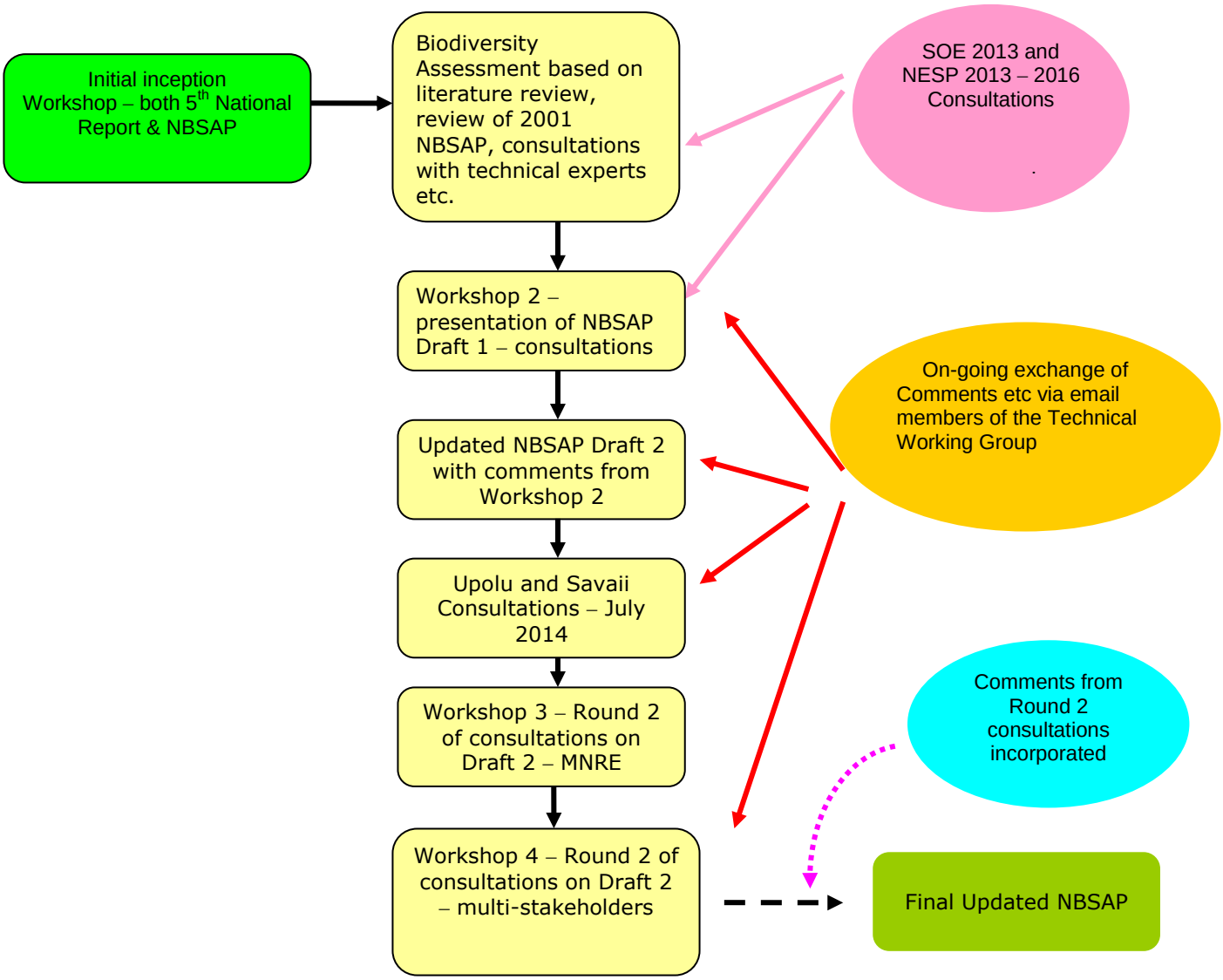
The process of updating the NBSAP is illustrated in Figure 1. The extent and depth of stakeholder consultations conducted is a key feature, with the first round of consultations considered inadequate, resulting in a second round of stakeholder consultations focusing on goals, targets, actions and implementers.

The process of updating the NBSAP also benefited from earlier national consultations undertaken for other environmental planning processes, namely the State of Environment Report 2013, and the National Environment Sector Plan (NESP) 2013 – 2016. Issues raised during these processes that are related to biodiversity conservation informed the NBSAP process.

The use of mailing groups on email to solicit and exchange views between members of the Technical Working Group (TWG) and the Consultant proved an efficient way of sharing information and clarifying positions. The membership of the TWG (Annex 5) was opened to all interested stakeholder representatives and the extensive use of email overcame the logistical limitations and the inconvenience (for most interested members) of face-to-face consultative meetings. As a result, the degree of inclusivity achieved and the opportunities to contribute to the development of the NBSAP were maximized.

The extended consultation is notable in that a strong sense of ownership of the NBSAP was achieved. Different stakeholders pored over actions to confirm (or otherwise) their respective roles and responsibility in implementation. Similarly, targets, actions, indicators and timelines were closely scrutinized and in many cases, modified to ensure relevance and achievability.

Process of Updating NBSAP



II. National Biodiversity Strategy: Principles, Priorities and Targets

1. Vision:

"By 2050, Samoa's native biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining healthy islands and delivering benefits essential for all."

2. Mission:

To protect, conserve and sustainably manage Samoa's biological and genetic resources so that they will continue to flourish and regenerate, for present and future generations.

3. Principles governing the strategy

3.1. Samoa's Sovereign Right

Samoa has sovereign rights over her biological diversity and resources.

3.2. Good Governance and Leadership

The Government of Samoa takes the leading role to ensure the protection, conservation and sustainable management of our biodiversity, through effective governance and leadership and in full consultation with all stakeholders.

3.3. Collective Responsibility

All residents and visitors have an individual and collective responsibility to protect, conserve and sustainably utilize our biodiversity and its resources, for the benefit of present and future generations.

3.4. Stakeholder Participation

The full participation and collaboration of all stakeholders is required for the effective coordination and implementation of the NBSAP to ensure accountability and transparency.

3.5. Traditional Knowledge, Practices and Innovations

Samoan traditional knowledge, innovations and sustainable practices which are important for the protection and conservation of biodiversity, should be fully recognized, preserved and maintained.

3.6 In situ and Ex situ Conservation

Biodiversity is best conserved in those places where it naturally occurs (in situ), however ex-situ conservation may be needed to assist in the conservation management of threatened species or forms.

3.7. Public Awareness and Capacity Building

Public awareness, education and the strengthening of local capacity are essential for the protection, conservation and sustainable use of biodiversity.

3.8. Respect for Biodiversity

There should be respect for the intrinsic value of biodiversity resources consistent with the concept of *vatapu'ia*.

3.9. Precautionary Principle -

Where there is a threat of significant reduction or loss of biological diversity, the lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

4. Main goals and priority areas –

The main strategic goals for Samoa's NBSAP are as follow:

Strategic Goal A: Address the underlying causes and drivers of biodiversity loss by consolidating the mainstreaming of biodiversity conservation across government and society.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.

Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Strategic Goal D: Enhance the benefits to all Samoans from biodiversity and ecosystem services.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.

The following priorities for biodiversity conservation were derived from issues raised and identified in Samoa's 2013 State of Environment and National Environment Sector Plan (NESP) 2013 – 2016. They are listed below in no particular order:

- Invest in on-going biodiversity monitoring and reporting - key habitats, species, important environmental resources and NBSAP implementation.
- Protect priority biodiversity areas and species.
- Address the main threats to habitats and species of high conservation value including climate change, invasive species, living modified organisms, unsustainable resource use, and from poorly design development initiatives.
- Undertake research and surveys of lesser known ecosystems, habitats and species
- Promote sustainable use of resources including resources in areas under customary control
- Expand community based marine conservation reserves especially on the northern coast of Upolu
- Facilitate the direct involvement and participation of local communities and civil society including local resource owners in biodiversity conservation initiatives.
- Implement measures to ensure fair and equitable access and sharing of benefits arising from the use of genetic resources, and traditional biological knowledge.
- Support continued mainstreaming of biodiversity conservation into national and sector policies, plans and national accounting and budgetary processes.
- Strengthen public awareness and education, by improving access to and availability of up-to-date biodiversity information.
- Increase funding for NBSAP implementation.

5. National Targets–

The following targets are formulated to align Samoa's NBSAP with global targets approved for the CBD Strategic Plan 2011-2020:

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

> **Target 1:** *By 2020, at the latest, the people of Samoa are aware of the values of biodiversity, the threats its faces, and the steps the Government and the people can take to conserve, protect and use it sustainably.*

Target 2: *By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.*

Target 3: *By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are reduced significantly, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.*

Target 4: *By 2020, at the latest, Government agencies, private sector organizations and groups, NGOs, civil society and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.*

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5: *By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.*

Target 6*: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.*

Target 7: *By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring the conservation of biodiversity.*

Target 8: *By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.*

Target 9: *By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.*

Target 10: *By 2020, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.*

Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11*: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.*

Target 12: *By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.*

Target 13: *By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is at*

least maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.

Target 14: *By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, local communities, and the poor and vulnerable.*

Target 15: *By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.*

Target 16: *By the end of 2015, Samoa has ratified and or acceded to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization with national legislation enacted to support its implementation.*

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.

Target 17*: By 2020 Samoa has developed, adopted as a policy instrument, and is actively implementing an effective ,participatory and updated national biodiversity strategy and action plan.*

Target 18: *By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are fully protected by national legislation and relevant international obligations, and fully integrated and reflected in national and sector plans and budgetary processes.*

Target 19: *By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.*

Target 20: *By 2020, at the latest, the mobilization of financial resources for effectively implementing the Samoa's NBSAP 2015 – 2020, from all sources, is increased substantially from the current (2015) levels.*

III. National Action Plan

Strategic Goal A: ***Address the underlying causes of biodiversity loss by consolidating the mainstreaming of biodiversity across government and society***											
National Targets	**Actions**	**Implementation Indicators**	**Implementing and Executing Agencies**	**Timeline**					**Priority**	**Costing USD**
				Yr1	**Yr2**	**Yr3**	**Yr4**	**Yr5**		
Target 1: By 2020, at the latest the people of Samoa are aware of the values of biodiversity, the threats its faces, and the steps the Government and the people can take to conserve, protect and use it sustainably.	1.1 Undertake a formal assessment of the current state of knowledge on the value of biodiversity and existing conservation activities and information	1.1.1 National survey on the state of knowledge completed	MNRE, Stats Dept. NUS, SUNGO and other environmental NGOs, Civil Society, (Environment Stats), Fisheries Division	**X**					High	100K
		1.1.2 % of targeted groups that understands value of biodiversity and implement conservation actions	MNRE, Stats Dept. NUS, SUNGO and other environmental NGOs, Civil Society, (Environment Stats)							
		1.1.3 Report produced on current state of knowledge		**X**						
	1.2 Promote educational and awareness programs on Biodiversity for different target groups	1.2.1 No. of public meetings, workshops targeting the general public regarding biodiversity conservation	MNRE, MAF, MWCSD, SUNGO, other NGOs	**X**	**X**	**X**	**X**	**X**	High	100K
		1.2.2 No. of different types of information products produced translated and								

		distributed								
		1.2.3 The different types of media used to transfer information to the general public and schools and how frequently they are engaged.	MNRE, MAF, MWCSD, SUNGO, other NGOs							
	1.3 Promote opportunities and support learning-exchange programs on the values of biodiversity, the threats its faces, and the steps the Government and the people can take to conserve, protect and use it sustainably.	1.3.1 Number of information sharing activities involving local communities, schools and relevant stakeholders to share their experiences and knowledge	MNRE; MESC, Civil Society, SUNGO	**X**	**X**				Medium to Low	100K
		1.3.2 Number of community based projects funded and/or implemented partners that support the sharing of experiences between local communities and groups								
		1.3.3 Number of information sharing activities involving local communities to share experiences and knowledge								
	1.4. Promote public awareness and understanding of Access and Benefit Sharing and Protection of Traditional Biological Knowledge	1.4.1 Number of public awareness raising activities for ABS & TBK completed	MNRE, NGOs, MAF, SUNGO, Civil Society	**X**	**X**	**X**	**X**	**X**	High	204K
		1.4.2 Number of schools, communities, and other local organizations etc that were involved and participated in ABS awareness raising activities								
Target 2: By 2020, at the latest,	2.1 Maintain environment	2.1.1 Number of biodiversity indicators in the 2017-2021	MNRE, MOF	**X**	**X**	**X**	**X**	**X**	High	50K

biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	sustainability as a priority goal into the Development of Samoa (SDS)	SDS								
		2.1.2 Number of relevant sectoral plans with environment conservation supported initiatives								
		2.1.3 Ten percent annual increase in local budget allocation for biodiversity conservation activities								
	2.2 Conduct and explore options on the use of Payment of Ecological Services (PES) approaches or tools in national accounting	2.2.1 Study completed on the use of PES	MNRE, MOF, EPC, STA, SHA, Faasao Savaii			**X**	**X**	**X**	Medium	50K
	2.3 Encourage the use of economic valuation (cost-benefit analysis) of ecological and biodiversity services	2.3.1 Number of economic valuation completed for areas of biodiversity importance	MOF, MNRE		**X**	**X**			Medium to High	70k
Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the	3.1 Ensure imported agrochemicals are in compliance with international obligations under the Stockholm Convention and other MEAs and that their use are not harmful to Samoa's biodiversity of conservation concern.	3.1.1 All approved agrochemicals are compatible with requirement of relevant MEAs of which Samoa is party to.	MNRE Legal Division, DEC, MCIL, MAF, MOR, MFAT, MOH, SUNGO and other NGOs	**X**	**X**	**X**	**X**	**X**	High	60K
	3.2 Ensure assessment and feasibility studies are conducted for the use of biocontrol	3.2.1 Number of bio-control assessment report	MNRE, MAF, MOH, Pesticides Board & Registrar., SUNGO and other relevant NGOs.	**X**	**X**	**X**	**X**	**X**	High	60K

Convention and other relevant international obligations, taking into account national socio economic conditions	3.3 Encourage the use of PES (payment of ecological services) approach for engaging villages and individual resource owners in the protection of critical habitats of conservation concern	3.3.1 Number of joint ventures based on the protection of other biodiversity values				**X**	**X**	**X**	Medium	50K
Target 4: By 2020, at the latest, Government agencies, private sector organizations and groups, NGOs, civil society and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	4.1 Implement management plans and by-laws to regulate unsustainable resource and land use practices in terrestrial, water catchments and marine areas	4.1.1 Number of new village fisheries reserved and/or MPAs in operation	MAF Fisheries, MNRE, Councils of Chiefs in villages, NGOs	**X**	**X**	**X**	**X**	**X**	**M**	**200K**
		4.1.2 Number of village fisheries management plans in place.	MAF Fisheries, MNRE, Councils of Chiefs in villages, NGOs							
		4.1.3 Number of villages with by-laws in place								
		4.1.4 Number of villages with reserves that impose bans on unsustainable farming and fishing practices								
	4.2 Promote sustainable agriculture including integrated pest management practices, organic agriculture, conservation and management of genetic	4.2.1 Number of farmers practicing organic agriculture	MNRE-Forestry, MAF, USP, METI	**X**	**X**	**X**		**X**	Medium to High	100K
		4.2.2 Number of agricultural holdings practising IPM & sustainable soil management practices								

	resources, and proper soils management practices	4.2.3 Number of agricultural holdings promoting the cultivation of native agrobiodiversity species of economic value							
		4.2.4 Number of farmers practising agroforestry plots or alternative farming practices							
	4.3 Promote and implement agroforestry demonstration plots and sustainable production of community forestry plots	4.3.1 Number of households engaged in agroforestry and or permaculture; or other social forestry or multiple cropping systems of agriculture	MNRE, MWCSD, MAF, CSO, local Councils of Chiefs, AG, NGOs,	**X**	**X**	**X**	**X**	**X**	High	150K
		4.3.2 area of land under agroforestry or permaculture systems							
		4.3.3 Number of registered farmers practicing CFP							

Strategic Goal B: ***Reduce the direct pressures on biodiversity and promote sustainable use***										
National Targets	**Actions**	**Implementation Indicators**	**Implementing and Executing Agencies**	**Timeline**					**Priority**	**Costing USD**
				Yr1	**Yr2**	**Yr3**	**Yr4**	**Yr5**		
Target 5: By 2020, the rate of loss of all natural habitats, including forests, is reduced and where feasible brought close to zero %, and degradation	5.1 Assess the current conditions of all natural habitats as a baseline for measuring the rate of loss and or degradation.	5.1.1 Number or proportion of natural habitats with baseline surveys of conditions completed	MNRE, Communities, NGOs	**X**	**X**				High	250K
		5.1.2 Rate of loss of all natural habitats determined								
	5.2 Develop new and/or strengthen	5.2.1 Updated Bio-prospecting guidelines adopted	MNRE, PSC, MoF, MAF	**X**	**X**	**X**			High	75K

and fragmentation is significantly reduced	existing guidelines to control and monitor the use of resources within natural habitats									
		5.2.2 Logging code guidelines adopted								
	5.3 Strengthen monitoring and effectively enforce processes to properly screen and minimize the negative impacts of development activities on natural habitats.	5.3.1Number of PEAR/EIA conducted and approved	MNRE , PSC, MoF, MAF	**X**	**X**				High	50K
		5.3.2 Number of permits/licenses approved for developments								
		5.3.3 % of all streams supporting water diversion and or abstraction schemes that have environmental flows calculated and effectively enforced								
	5.4 Reduce loss of mangrove and wetland forests from land reclamation, logging and waste disposal.	5.4.1 Number of community based initiatives protecting wetlands and replanting mangroves	MNRE , SEA, EPC, SWA	**X**	**X**	**X**	**X**	**X**	High	50K
Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that	6.1 Develop, review and implement policies and management plans promoting sustainable fisheries in inshore and offshore areas	6.1.1 Samoa Tuna Management and Development Plan 2011 – 2015, Coastal Fisheries Plan 2013 – 2016 and National Aquaculture Plan 2013 – 2018 reviewed, endorsed and implemented	MAF Fisheries, MNRE, MWCSD; METI		**X**	**X**			Medium to High	200k
		6.1.2 Number of turtle nesting		**X**	**X**	**X**	**X**	**X**		

overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.		sites with management plans developed and enforced.								
		6.1.3 Marine Species Action Plan reviewed, endorsed and implemented		**X**	**X**					
	6.2 Promote eco-tourism activities beneficial to the conservation of marine species and critical habitats	6.2.1 Number of ecotourism operators participating in conservation activities	MNRE, STA, SHA, NGO, MWCSD, Tour/Dive Operators	**X**	**X**	**X**	**X**	**X**	Medium to High	45K
		6.2.2 Number of sites under ecotourism managed activities								
Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity	7.1 Finalize, implement and effectively enforce National Forestry legislations and policies frameworks	7.1.1 National Forestry Policy and Plan approved by Cabinet and implemented	MNRE; MAF	**X**					High	40K
		7.1.2 Number of successful prosecution of violators for non-compliance with Forest Act and Regulation								
	7.2 Support and encourage the development of woodlots and agroforestry systems with management plans, seedlings, and marketing information for five years	7.2.1 area under agroforestry and woodlots	MNRE MAF	**X**	**X**	**X**	**X**	**X**	Medium to High	20k
	7.3 Increase capacity of relevant stakeholders for promoting and supporting agroforestry and other mixed crops,	7.3.1 Number of trainings conducted and completed	MNRE – Forestry, DEC, LD, Technical Division, WRD; MAF	**X**	**X**	**X**	**X**	**X**	Medium	20k
		7.3.2 Number of agroforestry								

	trees and livestock systems	projects/programs implemented								
	7.4 Enforce effective management of aquaculture activities to avoid accidental release of species into pristine environments and ecosystems.	7.4.1 Number of aquaculture activities with management plans	MNRE	**X**	**X**	**X**	**X**	**X**	Medium	20K
		7.5 Rehabilitate degraded forested areas within upland, lowland and coastal habitats.	7.5.1 number of degraded areas rehabilitated	MNRE	**X**	**X**	**X**	**X**	**X**	
Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity	8.1 Encourage the development, adoption and implementation of village resources management plans including Village Sustainable Development Management Plans	8.1.1 Number of village by-laws enacted targeting pollution control and reduction	MNRE-, MWSCD, MAF, MJCA, NGOs, SUNGOs.	**X**	**X**	**X**	**X**	**X**	High	100K
		8.1.2 Number of village by-laws banning unsustainable agriculture practices and other land uses that are degrading coastal ecosystems	MNRE-, MWSCD, MAF, MJCA, NGOs, SUNGOs.	**X**	**X**	**X**	**X**	**X**	Medium	80K
	8.2 Minimize coastal pollution from unsound waste disposal practices, and unsustainable agricultural practices.	8.2.1 Number of reported algae blooming and other eutrophication-related events	MNRE MAF Fisheries, SFA, Private Sectors	**X**	**X**	**X**	**X**	**X**	High	100K
		8.2.2 Number of village by-laws banning unsustainable agriculture practices and other land uses that are degrading coastal ecosystems		**X**	**X**	**X**	**X**	**X**		
		8.2.3 Number of reported		**X**	**X**	**X**	**X**	**X**		

		incidences of illegal waste disposal								
	8.3 Effectively enforce the protection of river bank reserves for catchment purposes and to minimize coastal pollution	8.3.1 Number of catchments with management plans implemented	MNRE-, MWCSD, Communities MAF-Fisheries Division, NGOs			**X**	**X**	**X**	Medium	50K
Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	9.1 Review and secure funding for implementation of the National Invasive Species Action Plan (NISAP) 2008-2011	9.1.1 Updated NISAP approved and implemented	MNRE; MAF-CI, PILN-SPREP, SNITT Committee	**X**	**X**				High	85K
		9.1.2 Invasive species list updated								
	9.2 Develop, endorse and implement Samoa's Invasive Species Emergency Response Plan (SISERP) 2015 - 2020	9.2.1 SISERP approved by Cabinet	MNRE, MAF-, PILN, SPREP, SNITT		**X**	**X**	**X**	**X**	High	120K
		9.2.2 Number of introduced species including LMOs and GMOs intercepted and thoroughly screened.								
	9.3 Develop, maintain and update Invasive Species database	9.3.1 Invasive Species database developed and maintained	MAF-Biosecurity; MNRE-DEC; NUS, SROS, PILN, SPREP, SNITT, Local communities		**X**	**X**			High	50K
		9.3.2 Number of NISAP targeted or priority species effectively controlled and/or eradicated				**X**	**X**	**X**		
	9.4 Strengthened	9.4.1 Number or proportion	MAF-Biosecurity;	**X**	**X**	**X**	**X**	**X**	Medium	8K

	collaboration of relevant government agencies to monitor and properly manage the discharge of ballast water from ships.	of all ships successfully complied with approved procedures for the proper discharging of ballast waters	MNRE-DEC; NUS, SROS, PILN, SPREP, SNITT							
Target 10: By 2020, the multiple anthropogenic pressures on coral reefs, streams and other vulnerable ecosystems also impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	10.1 Effectively enforce and implement existing planning and approval frameworks to reduce coastal reclamation and sand mining activities	10.1. Number of sand mining and/or coastal reclamation permits issued	MNRE-DEC; MAF-Fisheries; NUS, SROS, MOH.		**X**	**X**			Medium	10K
	10.2 Conduct assessment on the contamination of marine shellfish in Vaiusu Bay and surrounding areas and the risk of fish poisoning for the consuming public.	10.2.1 Assessment survey completed and report produced					**X**	**X**	Low	50K
	10.3 Carry out baseline assessment of coastal sand budget, processes and coral cover to support the sustainable allocation of sand mining and coastal reclamation permit system.	10.3.1 Baseline studies of coastal processes completed and used to support sand mining & coastal reclamation permits systems					**X**	**X**	High	50K
	10.4 Update and implement the Community Integrated	10.4.1 Number of CIM Plans updated	MNRE , MAF communities		**X**	**X**			High	6K

	Management (CIM) Plans	10.4.2 Number of actions targeting coastal ecosystems implemented								
	10.5 Reduce coral destruction and use of unsustainable fishing methods	10.5.1 Number of village by-laws banning unsustainable fishing methods	MNRE,MAF; LTA, MWTI; SWA, MWCSD	**X**	**X**	**X**	**X**	**X**	Medium to Low	6K

Strategic Goal C:
Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

National Targets	Actions	Implementation Indicators	Implementing and Executing Agencies	Timeline					Priority	Costing USD
				Yr1	Yr2	Yr3	Yr4	Yr5		
Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area	11.1 Encourage and support the establishment of new terrestrial and marine PAs, CCAs and MPAs	11.1.1 Number of new terrestrial and marine PAs established	MNRE, AG, MWSCD	**X**	**X**	**X**	**X**	**X**	High	100K
	11.2 Acquire legal status for at least 50% of all existing and proposed terrestrial and marine protected areas	11.2.1 Legal status acquired for at least 50% of existing and/or proposed Protected Areas	MNRE, AG, MWCSD, Communities MAF-Fisheries	**X**	**X**	**X**	**X**	**X**		
	11.3 Conduct ecological/biodiversity studies and surveys for new identified terrestrial and marine PAs	11.3.1 Proportion of new identified terrestrial and marine PAs with an ecological/biodiversity survey completed and reports produced	MNRE, MAF-Fisheries NGOs;	**X**	**X**	**X**	**X**	**X**		
		11.3.2 Number of cadastral	MNRE; GEF	**X**	**X**	**X**	**X**	**X**		

		maps, spatial information and images for ecological data produced	Advisor; MOF, CSSP; GEF_SGP, Adaptation Fund							
Target 12: By 2020, the extinction of known threatened species is prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	12.1 Conduct biological surveys in areas that were not surveyed as part of the 2013 BioRAP	12.1.1 Biological surveys conducted and reports produced	MNRE, NUS, Conservation International, SPREP, other international organizations, local communities.			**X**	**X**	**X**	High	250K
	12.2 Conduct surveys to determine the status of threatened and vulnerable species	12.2.1 Threatened and vulnerable species list updated	MNRE, MWCSD, local Council of Chiefs	**X**	**X**	**X**	**X**	**X**	High	150K
		12.2.2 Population for tooth-billed pigeon documented					**X**	**X**		
		12.2.3 Swallowtail butterfly and sheath-tailed bat surveys completed.	MNRE, MAF, MWCSD, local Council of Chiefs	**X**	**X**	**X**	**X**	**X**		
		12.2.4 Native land snails survey completed								
		12.2.5 Threatened native plants survey completed and list updated								
	12.3 Develop, review and implement species recovery and/or management plans	12.3.1 Manumea and Maomao recovery plans updated	MNRE-DEC, Forestry, NUS, SPREP, CI			**X**	**X**	**X**	High	160K
		12.3.2 Manumea Management plan developed and implemented		**X**	**X**	**X**	**X**	**X**		
Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals	13.1 Invest in an on-going biosecurity awareness raising program for the public to enhance	13.1.1 Number of different awareness raising initiatives of the risks to biodiversity and the	MAF-Biosecurity; MNRE DEC; USP, SPREP	**X**	**X**	**X**	**X**	**X**	Medium	10K

and of wild relatives, including other socio-economically as well as culturally valuable species, is at least maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity	understanding of the risks to biodiversity and the economy associated with illegally introduced germplasm	economy associated with illegally introduced germplasm undertaken by different approaches and media types.								
	13.2 Document all introduced agro-biodiversity (flora and fauna) and describe their current status, population levels and trends, and geographic distribution	13.2.1 Published report listing all introduced agro-biodiversity and their current statuses. 13.2.2 Maps showing distribution of main introduced flora and fauna.	MAF; MNRE, USP, NUS				**X**	**X**	Low	50K
	13.3 Develop and implement strategies including options for ex-situ conservation measures for threatened native agrobiodiversity species including species of cocoa, taro etc of high economic value.	13.3.1 Number of strategies for threatened native agrobiodiversity species developed and implemented.	MAF, MNRE				**X**	**X**	Medium	15K
	13.4 Facilitate the ex situ conservation of rare and threatened native agrobiodiversity.	13.3.1 Number of ex situ conservation site(s) for rare and threatened native agrobiodiversity	MAF, MNRE, Samoa Farmers Association			**X**	**X**	**X**	Low	10K

Strategic Goal D: ***Enhance the benefits to all from biodiversity and ecosystem services.***										
National Targets	**Actions**	**Implementation Indicators**	**Implementing and Executing Agencies**	**Timeline**					**Priority**	**Costing USD**
				Yr1	**Yr2**	**Yr3**	**Yr4**	**Yr5**		
Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	14.1 Develop and Implement Management Plans for at least 4 government managed terrestrial KBAs.	14.1.1 Number of Management Plans for Terrestrial KBAs, including national parks and reserves, completed and implemented.	MNRE, MOH WIBDI Village councils/bodies MWCSD SWA MAF, WHO SPREP CSOs	**X**	**X**	**X**	**X**	**X**	High	100K
	14.2 Review and update existing Management Plans for the 2 existing Marine KBAs (Aleipata and Safata).	14.2.1 Updated Management plans for 2 Marine KBAs	MNRE MAF, GEF-SGP, CSOs	**X**	**X**				High	60K
Target 15: By 2020, ecosystem health, resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change	15.1 Implement climate proofing projects including those promoting climate change resilience building in all sectors.	15.1.1 Number of donor funded projects on-going and completed, strengthening community and ecosystem resilience to climate change.	MNRE, MOF, GEF-SGP, MWCSD, CSOs Additional: ILO SPREP	**X**	**X**	**X**	**X**	**X**	Low	15K
	15.2 Restore 3% of degraded ecosystems on annual basis	15.2.1 % of total area of degraded ecosystems restored	MNRE, MAF GEF-SGP, MWCSD, CSOs SPREP	**X**	**X**	**X**	**X**	**X**	High	30K
	15.3 Implement soft	15.3.1 Area of marine and	MNRE, MAF, STA,	**X**	**X**	**X**	**X**	**X**	High	50K

mitigation and adaptation and to combating desertification	options to enhance climate change adaptation and mitigation objectives including trees and coral replanting schemes for degraded forests, mangroves and coral reefs.	terrestrial environment restored or enhanced using soft options	LTA, MWTI, CSOs ILO SCS MWCSD, GEF-SGP, SPREP, UNDP.							
	15.4 Collaborate with other land use sectors and agencies (e.g. MAF, STEC LTA, and SLC) to promote greater coordination and proper integration of all legitimate land uses for public purposes including the joint restoration of degraded sites.	15.4.1 Number of projects and initiatives involving multi-sector partnerships to restore degraded sites.	MNRE, MAF, LTA, STEC, SLC, STA, CSOs, SUNGO	**X**	**X**	**X**	**X**	**X**	High	10K
		15.4.2 Number of projects implemented involving multiple stakeholder and cross sectoral objectives.		**X**	**X**	**X**	**X**	**X**		
		15.5.1 CIM Plans updated for at least 75% of all districts.	MNRE, MOF, MWCSD, LTA, MWTI, CSOs, SPREP	**X**	**X**	**X**	**X**	**X**		
Target 16: By 2015, Samoa has ratified and/or acceded to the Nagoya Protocol on Access to Genetic Resources and the Fair Equitable Sharing of Benefits arising from their utilization with national legislation enacted and	16.1 Facilitate Samoa's accession to and or ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their use.	16.1.1 Samoa is a party to the Nagoya Protocol	MNRE-DEC, Legal Division; MFAT; AG Office, MCIL, SPREP	Note: Samoa ratified the Nagoya Protocol in 2014						
	16.2 Develop and endorse national legal	16.2.1 Environment Management and	MNRE-DEC, Legal Division;	**X**					High	40K

implemented	policy framework for the Nagoya Protocol	Conservation Bill 2013 is endorsed	MFAT; AG Office, SPREP							
		16.2. Supportive regulations, policies and guidelines for ABS are enacted and in place		**X**	**X**					
	16.3 Develop and implement action plan addressing national priorities under the Nagoya Protocol	16.3.1 Action Plan is developed and approved by the next COP (2016)	MNRE-DEC; MAF, NUS, USP, SPREP; MWCSD	**X**	**X**				Medium	50K
	16.4 Promote public awareness and understanding of Access and Benefit Sharing and Protection (ABS) of Traditional Knowledge (TK)	16.4.1 Number of public awareness raising activities for ABS & TK completed		**X**	**X**	**X**	**X**	**X**	Medium	50K
		16.4.2 Number of schools, communities, and other local organizations that were involved and participated in ABS awareness raising activities.								
	16.5 Develop centralized ABS Cleaning House Mechanism information system	16.5.1 National ABS Cleaning House Mechanism Information system developed and updated					**X**	**X**	Low to Medium	50k

Strategic Goal E: ***Enhance implementation through participatory planning, knowledge management and capacity building.***										
National Targets	**Actions**	**Implementation Indicators**	**Implementing and Executing Agencies**	**Timeline**					**Priority**	**Costing USD**
				Yr1	**Yr2**	**Yr3**	**Yr4**	**Yr5**		
Target 17: By 2015, Samoa has endorsed the updated NBSAP as a policy instrument and has effectively implemented the NBSAP	17.1 Endorse and implement NBSAP	17.1.1 Updated NBSAP endorsed by Cabinet	MNRE, all relevant stakeholders	**X**	**X**	**X**	**X**	**X**	High	15k
	17.2 Undertake mid-term (2018) review of the current NBSAP	17.2.1 Mid-term (2018) Review Report produced 17.2.2 Funding secured for mid-term review	MNRE, all relevant stakeholders			**X**			Medium	85K
Target 18: By 2020, traditional knowledge, innovations and practices of local communities relevant for the conservation, sustainable and customary use of natural biological and non-biological resources are protected under national legislations	18.1. Facilitate the enactment of the Environment Management and Conservation Bill 2013.	18.1.1 EMC Bill 2013 enacted	MNRE Legal Division, AG Office	**X**					High	50K
	18.2. Identify, assess and explore potential mechanisms for addressing access and benefit sharing issues at the community level, such as village by-laws, to inform the development of appropriate regulations and policies.	18.2.1 Study report assessing potential mechanisms.	MNRE; NUS, MWCSD; SUNGO, MJCA		**X**				Medium	37K
	18.3. Develop appropriate regulations and a policy framework to support and clarify the implementation of	18.3.1 ABS regulation enacted and enforced.	MNRE, AG Office		**X**	**X**			Low to Medium	25K

	measures regarding access to and benefit sharing of traditional knowledge and genetic materials as provided in the Environment Management and Conservation Bill 2013.									
	18.4. Conduct a targeted assessment of traditional knowledge, practices, and innovations relating to the use, management and conservation of Samoa's native biodiversity. Use appropriate survey methods targeting key stakeholders including traditional healers, artisans, etc and literature review.	18.4.1 TK Assessment report.	MNRE, NUS, SPREP, MWCSD, MESC,		**X**				Medium	17k
	18.5. Determine up-to-date status of collaboration with the foreign research institutions including the US based AIDS Research Alliance (USA) for samples of *mamala* (*Omalanthus nutans*) collected from Samoa in 2001 for HIV AIDS research.	18.5.1 A report of status of collaboration with US based AIDS Research Alliance with verifications.	MNRE	**X**					High	5K
Target 19:	19.1. Conduct	19.1.1 Number of local	MNRE-DEC,		**X**	**X**	**X**		Low to	37K

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	conservation education programs for local communities particularly those having ownership of lands with significant biodiversity that are part of the KBAs.	communities & representatives participating in conservation education programs;	NGOs, MWSCD						Medium	
		19.1.2 Number of workshops for conservation education conducted								
	19.2. Review and update the Samoa Ecology bibliography to include all recent reports of studies undertaken to support and facilitate the efficient collation and sharing of knowledge and information.	19.2.1 An updated Samoa Ecology bibliography is produced and made widely available.	MNRE, SPREP, MAF, MWSCD	**X**					Medium	14k
	19.3. Review, enhance and update the existing Biosafety Clearing House Mechanism (CHM) and Samoa biodiversity Database	19.3.1 Samoa CHM and Samoa Biodiversity Database enhanced, updated and linked to CBD central portal	MNRE, NUS, USP, SPREP, Conservation International, NGO representative, SROS.	**X**	**X**				Medium	33K
		19.3.3 Increasing number of hits recorded on Samoa CHM node and Samoa Biodiversity Database		**X**	**X**					
	19.4. Develop systems and protocols for biodiversity data management including protocol for recording and saving field survey data and reports.	19.4.1 Updated and enhanced systems and protocols in place	MNRE, SPREP, NUS			**X**	**X**	**X**	Medium to High	30K

	19.5. Re-launch the Samoa Biodiversity Database in a high profile activity to promote stakeholder awareness of its existence and purposes.	19.5.1 Updated Biodiversity Database launched.	MNRE, NUS, USP, SPREP, Conservation International, NGO representative, SROS.		**X**				High	40K
	19.6. Facilitate the setting up of a formal network of core users of the CHM to have responsibility for overseeing the CHM and its future management and development.	19.6.1 A network of core users is set up and taking responsibility for CHM management.	MNRE, NUS, USP, SROS			**X**			High	40K
	19.7 Develop and implement a Communications Strategy for promoting the Updated NBSAP.	19.7.1 Communication Strategy is developed and adopted.	MNRE	**X**					Medium	11K
	19.8 Initiate an NBSAP Awareness Raising program targeting local communities, schools and the business sector to promote NBSAP targets and priority actions.	19.8.1 Number of workshops for promoting awareness of NBSAP completed.	MNRE; MESC; NUS; Chamber of Commerce, MWCSD; NGOs, SROS,USP,MAF-Quarantine	**X**	**X**				High	40K
	19.9 Review existing draft National Biodiversity Framework and	19.9.1 NBF reviewed and updated	MNRE; MESC; NUS; Chamber of Commerce, MWCSD; NGOs,	**X**					Low	80K

	strengthen Biosafety Steering Committee		SROS,USP,MAF-Quarantine							
Target 20: By 2020, mobilization of financial resources from all sources have been identified and increased from the current (2014) period for effective implementation of the current NBSAP	20.1. Encourage the review and updating of country program strategy for the GEF-SGP to ensure alignment and consistency with NBSAP targets and priorities and those of other related sectors.	20.1.1 Country program Strategy for GEF SGP is updated and reflecting consistency with NBSAP targets and priorities.	SGP	**X**					Medium	2K
	20.2. Work closely with the GEF National Focal Point to identify and explore all available sources of MEA tied funding (i.e. PDFs, SGP, EA, MSP, FSP and regional projects) and to develop bankable biodiversity conservation concepts and project proposals for GEF funding consideration.	20.2.1 Number of GEF concepts and proposals submitted;	MNRE, GEF NFP, MOF	**X**	**X**	**X**			High	8K
		20.2.2 Number of GEF concepts and proposals approved;		**X**	**X**	**X**				
		20.2.3 Amount of GEF project funding secured.		**X**	**X**	**X**	**X**	**X**		
	20.3 Maximize the use of competent local institutions, NGOs and experts to expedite the implementation of donor funded NBSAP activities.	20.3.1 Number of local institutions, NGOs, and experts engaged in project implementation.	MNRE, MOF	**X**	**X**	**X**	**X**	**X**	Medium	20K
	20.4 Encourage an integrated and	20.4.1 Number of integrated and coordinated awareness programs conducted.	MNRE	**X**	**X**	**X**	**X**	**X**	Medium	50K

	coordinated approach to funding on-going initiatives such as public awareness and education, and capacity building in biodiversity conservation with other relevant divisions such Forestry, Land Management, Water Resources etc.									
	20.5 Document local experiences (successes and failures) with user pay schemes from the use of biodiversity.	20.5.1 Report documenting local experiences with user pays schemes is published.	MNRE, NGOs				**X**	**X**	Medium	60k
	20.6 Conduct feasibility study of all potential PES products in Samoa. Draw on similar studies conducted in other Pacific Islands e.g. Fiji.	20.6.1 Study report is published.	MNRE, NUS			**X**				
	20.7 Support communities and individuals interested in ecotourism and or nature based initiatives, drawing on the results and recommendations of the feasibility study proposed in 20.6 above in Yr. 3.	20.7.1 Number of nature based activities initiated	MNRE, STA, MWSCD, NGOS	**X**	**X**	**X**	**X**	**X**	Medium	20K

2. Biodiversity Mainstreaming: Current Status and Next Actions

The current Strategy for the Development of Samoa (SDS 2012-2016) places environmental sustainability amongst the seven top priorities for national action. It follows many years of advocacy by the National Environmental Management Strategy (NEMS), but the tipping point appears to have been (i) the increasing threat posed by climate change (and extreme climate induced events such as cyclones, floods etc.) to economic development, and (ii) the commitments made at the World Summit on Sustainable Development (WSSD, 2000) supporting the universal adoption of the Millennium Development Goals (MDGs) which include environmental sustainability. Other aspects of the environment 'sector' including biodiversity, has indirectly benefited from this elevated status of the environment.

Be that as it may, the immediate challenge for MNRE at the macro level of planning is to consolidate the mainstreamed status of environmental sustainability in the national agenda. Climate change and climate resilience building will continue to provide the vehicle for doing so for as long as predicted impacts of CC remain a creditable threat. But MNRE needs to articulate and make the case that building economic resilience to climate change is as much about strengthening human capacities and human built systems as it is for natural living systems. The two are intricately interconnected. Protecting and building natural systems capacities to withstand, and to recover quickly to continue to provide the ecological and biodiversity services that are essential to supporting human life and economic development – is fundamental to Samoa's economic sustainability.

Next Key Actions –

On the policy front, this case is being advocated in recent national reports including the 2013 State of Environment (SOE) Report, and the NESP 2013-2016. There are also opportunities for advancing this further in initiatives presently in the pipeline. These include –

- Environment Management and Conservation Bill 2013 (in the pipeline)
- the Samoa National Forest Policy (in progress);
- the Samoa National Forest Plan being developed under the SATFP; (in progress) and
- Updating District Community Development (CIM) Plans as part of the Enhancing Community Resilience to Climate Change (ECRCC) Project under PPCR umbrella (in the pipeline)

Beyond mainstreaming in policies and national and sector level plans, is the challenge of ***implementation.*** True, many activities are being implemented and or in the pipeline for implementation. But the ultimate test and indicator of a mainstreamed 'environment' is when the environmental agenda is increasingly funded from local budgetary resources. To date, that external sources – mainly by GEF – are dependent on to support NBSAP implementation is indicative of limited extent of political commitment to environmental sustainability and this is a continuing challenge for mainstreaming. It is a vital ingredient in ensuring the sustainability of gains and results from donor funded interventions. In this NBSAP, this is advocated in actions calling for mainstreaming the environment and biodiversity conservation in national accounting and local budgetary processes.

IV. Implementation Plan

1. Capacity development for NBSAP implementation

Human Resource needs

The human resource needs for the implementation of Samoa's CBD obligations are the same as those required for the NBSAP implementation. These needs and strategies for their development are set out and articulated in Samoa's National Environmental Capacity Strategy and Action Plan (NECSAP) (2007). The NBSAP should thus be read in conjunction with the NECSAP to inform readers of the required human capacity needs for the NBSAP and strategies for their development.

It is noteworthy that recent biodiversity related assessments and reports, in the form of the Samoa 2013 SOE and the NESP 2013-2016, identified priority issues with capacity implications. These issues and implications for capacity building must inform a future review and an update of the NECSAP. These priority needs, some of which reconfirm NECSAP priorities, are set out below -

General Area	Specific expertise required	Targeted beneficiaries
Natural resources and biodiversity assessment and monitoring	Expertise in the design and implementation of ecological and species surveys and studies; including access to existing networks of experts who can provide services including training.	Mainly staff and researchers in MNRE, MAF, NUS and USP Secondarily, local NGOs and private sector companies to whom such work may be outsourced in the future.
	Expertise in habitat and species monitoring at the community level focusing on inshore habitats and coral reefs, freshwater habitats including streams and mangroves.	Local community youth groups and local NGOs. Note: Some of this expertise (especially in inshore and coral reef habitats) is available within MNRE and MAF Fisheries but needs to be transferred to the identified beneficiaries.
	Expertise in the determination of environmental flow levels for protecting downstream biodiversity in streams earmarked for water abstraction and or diversion schemes.	Staff of MNRE-WRD and DEC.
Design and management of biodiversity or nature based income generating activities.	Expertise in the design and management of pristine natural sites for community based ecotourism projects/activities (hiking, snorkelling, scuba diving, surfing, bird watching, whale watching; etc).	Staff of MNRE, STA, Samoa Hotel Association, local communities with biodiversity conservation projects and local environmental NGOs (METI, OLSS Inc). Note: Some of this expertise may already exist within MNRE but needs transferring to local groups and communities.
	Design and management of small scaled bee-keeping activities,	MAF, prospective bee-keeping farmers and land owners.
	A greater understanding by local agencies and NGOs of payment for ecosystems services (PES) including carbon offset schemes	MNRE, NGOs – Samoa Conservation Society, OLSSI, METI
Natural habitat restoration	Methods and skills in coral replanting, mangrove propagating and replanting etc..	Local community groups. Note: Expertise is available in MAF Fisheries METI, and MNRE and needs to be transferred to targeted groups.
Biosafety	Risk assessments procedures and methodology to comply with Cartagena Protocol	MAF-Biosecurity Services; MNRE-DEC; NUS, USP
Biodiversity valuation	Methodologies for payment of ecosystem services (PES)	MNRE-DEC, WRD, Forestry; MAF-Fisheries; MOF, NUS.
	Cost benefit analysis of protected areas	MOF, MNRE, NUS

Technological Needs

Land use and forest cover mapping	SAMFRIS expansion and update - aerial photography exercise for land use and forest cover re-assessment.	MNRE – DEC; Forestry, WRD; Lands Division; Technical Services Division; MAF
Samoa Biodiversity Database Enhancement	Improving and updating existing Samoa Biodiversity Database; strengthen links to regional and international (CBD Secretariat)	MNRE; CBD Secretariat

	portals.	
Samoa Biodiversity CHM – Updating and Enhancement	Updating and enhancing the Biosafety CHM to support the implementation of the National Biosafety Framework is essential.	MNRE, MAF - Quarantine
National Herbarium	Building national herbarium to support in-situ conservation.	MNRE, NUS,

2. Communication and outreach strategy for the NBSAP –

The following actions will be necessary to promote the NBSAP among Samoa's decision-makers and the public at large and to raise awareness of its existence and purpose.

	Actions	Responsible Party(ies)
1	Submission to Cabinet/CDC for approval	MNRE
2	Submission to CBD Secretariat by November 2015.	MNRE
3	Translation of NBSAP into the Samoan language.	MNRE
4	Public launching of the NBSAP – English and Samoan. Linking this to a high profile event such as the 2015 Environment Week, or Biodiversity Day would help maximize exposure.	MNRE, Implementing partners
5	Uploading into Samoa Biodiversity CHM national node (MNRE website)	MNRE
6	NBSAP Awareness Raising Workshops in Upolu and Savaii. This could also be implemented as part of the Environment Week activities especially if the NBSAP is launched during this event.	MNRE
7	NBSAP implementation – on-going	MNRE

3. Resource mobilization for NBSAP implementation –

Funding for NBSAP implementation is likely to be sourced mostly from external sources. This is despite the elevated position of environmental sustainability in the SDS, and of biodiversity conservation indicators in monitoring SDS implementation, which suggests a high priority and secured local funding. Based on past and recent experience with GEF and other donors, a project based modality will continue to be the dominant approach by donors to biodiversity conservation[31].

NBSAP resource mobilization

This NBSAP update is financed from CBD Parties allocation as an enabling activity under GEF 5. As a party, Samoa applied and received grant funding of US$220,000 for two activities - the NBSAP Update and the preparation of the Fifth National Report to the CBD. Samoa however is eligible for up to a maximum of US$500,000 for these activities[32].

The available funding is adequate to implement the NBSAP mobilization measures proposed above, i.e. NBSAP update including consultancies, consultations and launching, as well as consultant costs for

[31] Notwithstanding the fact that several GEF conducted country portfolio evaluations including that of the GEF Samoa portfolio evaluation in 2007, recommended a more programmatic approach to the funding of conservation activities.
[32] Ref: SCBD/ITS/YX/75599 dated 4 April 2011 from GEF Executive Secretary (Ahmed Djoghlaf); available on www.cbd.int/doc/notifications/2011/ntf-2011-075-gef-en.pdf

preparation of the Fifth National Report, translation of documents). As well, there should be enough to support the enhancement and updating of the Samoa National CHM node.

If however this funding is insufficient, Samoa has the option of

(i) applying to GEF for additional funds under this allocation, to support the updating and enhancement of the NBSAP Clearing House Mechanism as an add-on activity; or
(ii) Request for GEF support to enhance the Samoa CHM node as a separate enabling activity under GEF 5.
(iii) Explore opportunities for funding through other sources such as the Green Climate Fund, Life Web, EDF11, and others which Samoa could apply to for funding to implement the NBSAP

The main sources of potential funding for NBSAP implementation are discussed below.

Global Environment Facility (GEF)

It is expected that Samoa will continue to depend to a large extent on project funding from the GEF for NBSAP implementation. It has been the main source of funding since Samoa ratified the CBD in 1993.

GEF funding for activities in other focal areas such as climate change, and land degradation have indirect but complementary impacts on the sustainable use and conservation of biodiversity including the restoration of degraded ecosystems. These activities are listed in Annex 2.

The majority of proposed actions in the NBSAP will need to be developed into project concepts for GEF funding consideration. This requires good proposal writing skills and a good understanding of GEF requirements and criteria. Several biodiversity conservation project concepts are already proposed in the NESP. This task is an important priority for MNRE and one demanding the assistance of the GEF Advisor. Having said this, the primary responsibility for identifying project concepts and for the preparation of proposals is a shared one of all implementing agencies, for those activities directly under their respective mandates. DEC in particular will take the lead in soliciting resources for most of the NBSAP actions.

Nagoya Protocol Implementation Fund (NPIF)

The Nagoya Protocol Implementation Fund (NPIF) is a multi-donor trust fund that started operations on May 26th, 2011 and was created to fund activities under the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. Its' main aim is to facilitate the ratification of the Nagoya Protocol among member countries.

Samoa is eligible as a signatory country for funding to support the implementation of its obligations under Protocol[33]. The Fund supports, among others, existing opportunities leading to development and implementation of concrete ABS agreements with involvement of the private sectors. The projects funded under the NPIF encourages the engagement with private sector entities interested in exploring the economic potential of genetic resources and facilitate the transfer of appropriate technologies. Through the implementation of this type of projects, participating countries will generate information that can help to understand their capacities and needs on ABS, with focus on the provisions from existing policies, laws, and regulations affecting genetic resources.

GEF-Small Grants Program Civil Society Support Program (CSSP)

Funding community level activities and NGO initiatives proposed in the NBSAP is expected to be largely through the GEF-Small Grants Program and possibly the EU-funded CSSP. Samoa's GEF-SGP is currently hosted by the UNDP Apia office.

A new World Bank funded Pilot Program for Climate Resilience (PPCR) is expected to provide funding for ecosystem restoration activities for climate change objectives that also have direct benefits for

[33] The Nagoya Protocol was adopted at the Tenth Meeting of the Conference of the Parties (CoP) to the CBD.

biodiversity conservation. Some of the funding for PPCR implementation at village level will also be channelled through CSSP.

It is important for MNRE DEC to be engaged strategically in both funding programs not only in the screening of funding proposals but also in encouraging and participating in a review and update of SGP's Country Program Strategy to ensure SGP funding focus is aligned with NBSAP priorities.

Bilateral assistance

Japan and Australia are the current bilateral donors in biodiversity conservation (Refer to Annex 2) but there are likely to be others.

Government allocation - Local budget support

Staff salaries and wages, and operating costs are sourced from Government budgetary allocations. The priority status assigned to environmental sustainability in the SDS 2010-2014 logically suggests a positive sign of increased in local budget allocation, although previous years experience shows otherwise.

Innovative financing

There are opportunities for generating revenues for Government and local resource owning communities and households from the use of biodiversity. The charging of access fees to ecotourism sites is now a common practise. Similarly, charges for specific activities such as hiking, birdwatching, trekking, canoe tours in mangrove forests etc are other possibilities that should be encouraged. For instance, in the Saanapu-Sataoa Mangrove Conservation Project offers a canoe tour within the mangrove forest to tourists and visitors for a small fee. Additional community income is generated from the sale of local produce (fruits and drinking nuts) and handicraft souvenirs.

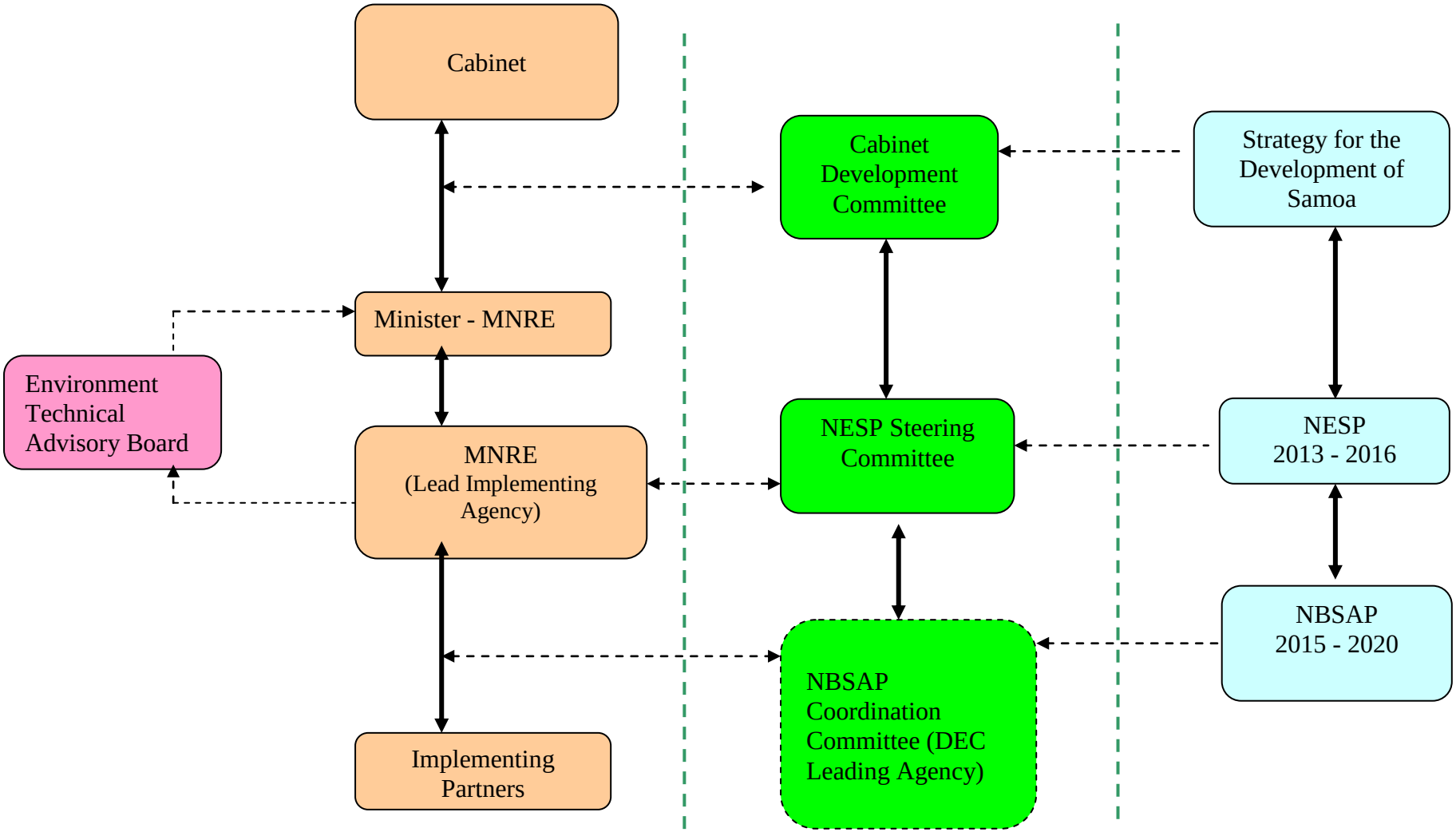
For MNRE, similar charges for access into public parks and reserves may be considered as was the practice with public use of the Palolo Deep Reserve. However, all government revenues go into consolidated accounts under the control of MOF.

The increasing use of PES is encouraged in this NBSAP, which calls for a study to identify feasible PES products to be promoted. Some of these are being promoted already through highly and innovative initiatives such as EPC's Business Model approach to small run-of-river hydropower schemes with local communities. The protection of biodiversity in catchment areas and rivers is an indirect benefit from these initiatives, which will allow the building of biological corridors and the linking of ecosystems, and KBAs.

V. Institutional, Monitoring and Reporting

1. National Coordination Structures –

Figure 1: Institutional framework for NBSAP Implementation, Monitoring and Reporting



The institutional framework for the implementation, monitoring and reporting for the NBSAP is set up in Figure 1 above. It depicts the following:

(i) the relationship between the NBSAP, the National Environment Sector Plan 2013 – 2016 (NESP), and the Strategy for the Development of Samoa 2012 – 2016. The NBSAP is a sub-sector plan under the NESP, which in turn is one of the many sectors under the SDS.

(ii) the relationship between MNRE through the DEC as the Lead Implementing Agency for the NBSAP, and other Implementing Partners with supportive responsibilities for NBSAP implementation; and

(iii) the relationship between the implementing agencies and the NESP Steering Committee and the NBSAP Coordination Committee which will monitor and coordinate NBSAP implementation.

The responsibility for coordinating the NBSAP implementation is assigned to the Environment Technical Advisory Committee. But the specific responsibility for implementing the bulk of the proposed actions lies largely with MNRE. Having said this, many activities will require close collaboration with other agencies, institutions and organizations both at national and local level. These organizations constitute the Implementing Partners referred to above. For several actions, implementing partners take a leading role with MNRE contributing indirectly. This includes but is not limited to MAF in terms of agro-biodiversity, biosafety and, to an extent, inshore and offshore marine species and habitat conservation and sustainable use; Ministry of Finance (MOF) who plays an important role in donor funding solicitation, management, coordination and monitoring; MESC for actions related to environmental education and MWCSD for some activities requiring coordination with local villages.

NBSAP Coordinating -

In line with the MNRE's approach of consolidating the coordination of all sub-sector activities under a single Environment Sector coordination, NBSAP coordination will be the responsibility of the NESP Advisory Committee.

Details of the functions, modus operandi and membership of the NESP Advisory Committee are set out in the NESP 2013-2016.

2. Clearing-House Mechanism and Samoa Biodiversity Database

The development of national clearing house mechanisms (CHMs) and biodiversity database to support the implementation of the CBD and NBSAPs is mandated by Article 18.3 of the Convention. Samoa's national CHM was developed and established in 2000 as part of GEF funded enabling activity GEF Project No. 861. The NBSAP CHM enabling activity (EA) procured computers, established internet connectivity, developed a web-based biodiversity and provided MNRE staff training in its use. The main output and part of the CHM is the Samoa Biodiversity Database currently accessible through the MNRE website www.mnre.samoa.ws.

The Samoa Biodiversity CHM is an important tool for CBD and NBSAP implementation. It is the primary tool for making biodiversity information available and easily accessible to all NBSAP stakeholders. It is also a networking tool for, linking and connecting sources and users of information, sharing of experiences, best practises and the discussion of issues between NBSAP project implementers and targeted beneficiaries, funders, and others. For stakeholders such as the general public, educators and schools, the CHM is an invaluable source of information for raising awareness and conservation education.

The global CBD CHM infrastructural design requires the linking of national CHM nodes to the CBD CHM as the central node, to facilitate the global sharing of information amongst all other parties of the Convention, the Secretariat as a major source of CBD related information and other internet based

resources. This linkage between the Samoa CHM and the CBD central node is currently weak and needs strengthening.

In its present condition, the Samoa CHM – in particular the Samoa Biodiversity Database - needs upgrading. Its mere existence also needs to be more widely advertised and promoted to all potential users. Similarly its contents needs regular updating to make available information on biodiversity from local studies and researches, and to ensure its accessibility as a resource for teachers and students, as well as environmental planners and potential donors. Key stakeholders, providers and users of information such as MNRE, NUS, SPREP, Conservation International, USP, SROS, private researchers and consultants, should be encouraged to contribute to and be involved in this enhancement exercise. They need to discuss and clarify issues relating to website hosting and administration, maintenance, information sharing and accessibility, links to other related web-based sites including the central CBD portal, and other issues. Responsibilities for the regular upkeep and maintenance of the CHM in terms of its content must be clearly assigned and defined, to ensure proper accountability and for performance assessment purposes. This core user group should also be strengthened into a functioning network with responsibility for overseeing the CHM on an on-going basis.

Specific actions for improving the CHM are prescribed under Target 19 of the NBSAP. Actions calling for enhancing and updating the CHM are proposed as important priorities that should be implemented as soon as possible, as a GEF funded add-on enabling activity to this NBSAP updating exercise, or alternatively a separate GEF funded EA that should be requested as soon as possible.

3. Monitoring and Evaluation –

NESP Advisory Committee to monitor NBSAP Implementation

The NESP Advisory Committee is responsible for monitoring progress in NBSAP implementation. The Environment Sector Coordinator is a crucial player in ensuring the proper functioning of this mechanism and in setting up and implementing an NBSAP monitoring and reporting protocol. It is important that monitoring and reporting are regular and frequent based on indicators and timelines proposed.

Review of the NBSAP

An independent interim assessment and review of NBSAP implementation is necessary and should be completed prior to the preparation of the Sixth National Report to the CBD in 2016. The timing rationale is to allow the Review report to inform the Sixth National Report to the CBD, which require CBD parties to report on progress of NBSAP implementation. It would also serve to keep a continuing focus and scrutiny of implementation, particularly on areas where implementation is lagging.

A full and independent review of the NBSAP is proposed for 2020, when the NBSAP is due for updating. MNRE is responsible for ensuring both interim and full reviews are carried out.

Annex 1: References used

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Annex 2: On-going and pipeline donor funded projects addressing NBSAP

Project Title	Duration	Source of Funds	Project Award	Status
NAPA 3 ICCRIFS	2010 - 2015	GEF-LDCF-Meteorology	2,400,000	In progress
NAPA 2 PACC – Pacific Adaptation to Climate Change	2008 - 2014	GEF-SCCF-LMD	750,000	In progress
NAPA4 (Tourism, Forest Fire, FESA, Water, Meteorology, PUMA	2010-2015	Samoa Australia Government Partnership	2,500,000	In progress
NAPA4 – Integrated Climate Change Risks into Meteorology, Water Resources, Forest Fires, Tourism, & Capacity Building	2010-2015	Samoa-Australia Partnership	AUD 15M	In progress
SMSMCL – Strengthening Multisector Management of Critical Landscapes	2013-2016	GEF-LMD	5,300,000	Approved
NAPA 5 - ICCRITS	2012-2014	GEF-LCDF-STA	2,400,000	Approved
Samoa Enhancing Resilience	2012-2015	Adaptation Fund - PUMA	8,500,000	In progress
Cross Cutting Capacity Development Strategy (CCCD) – NCSA+	2012-2015	GEF – Enabling Activity - CSD	500,000	Pipeline
Samoa Agroforestry and Tree Farming Project (SATFP)	2012-2016	AusAID	2,300,000 (AUD)	In progress
LDCF _ Economy wide Integration of Climate Change Adaptation and DRM/DDR to reduce climate vulnerability of communities in Samoa	2014-2019	USD	14 M	In progress
Adaptation Fund – Enhancing resilience of coastal communities to climate change	2012-2016	GEF/UNDP	8,732,351	In progress
ICCRITS – NAPA 5	2013-2016	GEF-LDCF	2,000,000	In progress
Forest Preservation Programme	2012-2014	Government of Japan	2,500,000	In progress
Forestry and Protected Area Management (FPAM)	2012-2016	GEF FAO	1,400,000	In progress
NBSAP Update	2013-2014	UNEP	220,000	In progress
Two Samoa Initiatives	2013-2015	NOAA	200,000	Pipeline
Marine Cetaceans Survey	2012-2013	Australia OceanscapeProgrammme	40,000	In progress

Source: State of Environment (SOE) Report 2013, MNRE.

Annex 3: 2001 NBSAP Implementation Assessment Matrix and Report

1. Introduction

The narrative analysis of the NBSAP implementation and annexed implementation matrix is part of the process for reviewing and updating the NBSAP. The objectives of the analysis are

(i) to determine the extent to which the wide range of prescribed activities have been implemented since the NBSAP was approved in 2001;
(ii) to identify gaps in implementation and areas of continuing relevance for the immediate future,
(iii) to see what lessons may be learned about implementation that may inform the current review and update exercise and
(iv) to make recommendations of actions to consider in the NBSAP Update.

The NBSAP Update is part of a CBD funded activity and a requirement approved by the CBD Conference of the Parties (COP) for all parties to undertake.

2. Methodology

The methodology for the NBSAP implementation review and analysis involved the following –

(i) a review of the 2004 NBSAP First Monitoring Workshop and its findings and recommendations.
(ii) discussions and consultations with participants of the NBSAP Update Inception workshop;
(iii) collation of information from participating stakeholders in the NBSAP Update process,
(iv) review of various reports from MNRE of NBSAP activities already completed and or in progress.
(v) empirical assessment of progress in implementation based on the ratings described below.

Stakeholder participation revolved around

(i) an initial stakeholder workshop to launch the NBSAP Update exercise conducted on the 14 November by MNRE and the Consultant;
(ii) stakeholder review of NBSAP activities using a prepared matrix and based on email communication and information sharing;
(iii) the collation of all received and accessible information by the Consultant, and
(iv) the preparation of this analysis report based on the Consultants' input.

The attached matrix has comments by the Consultants including queries to prod comments and responses from the NBSAP Update Technical Working Group. In this regard, this version is provisional with additional information to be added as they are received from the Working Group.

It is intended that this report and matrix will be annexed to the final NBSAP Update report.

3. Some constraints to the Review and analysis of the NBSAP Implementation

The NBSAP implementation was reviewed in a two-day workshop in 2004 but was never systematically monitored before this workshop, nor was there any subsequent effort to monitor its implementation since. As a result, with the exception of the 2004 workshop report, there were no monitoring reports for this exercise to draw on.

Not all stakeholders to the implementation of the NBSAP participated in the early stages of this exercise, or to the information gathering exercise that resulted in this initial report and matrix. It is probable therefore that there are significant gaps in the results that are reported here. Be that as it may, this report presents the latest and best information that could be gleaned from willing and interested stakeholders.

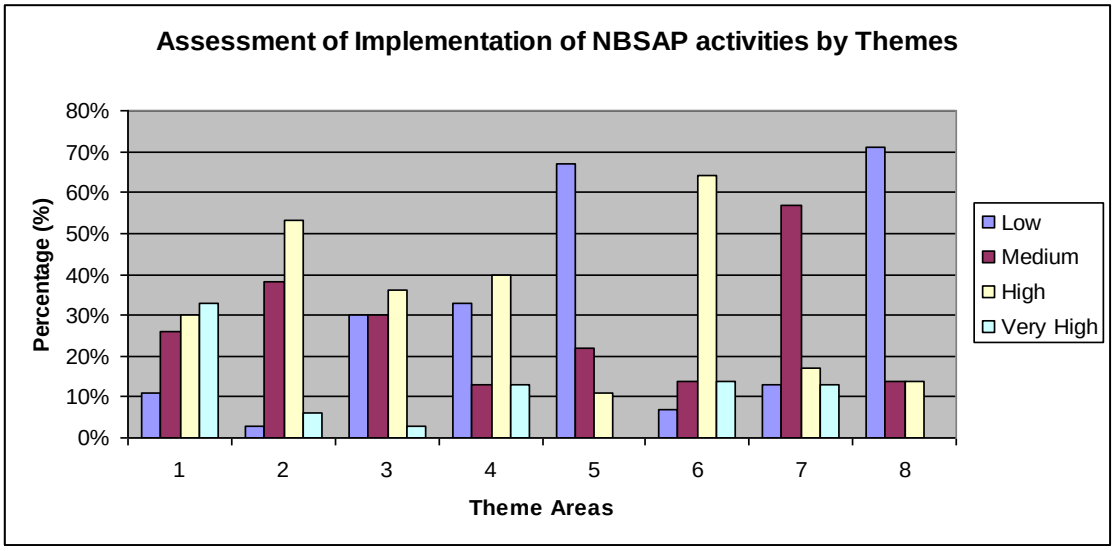
4. A note about the Matrix

The matrix is a tool used in the NBSAP Update to organize and present information on the Theme Areas, Objectives and Activities to highlight what activities have been implemented and the kinds of actions that had been taken. It highlights those themes, objectives and activities for which no actions have been taken, and vice versa.

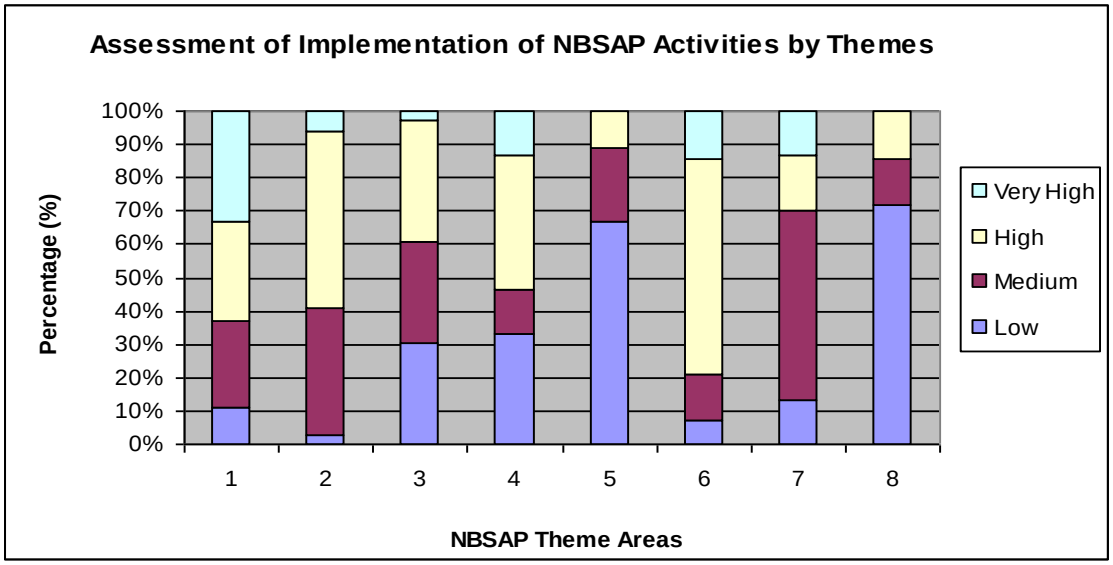
The attached matrix is also used here by the Consultant to make comments and observations as to the nature and extent of implementation reported and on activities that are of continuing relevance to be included, or at least considered in the NBSAP Update. For some activities, the Working Group is asked to make comments to assist the Consultant. Consequently, it is hoped that there is another round of input by the Working Groups in the form of comments on the views expressed in the matrix.

5. Findings:

Graph 1: Theme areas percentage of activities implemented.



Graph 2: Stacked Bar Graph illustrating Implementation by Theme Areas.



Legend: Themes
Theme 1: Mainstream biodiversity
Theme 2: Ecosystem management
Theme 3: Species management
Theme 4: Community
Theme 5: Access and Benefit Sharing from the use of genetic resources
Theme 6: Biosecurity
Theme 7: Agrobiodiversity
Theme 8: Financial Resources and Mechanisms

Legend for Implementation Rating	
Low	Either no actions taken and or completed or minimum and marginally relevant actions are reported.
Medium	Some marginally relevant actions have been completed, and or continuing
High	A number of directly relevant actions have been completed and or continuing/on-going
Very High	Directly prescribed action(s) have been undertaken and successfully completed, and or continuing.

5.1 Overall Findings –

1. Overall, the NBSAP consisted of 8 thematic areas containing 39 Objectives (refer to Table 1) and 183 activities. Based on information received from various sources and participants of the first NBSAP Update workshop, and the assessment criteria used in this report, 19 activities were assessed to have been implemented to a 'very high' level, 62 were assessed 'high', 53 were assessed to have been implemented to a 'medium' level, and 49 were assessed to have been implemented to a 'low' level.
2. Implementation varied widely between the eight thematic areas of the NBSAP.
3. The numbers and percentages of activities within each Themes and their corresponding assessment is given in Table 1 above. Combining the numbers of 'high' and 'very high' results, the analysis found that Theme 1 (Mainstreaming Biodiversity) reported the highest number (63%) of prescribed activities assessed to have been implemented to either a 'high' or 'very high' level, followed by Theme . Twenty seven (27) activities were prescribed under 5 different objectives. Twenty six (26%) percent of prescribed activities were assessed to have been implemented to a 'medium' level.
4. Theme Area 6 (Biosecurity) is the most implemented with over 80% of all prescribed Activities actioned to either a 'high' or 'very high' level. This is followed by Theme 1 (Mainstreaming Biodiversity) 63% and Theme 1 (Mainstream Biodiversity, 62%) and Theme 2 (Ecosystem Management; ~ 60%).
5. Theme areas which prescribed activities were least implemented were Theme Area 8 (Financial Resources and Mechanisms) and Theme 5 (Access and Benefit Sharing from the use of genetic resources). A high percentage of prescribed activities were not implemented at all.
6. Implementation appears to be largely ad hoc and dictated by the availability of funding, most of which were from external donors.

5.2 Comments by Theme Areas

Within each Theme Areas, the following observations are made –

Theme 1: Mainstreaming Biodiversity

This theme is highly successful albeit implementation was ad hoc and unsystematic. Mainstreaming is now observed at the macro level of national planning (i.e. SDS) wherein 'environmental sustainability' has been elevated into a national goal, possibly following and in response to global trends of donor pressures

and the MDG's. Be that as it may, biodiversity conservation now has an overarching logic that ties sector level priorities and activities to a national level goal.

Environmental sustainability and biodiversity conservation mainstreaming is also seen in other sector plans including agriculture, infrastructure, tourism, education and health, most of these pre-date the SDS inclusion of environmental sustainability as a priority goal.

The immediate challenge for mainstreaming in the NBSAP Update is to further reinforce and consolidate environmental sustainability in national and sector plans including its integration in national accounting and local budgetary processes.

Objective 3: Legislation is well achieved in most sectors except where it matters the most i.e. the EMC Bill 2013. This Bill needs to be enacted as a matter of priority. Several other legal requirements that should be in place for compliance with the CBD i.e. for bioprospecting, access and benefit sharing from the use of genetic resources, and biosafety, will be addressed by this legislation.

The notion of setting up formal mechanisms to promote and facilitate multi-sectoral collaboration (Theme 1 Objective 2) is at best, a good idea. Several such mechanisms are proposed throughout the NBSAP but consistently there is little evidence of their being set up and or of being operationally effective. On the other hand, where interagency collaboration is needed to support a donor-funded or government initiative, the relevant agencies are able to come together in response to a CDC directive. In other words, the approach of setting up formal mechanisms that are then rendered inactive due to the absence of a 'driver' such as a project or a high-level sanctioned activity, appears unnecessary. On the other hand, and the ad hoc approach often in response to a specific need, and carrying high level political support seems to be more effective.

Recommendations –

1. Enact EMC Bill 2013.
2. The focus of mainstreaming biodiversity conservation should now be on implementation.
3. Review proposed mechanisms for inter-agency coordination. The ad hoc approach is working well and the Environment Board proposed under the EMC Bill together with a CDC Directive are likely to be the more effective triggers for mobilising inter-agency collaboration when the need arises.

Theme 2: Ecosystem management

This theme area is highly successful and with a planning framework in place for achieving the strategy goal of 10%. This goal is highly achievable. The proposed Key Biodiversity Areas (KBAs), if successfully implemented, will bring under conservation management and full protection 33% of Samoa's land area.

The KBA report and recommended areas is significant in that the haphazard approach to protected area selection of the past is now replaced by a science-based and systematic approach, in this case, based on criteria of representativeness and extent of threat to habitats and species of conservation concern. The NBSAP Update's challenge is to promote its effective implementation of the new KBAs in terms of giving areas legal status, developing management plans, securing funding and making a start on PA management.

Worthy of special mention is the fact that much of this 33% identified for conservation management is under customary tenure. This is a challenge but one which Samoa is well placed to face with its extensive experience in community based conservation approaches. These experiences can be seen in coastal and inshore protection using village managed fisheries reserves and MPAs, and in several terrestrial conservation areas. The NESP 2013 – 2016 strongly advocates for the effective participation and close collaboration between MNRE and other Government agencies on one hand, and villages on the other, to ensure success. This is already widely recognized but should be strengthened even more, with more innovative ideas including the use of PES (payment of ecological services) approaches.

New information from the BIORAP regarding the flora and vegetation of the Savaii Upland Area show healthy trends in vegetation and a fuller recovery from the impacts of previous cyclones but also confirmed the high correlation between access roads and the movement inland of invasive weeds and vines.

The science part of ecosystem management is also well advanced with recent studies and current projects (e.g. BioRAP, ICCRIFS, FPAM). It is important for the next phase of the NBSAP to refer to the recommendations of these studies/initiatives for the way forward in terms of priority ecosystems studies and conservation management interventions. These recommendations should provide a fair indication of the existing gaps in our knowledge of ecosystem conservation and management information.

Other priority actions are prescribed in the NESP 2013 – 2016 which the NBSAP Update must draw on, including an on-going ecosystem health monitoring program, possibly based around a regular (5 yearly) aerial photography and or satellite imaging exercise for forest/vegetation cover assessment.

There is a marked improvement in marine habitat information especially the biogeography study by NOAA that provided a more holistic analysis of available monitoring data from both MAF monitoring sites and those of American Samoa. The result is a comprehensive assessment (refer to SOE) of coral reefs health and of fish populations. The NOAA report provides a sound basis for prioritising sites for intervention in the MAF Village Fisheries reserves program.

The NOAA report is also a reminder of the benefits that closer collaboration with American Samoa through the Two-Samoa Initiative can yield. Closer collaboration and sharing of monitoring data should be fostered and encouraged by MAF as a continuing strategy for capacity building and for MAF to tap into the considerable marine science expertise available in American Samoa from NOAA and the National Parks and Wildlife Service.

Recommendations –

1. The NBSAP Update's challenge is to promote effective implementation i.e. giving areas legal status if possible, develop management plans, secure funding and begin implementation.
2. It is important for the next phase of the NBSAP to refer to the recommendations of the BIORAP, ICCRIFS, FPAM etc for the way forward in terms of priority ecosystems studies and conservation management interventions. These recommendations should provide a fair indication of the existing gaps in our knowledge of ecosystem conservation and management information.
3. Other priority actions are prescribed in the NESP 2013 – 2016 which the NBSAP Update must draw on, including protection of the Siutu Salailua mangrove forest, and an on-going ecosystem health monitoring program, possibly based around a regular (5 yearly) aerial photography and or satellite imaging exercise for forest/vegetation cover assessment.
4. MNRE must foster closer collaboration and coordination with NOAA via American Samoa as part of the Two-Samoa initiative for the continuation of joint monitoring and assessment of coastal and off-shore ecosystems similar to that which produced the NOAA Biogeographic Assessment of the Samoa Archipelago report (2011).

Theme 3: Species management

Perhaps the most significant area of progress in species management is the amount of new information on the status of terrestrial species that was produced with the recently completely BIORAP report. This has significantly updated our knowledge of flora and fauna in the Upland Areas, and their statuses, particularly in the taxonomic groups of flora and vegetation, reptiles, birds, moths and butterflies and land snails. Important information on threats including the extent and types of invasive species are valuable for conservation planning.

BIORAP also provided further information on the likely extinction of the *puna'e,* the critically declining *manumea* population and new information on the *ma'oma'o, tuaimeo, matapa'epa'e*and others. The study not only reinforced the urgent need for the full and effective protection of the Savaii Upland area, but also that of direct action to protect the *manumea* species. MNRE also now need to seriously consider a more proactive captive breeding program, for those species wherein sufficient individuals may be found, to ensure the survival of some of these species. This is a direction the NBSAP Update should now consider, and an idea which has been mooted in the recent past by MNRE using the Aleipata Islands as refugia.

The statuses of other species are well documented and presented in the IUCN's Red List of Threatened Species. Samoa must collaborate and provide regular information for this list to be kept up-to-date including the recent BIORAP findings that, as suggested in the BIORAP report, should lead to a revision of the conservation status of several endemic species.

Samoa's flora does not have flagship species that can be said to be similarly threatened with extinction, possibly because we may not yet have that information given the lack of research and scientific surveys. But species such as *ifilele*, and *poumuli* are not in any way threatened with extinction although existing biomass has dwindled significantly from merchantable levels for large scale sawmilling exploitation. Other native species including *malili* and *tav*a were targets of tree improvement activities under the completed AusAID funded SPRIG project and mass produced in the Forestry nurseries. The mangrove species *Xylocarpus molluccensis* is recommended by the NESP for priority conservation action including the option of ex-situ conservation.

Samoa's state of knowledge of marine species (fish, corals, reptiles, cetaceans etc.) has increased but is an area in need of continued research. There are on-going monitoring activities for some species including marine turtles with targeted activities to protect nesting beaches. These activities require continuing support. Inshore fisheries appear to be more regularly monitored for biomass and species diversity and richness, with monitoring results having led to the reintroduction of species such as clams and trochus in some villages where local extinctions were observed. Part of this work is analysed and reported under the NOAA Biogeography report which has been discussed in Theme 2 above.

Several other species monitoring activities are reported but reflecting the interests of outside institutions and scientists. Be that as it may, their contributions are important and these foreign interests must be encouraged and supported as a strategy of accessing expertise and funding that would otherwise be inaccessible. Perhaps it is an area wherein NUS can play a larger role to liaise with other outside agencies and universities with such interests. Likewise continued collaborations with international organizations including Conservation International, BirdLife International and the Pacific Islands Roundtable for Nature Conservation as well as SPREP are other options that in the recent past have yield MNRE beneficial results.

Recommendations

1. Continued collaborations with international and regional conservation organizations and groups including Conservation International, BirdLife International, the Pacific Islands Roundtable for Nature Conservation and SPREP, are essential for accessing scientific expertise not otherwise readily available and accessible to MNRE for species studies and related research work.

2. Implement recommendations of the BIORAP study including securing official protection for the Savaii Upland Area (800m and higher elevation).

Theme 4: Community

Important progress has been made in this thematic area especially in the capacity building and public awareness and education. Seriously lacking are activities to document and preserve traditional knowledge and practises involving the use of biodiversity. Having said this, the use of tapu or bans to curb of the use of unsustainable traditional practises in fishing and farming is widely reported. This is largely in connection with village sustainable fishery management plans. This suggests that information is available

but there is no reported concerted effort to collate and document such practises - sustainable and unsustainable.

The lack of sui generis legislation to protect traditional knowledge, practises and innovations is something the EMC Bill 2013 will partly address. This is a theme area for continued emphasis in the NBSAP Update.

Recommendations –

1. This theme area needs closer scrutiny and priority in the NBSAP Update. Some activities prescribed are relatively low cost and technically easy to implement but there does not seem to be any interest in doing them.
2. Enact the EMC Bill 2013 and develop relevant regulations to enable the effective protection and preservation of worthy traditional knowledge and practises.

Theme 5: Access and Equitable Sharing of Benefits from the use of genetic resources

Theme 5 is the second least implemented of the NBSAP, with about 65% of prescribed activities either not implemented at all or with negligible actions reported. Policies governing access and equitable sharing are seriously lacking and the EMC Bill 2013 is hoped to partly address this. The lack of public awareness and education is also glaring.

The lack of activities is perhaps indicative of the low priority of issues in this theme area and of their immediate relevance to the work of MNRE, and to biodiversity conservation in particular, notwithstanding the requirements of the CBD that parties like Samoa must comply with.

Theme 6: Biosecurity

A high level of relevant activities is reported for biosecurity which underscores the relevance and priority given to this theme by MNRE, MAF and other agencies especially in controlling the impact of invasive species. Achievements are noted in policy and legislation, control and eradication and public awareness and education.

Biosecurity will continue to feature in the NBSAP Update given the importance of biodiversity (including agrobiodiversity) to the national economy, and threats to it from a range of alien invasive species.

Recommendation –

1. This is an important area that needs stronger emphasis and support in the NBSAP Update.

Theme 7: Agrobiodiversity

This is an important area of growth with Samoa's agrobiodiversity expanded with the introduction of new species and sub species and varieties to enlarge the gene pool for taro, following the decimation of the taro industry in 1995 by the Taro Leaf Bight. Agriculture's policy of crops and livestock diversification has also seen the introduction of new species of fruit trees and livestock (sheep and goats for example) into the country.

The introduction of exotic species as an economic strategy for agriculture must be counter-balance with efforts to preserve native and endemic species, notwithstanding their limited economic value. Ecological stability is first and foremost depended on ecological diversity. Ex-situ options such as herbaria and botanical gardens, should be explored to achieve this purpose and a direction in agrobiodiversity conservation that the NBSAP Update should now be promoting. Promoting the replanting of native species should also be maintained, not only in agrobiodiversity but in forestry and other areas.

Recommendations –

1. Ensure the proper documentation of all introduced new plants and animals is important including provenance information.
2. Develop ex-situ options such as botanical gardens and herbaria to preserve representatives of native food species no longer widely promoted for commercial planting.

Theme 8: Financial Resources and Mechanisms

This is the least implemented of all 8 theme areas. The lack of activities to implement the main goal of securing long term financial sustainability is perhaps indicative of the high level of donor dependence in biodiversity conservation, the more or less ready accessibility of funding from GEF , and the lack of local budget appropriation for conservation activities. It's been noted elsewhere in this report that a key indicator of effective mainstreaming is the increasing percentage of local funding committed to biodiversity conservation. Using this indicator, the extent of biodiversity conservation mainstreaming is very limited.

An important objective under this theme is Economic Valuation, and, like other objectives under this Theme Area, implementation is low. There are however strong links with ecotourism and nature-based tourism. Activities under these names are widely occurring and could be documented and studied to better understand the economic values users and resource owners place on biodiversity. For instance, the payment of user fees is practically used by all local communities and resource owners for visitors. Documenting income for different uses should provide a useful start for an economic valuation study, which can also be expanded into a full payment of ecosystem services (PES) study later, to account for other ecosystem services including the role of forests for carbon sequestration, water resources management and soil retention and as habitats for birds of global and national significance.

There are objectives such as capacity building and public awareness and education that are clearly on-going. There is a sound logic for a programmatic approach to funding them which should be explored with donors. Another one is a program for training and supporting local entrepreneurs in nature-based income generating activities including ecotourism, bee-keeping, etc. These actions are also proposed in the NBSAP Update.

The lack of funding for biodiversity from local sources is a concern but realistically, this is not likely to change in the foreseeable future. There are however a number of small grants funding programs designed for small scaled community and civil society activities, which remain underutilized. The two main ones are the GEF's Small Grants Program and the EU funded Civil Society Support Program (CSSP). A constraint that should be addressed to improve accessibility of local groups and NGOs is the limited capacity for preparing quality proposals. MNRE and other NGOs with good proposal writing skills have a role to play here, in assisting local groups in need of help. Alternatively GEF SGP and CSSP should build into project funding the cost of local consultants to prepare funding proposals by local groups.

GEF funding for PES is another track to seriously pursue, as a way to provide incentives for customary landowners to protect areas of biodiversity conservation value or for other ecological services.

Recommendations –

1. Target GEF for biodiversity funding in the immediate future. Work closely with GEF Coordinator in project preparation including identifying co-financing arrangements.
2. Explore GEF funding for PES as a strategy for financing compensation for customary land and resource owners.
3. Encourage and provide technical support to villages and individuals interested in ecotourism initiatives. Work closely with Samoa Hotel Association and Samoa Tourism Authority where appropriate.
4. Encourage and explore the option of a programmatic approach to funding on-going initiatives such as public awareness and education, and capacity building in biodiversity conservation with traditional donors.
5. Document local experience with user pay schemes from the use of biodiversity.
6. Undertake a proper economic valuation study for biodiversity values and services in part using information from local user pay schemes proposed for documentation in Recommendation 5 above.

5.3 Comments by Key CBD Issues Areas

5.3.1 Conservation of Biodiversity

Implementation of activities addressing Samoa's CBD commitments vis-à-vis conservation of biodiversity has not been lacking. A broad range of activities – including externally funded projects – has been implemented at the planning level as well as on the ground. Significant progress has also been made at the policy and planning level in mainstreaming biodiversity conservation.

At the planning level, the results of the MNRE/CI KBA study is perhaps the most significant in proposing a more rational, science-based network of prioritised areas to guide conservation investment and to ensure all the key ecosystems and habitats are represented and protected. It is a major shift away from 'conservation by expedience' based on lands that area easy to protect because they are non-customary notwithstanding their limited conservation values, and re-categorize targeted areas for conservation based on representativeness, uniqueness and rarity and the existing level of threats. The challenge now is implementation.

Important progress is also reported with inshore conservation of reefs and reef and inshore species. Much of this is driven by MAF's Village Fisheries reserves initiatives and the two MPAs.

The issue of on-going monitoring remains an important area of conservation management that needs emphasis. The BIORAP study now provides an update on key endemic species which statuses were unknown. Monitoring of marine inshore resources are more systematic and regular using village fisheries reserves and MPAs, and offshore tuna resources are benefitting from the involvement of regional agencies including FFA and SPC. But other areas of marine biodiversity (cetaceans, reptiles, seagrasses etc) need on-going funding support. Vegetation cover is another key area wherein regular satellite imaging and or a regular program of aerial photography is necessary.

5.3.2 Sustainable use of biodiversity and natural resources

Sustainable use and management is well mainstreamed in the plans of key sectors including agriculture, fisheries and tourism. Agriculture in particular has developed important tools for facilitating this, with its land productivity-crop suitability maps now providing guide to land users and resource owners.

Sustainable use of the tuna resource is not an issue based on the assessment of the SOE 2013 and the Samoa Tuna Resources Management Plan 2011-2015, which shows the available tuna resource under-allocated and being exploited within the maximum sustainable yield level.

The sustainable management and exploitation of Samoa's inshore fisheries and marine resources is making notable progress and is largely dependent on the continuing commitment of local villages in the MAF's Village Fisheries Reserves program. This is an initiative that needs sustained support and funding. The NOAA Biogeographic Assessment report (2011) now provides a clear picture of the heath of the whole of Samoa's coastal areas, reefs and inshore fish biomass. It is an invaluable guide to MAF-Fisheries and MNRE for coastal areas that should be targeted for rehabilitation through community based reserves, and marine protected areas.

The sustainable use of native merchantable forests is largely a lost cause, with Samoa's millable forest resources largely depleted following unsustainable exploitation for sawmilling in the early 1960s through to the early 1990s. Remaining pockets of native forests in the proposed KBAs should be protected. Likewise, replanting of native species in previously cleared areas and protected areas including catchments, should be encouraged.

5.3.3 Fair and equitable access and sharing of benefits from the use of genetic resources

This is an important issue of the CBD wherein little action is reported. The cause of this status is unclear – is it the lack of capacity within MNRE, lack of funding or is the lack of interest and priority for this in Samoa? Is it a combination of all these and possibly other factors?

Annex 4: List of Technical Working Group Members

National University of Samoa
Ministry of Agriculture and Fisheries
Ministry of Foreign Affairs and Trade
Ministry for Revenue
Ministry of Women, Community and Social Development
Samoa Tourism Authority
Ministry of Finance
Ministry of Education, Sports and Culture
Samoa Umbrella Non-Government Organizations
Secretariat of the Pacific Regional Environment Programme
Conservation International
Scientific Research Organization of Samoa
University of the South Pacific, Alafua
Samoa Water Authority
Public Service Commission
Ministry of Works, Transport and Infrastructure
Chamber of Commerce
Tokelau SIDS Consultant
Bureau of Statistics
Electric Power Corporation
Ministry of Natural Resources and Environment
Samoa Conservation Society
Environment Consultants