



# SAMOA'S

SIXTH NATIONAL REPORT 2018

TO

## THE CONVENTION ON BIOLOGICAL DIVERSITY



# Samoa's Sixth National Report

## 2018

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The report was prepared by the consultants Leilani Duffy and James Atherton for the Government of Samoa. The final editing was completed by the Division of Environment and Conservation.

The report is available at the Ministry of Natural Resources and Environment website: [www.mnre.gov.ws](http://www.mnre.gov.ws)

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Cardinal Honeyeater (*Myzomela cardinalis*)  
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Medinilla Flowers at Mt Fiamoe  
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Fagaloa Bay  
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Guineafowl puffer (*Arothron meleagris*)  
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Hawksbill turtle (*Eretmochelys imbricata*)  
Samantha Kwan



Moray eel (*Gymnothorax sp.*)  
Mark Erdmann



Mushroom coral  
Samantha Kwan



Humpback whale (*Megaptera novaeangliae*)  
Juney Ward

# Table of Contents

<b>ACRONYMS</b> .....	<b>7</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>9</b>
<b>SECTION I - INFORMATION ON THE TARGETS BEING PURSUED AT THE NATIONAL LEVEL</b> .....	<b>12</b>
1. RATIONALE FOR THE NATIONAL TARGETS (NTS).....	12
1.1. HOW THE NATIONAL TARGETS WERE DEVELOPED FROM THE GLOBAL AICHI BIODIVERSITY TARGETS.....	13
1.2. LEVEL OF APPLICATION .....	13
1.2.1. REGIONAL/MULTILATERAL.....	13
1.2.2. NATIONAL LEVEL .....	13
1.3. RELEVANCE OF THE NATIONAL TARGETS TO THE GLOBAL AICHI BIODIVERSITY TARGETS .....	13
1.4. OTHER RELEVANT INFORMATION .....	14
1.4.1. STAKEHOLDER ENGAGEMENT PROCESS .....	14
1.5. DEVELOPMENT OF THE 6 <sup>TH</sup> NATIONAL REPORT AND DATES OF ASSESSMENTS.....	16
1.6. RELEVANT WEBSITES, WEB LINKS AND FILES .....	17
<b>SECTION II - IMPLEMENTATION MEASURES TAKEN, ASSESSMENT OF THEIR EFFECTIVENESS, ASSOCIATED OBSTACLES AND SCIENTIFIC AND TECHNICAL NEEDS TO ACHIEVE NATIONAL TARGETS</b> .....	<b>19</b>
2. DESCRIBE MEASURES AT THE NATIONAL LEVEL CONTRIBUTING TO THE 2015-2020 NBSAP IMPLEMENTATION.....	19
2.1. CROSS-CUTTING THEME: STRATEGY FOR THE DEVELOPMENT OF SAMOA 2016-2020 .....	19
2.1.1. BIODIVERSITY MAINSTREAMED INTO THE STRATEGY FOR THE DEVELOPMENT OF SAMOA 2016-2020.....	19
2.2. OTHER CROSS-CUTTING THEMES: RELEVANT SECTOR PLANS, POLICIES AND STRATEGIES .....	21
2.2.1. NATIONAL ENVIRONMENT SECTOR PLAN 2017-2021 .....	21
2.2.2. AGRICULTURE SECTOR PLAN 2015-2020 AND WATER AND SANITATION SECTOR PLAN 2016-2020 .....	23
2.2.3. RELEVANT NATIONAL POLICES AND STRATEGIES CONTRIBUTING TO THE IMPLEMENTATION OF THE NBSAP 25	
2.2.4. LEGISLATIVE FRAMEWORK AND INTERNATIONAL / REGIONAL AGREEMENTS.....	28
2.3. INSTITUTIONAL SET-UP AND PROGRAMS: .....	30
2.3.1. ENVIRONMENT SECTOR COORDINATION DIVISION .....	30
2.3.2. CONSERVATION & BIODIVERSITY INFORMATION (NT 1, 2, 4, 11, 12, 16,17,18,19 AND 20) .....	30
2.3.3. VILLAGE GOVERNANCE AND COMMUNITY CONSERVATION PROGRAMS .....	31
2.3.4. THREATENED SPECIES AND THE INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE (IUCN) RED LIST – ACTIONS AND MEASURES TAKEN.....	32
2.3.5. ACCESS AND BENEFIT SHARING: TRADITIONAL KNOWLEDGE ASSOCIATED WITH GENETIC RESOURCES IN SAMOA 33	
2.3.6. FORESTRY (NT 5, 7 AND 11) .....	34
2.3.7. WATER RESOURCES (NT 11-14).....	35
2.3.8. SUSTAINABLE LAND MANAGEMENT (NT 5, 7, 11 AND 14) .....	35
2.3.9. SUSTAINABLE FISHERIES (NT 6) .....	36
2.3.10. BIO-SECURITY (NT 3 AND 9) .....	37
2.3.11. WASTE MANAGEMENT, HAZARDOUS WASTE AND SANITATION (NT 4 AND 8) .....	37
2.3.12. CLIMATE CHANGE (NT 10 AND 15) .....	38

2.4.	GENDER RESPONSIVENESS EXAMPLES FROM LEAD GOVERNMENT AGENCIES AND PROGRAMS.....	39
2.5.	FOR THE IMPLEMENTATION MEASURE, INDICATE TO WHICH NT AND ABT IT CONTRIBUTES TO. ....	41
2.5.1.	OTHER TOOLS AND METHODOLOGY USED FOR THE ASSESSMENT.....	43
2.6.	OTHER RELEVANT INFORMATION .....	43
2.7.	RELEVANT WEBSITES, WEB LINKS AND FILES:.....	44
2.8.	OBSTACLES AND SCIENTIFIC AND TECHNICAL NEEDS RELATED TO THE MEASURES TAKEN .....	44
<b>SECTION III - ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET .....</b>		<b>48</b>
3.	DESCRIPTION OF NATIONAL TARGETS AND ASSESSMENT OF PROGRESS TOWARDS ACHIEVEMENTS.....	48
3.1.	ASSESSMENT OF PROGRESS TOWARDS ACHIEVING THE NTS AND ABTS.....	48
3.2.	ADDITIONAL INFORMATION .....	55
3.2.1.	INDICATORS USED IN THIS ASSESSMENT .....	55
3.3.	PLEASE DESCRIBE ANY OTHER TOOLS OR MEANS USED FOR ASSESSING PROGRESS:.....	69
3.4.	ADEQUACY OF MONITORING INFORMATION TO SUPPORT ASSESSMENT .....	70
3.5.	ASSESSMENT OF CONFIDENCE LEVEL FOR EACH TARGET.....	71
<b>SECTION IV - DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET.....</b>		<b>72</b>
<b>4.</b>	<b>DESCRIBE YOUR COUNTRY’S CONTRIBUTION TOWARDS THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET (ABT). .....</b>	<b>72</b>
4.1.	DESCRIBE HOW AND TO WHAT EXTENT SAMOA HAS CONTRIBUTED TO THE ACHIEVEMENT OF THIS ABT AND SUMMARIZE EVIDENCE USED TO SUPPORT DESCRIPTION .....	73
4.1.1.	AICHI BIODIVERSITY TARGET 1: BIODIVERSITY AWARENESS.....	73
4.1.2.	AICHI BIODIVERSITY TARGET 2: BIODIVERSITY VALUES INTEGRATED OR MAINSTREAMING.....	75
4.1.3.	AICHI BIODIVERSITY TARGET 3: INCENTIVES REFORMED .....	77
4.1.4.	AICHI BIODIVERSITY TARGET 4: SUSTAINABLE PRODUCTION AND CONSUMPTION .....	78
4.1.5.	AICHI BIODIVERSITY TARGET 5: HABITAT LOSS HALVED OR REDUCED.....	81
4.1.6.	AICHI BIODIVERSITY TARGET 6: SUSTAINABLE MANAGEMENT OF AQUATIC LIVING RESOURCES.....	85
4.1.7.	AICHI BIODIVERSITY TARGET 7: SUSTAINABLE AGRICULTURE, AQUACULTURE AND FORESTRY .....	88
4.1.8.	AICHI BIODIVERSITY TARGET 8: POLLUTION REDUCED.....	90
4.1.9.	AICHI BIODIVERSITY TARGET 9: INVASIVE ALIEN SPECIES PREVENTED AND CONTROLLED .....	92
4.1.10.	AICHI BIODIVERSITY TARGET 10: ECOSYSTEMS VULNERABLE TO CLIMATE CHANGE .....	93
4.1.11.	AICHI BIODIVERSITY TARGET 11: PROTECTED AREAS .....	95
4.1.12.	AICHI BIODIVERSITY TARGET 12: REDUCING RISK OF EXTINCTION .....	98
4.1.13.	AICHI BIODIVERSITY TARGET 13: SAFEGUARDING GENETIC DIVERSITY.....	100
4.1.14.	AICHI BIODIVERSITY TARGET 14: ECOSYSTEM SERVICES .....	103
4.1.15.	AICHI BIODIVERSITY TARGET 15: CLIMATE RESILIENCE, SEQUESTRATION AND RESTORATION .....	106
4.1.16.	AICHI BIODIVERSITY TARGET 16: NAGOYA PROTOCOL ON ACCESS AND BENEFIT SHARING .....	109
4.1.17.	AICHI BIODIVERSITY TARGET 17: BIODIVERSITY STRATEGIES AND ACTION PLANS .....	112
4.1.18.	AICHI BIODIVERSITY TARGET 18: TRADITIONAL KNOWLEDGE .....	113
4.1.19.	AICHI BIODIVERSITY TARGET 19: SCIENCE AND RESEARCH OR KNOWLEDGE IMPROVED, SHARED AND TRANSFERRED.....	114
4.1.20.	AICHI BIODIVERSITY TARGET 20: RESOURCE MOBILIZATION.....	115

4.2.	OTHER RELEVANT INFORMATION .....	118
4.3.	BASED ON THE DESCRIPTION OF YOUR COUNTRY’S CONTRIBUTIONS TO THE ACHIEVEMENT OF THE AICHI BIODIVERSITY TARGETS. DESCRIBE HOW AND TO WHAT EXTENT THESE CONTRIBUTIONS SUPPORT THE IMPLEMENTATION OF THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT AND THE SUSTAINABLE DEVELOPMENT GOALS: 118	
<b>5.</b>	<b>SECTION V. ADDITIONAL INFORMATION ON THE CONTRIBUTION OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES (IPLC).....</b>	<b>124</b>
5.1.	CASE STUDY 1: COMMUNITY BASED FISHERIES MANAGEMENT PROGRAM (CBFMP) AND TRADITIONAL GOVERNANCE .....	124
<b>6.</b>	<b>SECTION VI. UPDATED BIODIVERSITY COUNTRY PROFILES .....</b>	<b>132</b>
6.1.	BIODIVERSITY FACTS BASED ON THE 6NR REVIEW AND UPDATE 2018.....	132
6.2.	MEASURES TO ENHANCE IMPLEMENTATION OF THE CONVENTION: OVERALL ACTIONS TAKEN TO CONTRIBUTE TO THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020:.....	133
6.3.	SUPPORT MECHANISMS FOR NATIONAL IMPLEMENTATION (LEGISLATION, FUNDING, CAPACITY-BUILDING, COORDINATION, MAINSTREAMING, ETC.) .....	135
6.4.	MECHANISMS FOR MONITORING AND REVIEWING IMPLEMENTATION.....	135
<b>7.</b>	<b>REFERENCES .....</b>	<b>135</b>
<b>8.</b>	<b>ANNEXES:.....</b>	<b>140</b>
8.1.	ANNEX 1: LIST OF PARTICIPANTS CONSULTED DURING THE 6NR MEETINGS AND WORKSHOP CONSULTATIONS SEPTEMBER TO DECEMBER 2018.....	140
8.2.	ANNEX 2: ASSESSMENT OF ACTIONS AND MEASURES TAKEN TO IMPLEMENT SAMOA NATIONAL OR NBSAP TARGETS .....	142
8.3.	ANNEX 3: CASE STUDY 2: EXAMPLE OF GENDER RESPONSIVENESS FROM UNDP-GEFG SGP SAMOA.....	152
8.3.1.	GENDER INTEGRATION INTO BIODIVERSITY – UNDP GEF SMALL GRANTS PROGRAMME.....	152
8.3.2.	INTRODUCTION TO THE UNDP/GEF-SGP AND GENDER RESPONSIVENESS.....	152
8.4.	UNDP GEF SGP PROJECT: BIODIVERSITY AND WOMEN PROJECTS .....	154
8.4.1.	CASE STUDY TITLE: REDUCING THE IMPACT OF CLIMATE CHANGE THROUGH THE CONSERVATION OF MANGROVE ECOSYSTEMS AND COASTAL RESOURCES – ESTABLISHING THE VAILOA FALEATA MANGROVE CONSERVATION AREA .....	154
8.4.2.	OUTCOMES AND IMPACT .....	154
8.4.3.	ENVIRONMENTAL IMPACT .....	155
8.4.4.	POLICY IMPACT.....	156
8.5.	COMMUNITY ENGAGEMENT – YOUTH PARTICIPATION AND GENDER MAINSTREAMING.....	156
8.5.1.	REPLICATION AND UPSCALING.....	157
8.6.	SUMMARY.....	158
8.7.	ANNEX 4: UPDATED PROTECTED AREA NETWORK AND DATASET .....	158

## List of Tables

1. Table 1: National Targets NBSAP 2015-2020
2. Table 2: Summary of Actions and Measures in the Strategy for the Development of Samoa (SDS) 2016-2020 prioritizing Biodiversity
3. Table 3: Evaluate Effectiveness of Measures and Tools used for the Assessment of Cross-cutting Themes
4. Table 4: National Environment Sector Plan (NESP) 2013-2016 Achievements and Relevance to National Targets
5. Table 5: NESP LTO Relevance to the SDS 2016-2020 and NBSAP National Targets
6. Table 6: Summary of the Agriculture Sector Plan 2016-2020 and the Water and Sanitation Sector Plan 2016 – 2020 Relevance to National Targets
7. Table 7: Relevance of National Environment Policies and Strategies to the NTs and ABTs
8. Table 8: Relevance of existing Environmental Legislations corresponding to the NTs
9. Table 9: Multilateral and Regional Agreements applicable to Samoa NTs
10. Table 10: Ministry of Natural Resources and Environment (MNRE) Divisions and relevant functions to the NTs
11. Table 11: IUCN Red List Threatened Species Update from 2012-2018
12. Table 12: Percent of Parcels by tenure type, Samoa 1989-2015
13. Table 13: Aquaculture Developments in Samoa
14. Table 14: Assessment of the Effectiveness of measures, trends and tools methodology identified in the Cross-cutting Themes
15. Table 15: Other tools and methodology used for the assessment
16. Table 16: List of Multi-Sector projects that contributes to the achievements of the NTs
17. Table 17: List of Obstacles and Capacity Needs to consider for the achievements of NTs
18. Table 18: Assessment of Progress towards achieving the NTs and ABTs
19. Table 19: List of NBSAP Indicators used to monitor the progress towards achieving the NBSAP 2015-2020 National Targets

## Acronyms

4NR	Fourth National Report
5NR	Fifth National Report
6NR	Sixth National Report
ABS	Access and Benefit Sharing
ABT	Aichi Biodiversity Target
ACEO	Assistant Chief Executive Officer
ASP	Agricultural Sector Plan
BIP	Biodiversity Indicators Partnership
BIORAP	Biodiversity Rapid Assessment
CBD	Convention Biological Diversity
CBFMP	Community Based Fisheries Management Programme
CCA	Community Conservation Areas
CSSP	Civil Society Support Programmes
CHM	Clearing House Mechanism
CIM	Community Integrated Management Plans
DEC	Division of Environment and Conservation
DKIF	Data Knowledge Information Facility
EMC	Environment Management and Conservation Bill
ESPO	End of Sector Plan Outcome
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GEF-PAS	Global Environment Facility Pacific Alliance for Sustainability
GoS	Government of Samoa
IAS	Invasive Alien Species
IUCN	International Union for the Conservation of Nature
KBA	Key Biodiversity Area
MAF	Ministry of Agriculture and Fisheries
MEA	Multi-lateral Environment Agreement
MESC	Ministry of Education Sports and Culture
MNRE	Ministry of Natural Resources and Environment
MoF	Ministry of Finance
MOH	Ministry of Health
MWCSD	Ministry of Women Community and Social Development
NAP	National Action Plan to Combat Land Degradation
NAPA	National Adaptation Plan of Action
NBSAP	National Biodiversity Strategy Action Plan
NCP	National Chemical Profile
NESP	National Environment Sector Plan
NGOs	Non-Governmental Organizations
NISAP	National Invasive Species Action Plan
NR	National Biodiversity Report
NT(s)	National Target(s)
NUS	National University of Samoa
OLSSI	O Le Siosiomaga Society Inc.
SCS	Samoa Conservation Society
SDS	Strategy for the Development of Samoa
SISERP	Samoa Invasive Species Emergency Response Plan
SNITT	Samoa National Invasive Task Team
SOE	State of the Environment Report
SPREP	Secretariat of the Pacific Regional Environment Programme
SROS	Scientific Research Organization Samoa
SUNGO	Samoa Umbrella Non-Governmental Organization
SWA	Samoa Water Authority
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nation Development Programme
UNEP	United Nations Environment Programme
USP	University of the South Pacific

WIBDI  
WRS  
WSSP

Women in Business Development Inc.  
Water Resources Strategy  
Water and Sanitation Sector Plan



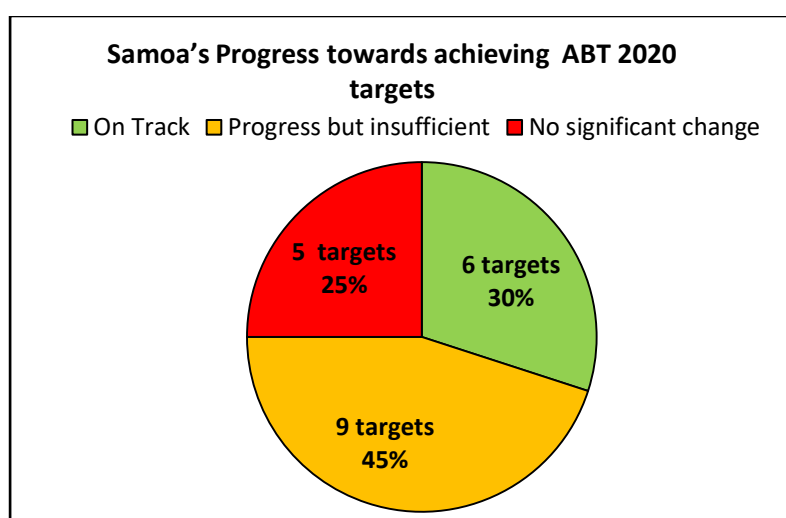
## Executive Summary

Samoa's current National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020 has twenty (20) NBSAP targets which align with the 20 Global Aichi Biodiversity Targets (ABTs). The progress towards achieving these targets was assessed via a data driven and consultative process between September and December 2018, with final edits completed by May 2019.

Samoa's Sixth National Report (6NR) to the Convention on Biological Diversity (CBD) shows a mixed level of progress for each target with some likely to be achieved, while progress for other targets are unlikely to be achieved within the remaining timeframe towards 2020.

### Overall:

- Six (6) targets are on track to be achieved which are; ABTs 4,6,14,16,17 and 18
- Good progress has been made on nine (9) targets but more needs to be done to achieve the targets which are: ABTs 1,2,5,7,8 ,9,11,19 and 20
- Little progress has been made on five (5) targets which are: ABTs 3,10,12,13 and 15



**Table A: Snapshot summary of Samoa's NBSAP Targets / Aichi Biodiversity Targets progress towards 2020**

Samoa NBSAP Target	Summary Comments and ratings of status					
	Colour Code	Moving Away	No significant change	Insufficient progress	On Track	Exceed Target
1. By 2020, at the latest, the people of Samoa are aware of the values of biodiversity, the threats it faces, and the steps the Government and the people can take to conserve, protect, and use it sustainably						
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.						
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.	
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.	Samoa's ecological footprint is considered to generally be within sustainable levels, and there has been great investment in reforestation programmes. Commercial logging is no longer a major threat to forest resources and there is a ban on timber exports from Samoa. Samoa has put in place many institutional frameworks and policies to guide sustainable production and consumption with the support from all relevant stakeholders.
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	Samoa has done well in reducing the rate of forest loss and promoting restoration through the 2 Million Tree Planting Campaign and water catchment area restoration programmes. However, poor progress has been made towards protection of mangrove and wetland forest ecosystems. There is a need to assess the rate of native forest and marine habitat recovery.
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.	Sustainable fisheries management is important for Samoa's economy, food security and marine environment. Investment in fisheries has shown positive outcomes in terms of the increase in number of villages participating in the community-based fisheries management programme, as well as the updated policies, strategies and legislative framework to ensure the sustainable management of fisheries resources. Overall the target is set to be achieved within the expected timeframe.
7. By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring the conservation of biodiversity.	There has been progress towards this target in the area of forestry however the rate of land clearance for agricultural expansion and the potential impact of aquaculture has not been assessed and therefore progress towards this target cannot be measured.
8. By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity	There is progress towards this target in areas of solid waste management, however there is no substantive information regarding the impact on biodiversity from nitrogen or phosphorous pollution from anthropogenic activities on land. Overall the assessment of progress towards this target is limited by insufficient data.
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	Although there are number of invasive species management projects in Samoa, it is still considered insufficient progress given the magnitude of the threat from invasive species. There has been numerous work on invasive species management in Samoa. There has been a lack of continued effort to manage some invasive species and to monitor their status in the country.
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.	The pressure from human induced activities is adding stress to Samoa's coral reef ecosystems, especially on Upolu. Research shows a high rate of degradation of coral reefs from crown of thorns starfish, coral bleaching and land-based pollution. There is limited data on the volume of sand being mined or the lagoon area being reclaimed. Climate change is expected to exacerbate the threat to our reefs in future.
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.	Although the area coverage of Protected Areas has increased overall there are still many gaps that need to be addressed to ensure that PAs and community conservation areas are active and have effective management. Additionally, while progress has been made but there is need for more information to substantiate Samoa's commitment to achieving the national and global target.
12. By 2020, the extinction of known threatened species has been prevented and	In the past 100 years Samoa has not been able to prevent the extinction of a number of species such as the Samoa Moorhen, Swallowtail Butterfly

<p>their conservation status, particularly of those most in decline, has been improved and sustained.</p>	<p>and the Sheath-tailed Bat. The national bird of Samoa, the Manumea or Tooth-billed Pigeon, is now considered Critically Endangered. However, a lack of data on species distribution and abundance makes assessing this target very difficult.</p>
<p>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.</p>	<p>There is very limited information available on this target to assess progress. Additionally, there is no strategy to minimize genetic erosion and safeguard genetic diversity of wild relatives. The information available from MAF mostly relates to genetic diversification of taro in order to cultivate more varieties that are resistant to the taro leaf blight and other diseases as well as pests.</p>
<p>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.</p>	<p>There is progress towards achieving this target. For example, the establishment of a private reserve at Malololelei for ecological restoration, the purchase of Catholic land for watershed protection and the completion of management plans for 3 national parks within KBAs and the preparation of plans for two more KBA sites are all major achievements. The needs of vulnerable groups are considered in all consultations to restore and safeguard ecosystem services</p>
<p>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.</p>	<p>Despite the many climate change related projects investing in ecosystem resilience only some have achieved their objectives and there is limited information on biodiversity contribution to carbon stocks. There is also limited data available that shows the percent of degraded ecosystems that has been restored. Thus the assessment of progress towards meeting this target requires more data.</p>
<p>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</p>	<p>Samoa became a party to the Nagoya Protocol in 2014 and the current national project on Access and Benefit Sharing is likely to see most of the outstanding activities completed. As such the progress of this target is considered on track.</p>
<p>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</p>	<p>In 2015 Samoa revised its NBSAP (2015-2020) and many biodiversity related activities are being implemented by relevant government ministries including MNRE. However, the status of implementation is highly variable due to funding and human resource constraints.</p>
<p>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.</p>	<p>Despite the EMC Bill still being in draft form, Samoa has made progress in the protection of traditional knowledge through other existing legislation such as intellectual property laws in Samoa, especially the Copyright Act 1989 and the Intellectual Property Act 2011 that provide protection for traditional knowledge. An analysis of traditional knowledge and options for protection is being undertaken on wider protection mechanisms for traditional knowledge under the GEF UNDP Global Access and Benefit Sharing project.</p>
<p>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</p>	<p>Although significant progress has been made in basic biodiversity information via a series of BioRAP surveys, the biodiversity clearing house mechanism (CHM) is outdated and MNRE are yet to get their biodiversity database re-established. However, MNRE's DKIF database includes biodiversity information and is expected to support the achievement of this target in the long term.</p>
<p>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.</p>	<p>The Samoan Government's new multi-sectoral development approach is benefiting biodiversity. However, resource mobilization for biodiversity has not increased significantly and an over dependency on external investment from multilateral and bilateral donors remains.</p>

## Section I - Information on the targets being pursued at the national level

Samoa has adopted the Global Aichi Biodiversity Targets (ABT) as its own national targets with commitments in line with the Strategic Plan for Biodiversity 2011-2020 during the Fifth National Report (5NR) to the Convention on Biological Diversity (CBD) in 2015 (Government of Samoa 2015)<sup>1</sup>

### 1. Rationale for the National Targets (NTs)

Samoa's strategic goals and targets aligns with the Strategic Plan for Biodiversity 2011-2020 and adopted the twenty (2) global Aichi Biodiversity Targets with minimal modifications (ibid). This strategic approach was to ensure that implementation and monitoring of the Samoa National Biodiversity Strategy and Action Plan (NBSAP) 2015 – 2020, national targets will also facilitate global biodiversity monitoring and assessment based on the three main objectives of the CBD – conservation of biodiversity, sustainable use and equitable sharing of its benefits recognizing strong links to the Strategy for the Development of Samoa (SDS) 2016-2020 and the National Environment Sector Plan (NESP) 2017-2021.

**Table 1: National Targets: Samoa National Biodiversity Strategy Action Plan (NBSAP) 2015-2020**

Number	SAMOA National Targets
<b>Strategic Goal A: Address the underlying causes of biodiversity loss by consolidating the mainstreaming of biodiversity across government and society</b>	
1	By 2020, at the latest, the people of Samoa are aware and appreciative of the values of biodiversity, the threats it faces and the steps they can take to conserve and use it sustainably
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 and budgetary processes, as appropriate, and reporting systems.
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 Convention and other relevant international obligations, taking into account national socio-economic conditions.
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 [developed and] implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits
<b>Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use</b>	
5	By 2020, the rate of loss for all-natural habitats, including forests, is at least halved [50%] and where feasible brought close to zero, and degradation and fragmentation is significantly reduced
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.
7	By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring the conservation of biodiversity
8	By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity
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
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.
<b>Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</b>	
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.
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.
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.
<b>Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services</b>	
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.

<sup>1</sup> <https://www.cbd.int/doc/world/ws/ws-nbsap-v2-en.pdf>



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.
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
<i>Strategic Goal E: Enhance Implementation through participatory planning, knowledge management and capacity building</i>	
17	By 2015 Samoa has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan
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.
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
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.

### 1.1. How the National Targets were developed from the Global Aichi Biodiversity Targets.

The Fourth National Biodiversity Report (4NR) for Samoa to the CBD (2009), noted gaps in assessing the progress towards achieving the 2010 CBD 11 global goals with 18 targets and progress was assessed according to the 8 thematic areas of the Samoa NBSAP (2001). As such, it was identified during the 4NR the importance of having compatibility between NBSAP and CBD level indicators in order for national results to contribute to the tracking of global trends. The lack of complete congruence between those of the Samoa NBSAP and CBD should be addressed with a view to improve consistency. Therefore, the updated NBSAP 2015-2020 and the 5NR were realigned to enable consistency with the global Strategic Plan for Biodiversity 2011-2020 by adopting the 20 Aichi Biodiversity Targets (ABT). This will ensure that monitoring of national targets can easily contribute to tracking the progress for the global biodiversity ABT.

According to the 5NR (2015), the consultant who had undertaken this report, proposed the draft national targets by revising the existing 8 thematic areas of the 4NR (2001) and the NBSAP (2001-2008) taking an inclusive approach to consider adopting the 20 Aichi Biodiversity global Targets of the Strategic Plan for Biodiversity 2011-2020, as the national targets for Samoa's NBSAP 2015-2020. Each of the 20 national targets were not reviewed individually and developed, as they were taken mainly from the existing ABT with very minimal changes to suit the national context.

### 1.2. Level of Application

The NTs are applicable at the regional and multilateral level corresponding to international conventions relating to biodiversity that Samoa has ratified. Implementation of the national targets will also contribute to supporting its international and regional obligations.

#### 1.2.1. Regional/Multilateral

Samoa is committed to the conventions that it has become a party to at the international and regional level which is referred to in Table 10 Multilateral and Regional Agreements applicable to the implementation of the 2015-2020 NBSAP.

#### 1.2.2. National Level

The implementation of the NBSAP Action Plan 2015-2020 activities at the national and community level is applicable to achieving Samoa's national targets.

### 1.3. Relevance of the National Targets to the Global Aichi Biodiversity Targets

The national targets accepted all 20 ABTs with some modification to reflect the local context.. Therefore the ABT is one and the same with the Samoa national targets.

<input type="checkbox"/> 1	<input type="checkbox"/> 6	<input type="checkbox"/> 11	<input type="checkbox"/> 16
<input type="checkbox"/> 2	<input type="checkbox"/> 7	<input type="checkbox"/> 12	<input type="checkbox"/> 17
<input type="checkbox"/> 3	<input type="checkbox"/> 8	<input type="checkbox"/> 13	<input type="checkbox"/> 18
<input type="checkbox"/> 4	<input type="checkbox"/> 9	<input type="checkbox"/> 14	<input type="checkbox"/> 19
<input type="checkbox"/> 5	<input type="checkbox"/> 10	<input type="checkbox"/> 15	<input type="checkbox"/> 20

The national indicators as listed in the NBSAP 2015-2020 are the key indicators used in this report to measure progress of implementation of the national targets as well as the ABT. In section III of this report (Table 19 Indicators used in the assessment) it provides a detailed assessment of the 129 NBSAP indicators, as well the report also referred to the global Biodiversity Indicators Partnership (BIP)<sup>2</sup>.

#### 1.4. Other relevant information

This bold initiative (adopting the global Aichi Biodiversity Targets as Samoa's NTs) emerged from previous environmental assessment reports that were developed parallel to Samoa's 5NR (2014) which includes: Samoa's NBSAP 2015-2020, the State of the Environment Report (SOE) 2013 for Samoa and the NESP2013-2016. The consultation process that contributed to the adoption of the global Aichi Targets as Samoa's NTs took a "whole of environment" assessment by examining Samoa's entire environment including in detail its biodiversity. The assessment covered the status of the country's biomes, ecosystems and habitats, its endemic and native terrestrial, aquatic and marine species, the progress made in in-situ conservation efforts for targeted areas and species, the drivers and pressures acting on them and affecting their conservation, and their sustainable use, the impact from climate change and variability and other anthropogenic drivers such as population and economic developments. All these local environmental issues provided a blend of targets that mirrors the Aichi Targets and as such Samoa formulated its national NTs aligning them with the global targets approved for the CBD Strategic Plan 2011-2020.

##### 1.4.1. Stakeholder engagement process

The consultation process for the 6NR included all environmental consultations at the national, district and community level that took place prior to the actual targeted workshops for the 6NR, as the information collected contributed to the assessment of progress in the implementation of the national targets in the NBSAP 2015-2020, as well as the current 6NR. The process was inclusive of all stakeholders and workshops were held in both the main island of Upolu as well as in Savaii. These workshops were undertaken to include the whole country for the update of the Community Integrated Management (CIM) Plans 2001-2007 and the full update was completed in August 2018 for Samoa for 41 districts and 265 villages. The updated CIM Plans 2018 has specific thematic areas that directly contribute to the implementation of the NBSAP 2015-2020 national targets and the ABT such as the thematic areas targeting environment and biological resources and livelihoods and agriculture. Similarly, other national consultations undertaken for the update of the National Invasive Species Strategies Action Plan (NISAP) 2011 which is currently being implemented, as well as workshops and awareness under the Global project on Access and Benefit Sharing (ABS) 2018 also had relevant thematic areas to the 6NR. There were also national consultations conducted in 2016 and 2017 for the update of the NESP 2013-2016, which assessed Samoa's progress towards achieving national targets in the NBSAP, National Adaptation Programme of Action (NAPA), Water Resources Strategy (WRS), and Samoa's Aligned National Action Programme to combat land degradation (NAP). The process for acquiring information for the 6NR included: stakeholder engagement – government agencies, state owned enterprises, academia, NGOs, communities (men, women and youth), vulnerable groups, local private sector and funding agencies. A multi-sectoral approach incorporating results from other key environmental planning exercise at the time such as the State of Environment Report 2013 and the National Environment Sector Plan 2013-2016, as well as the review and update of the NBSAP 2008, was followed.

The following breakdown of each environmental national/district and community consultations and the process undertaken will demonstrate how national data was collected that contributes to the monitoring and assessment of implementation of national targets in the NBSAP 2015-2020, as well as the level of stakeholder engagements and gender participation.

##### a) CIM Plan consultations 2016 – 2018

A total of 41 district (265 villages) consultations and 2 national consultations were conducted to gauge communities' perspectives on climate impact on natural resources and their livelihoods and recommended solutions to enhance communities' resilience to adapt and mitigate adverse impacts of climate change and variability. The CIM Plans covered data collection on environmental actions at the district and village level, whereby communities provided an account of progress of activities since the last CIM Plan from 2001 and 2007. For example: almost all 41 districts have established marine reserves, some village lands are part of the key biodiversity areas and community conservation areas are established in a number of villages to protect endemic

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<sup>2</sup> <https://www.bipindicators.net/>

bird species that are known to be present in these areas. There are also farmers applying sustainable land management practices through agroforestry and integrated pest management farming. Communities also comment on actions undertaken to protect and restore watershed areas within their lands.

It was estimated that the total number of participants who attended the CIM Plan consultations from different stakeholder groups – community level (village council, women’s committee, untitled men, youth, elders and disability representatives), as well as government representatives from all relevant government ministries, NGOs, academic institutions and private sector was about 40,000 people from Samoa’s population of just over 180,000 people. From the 40,000 participants of the CIM Plan consultations around 15,000 was estimated to be the number of women who attended the workshops mainly representatives from women’s committee and the government woman village mayor (sui o le malo).



*Figure 1: Community Integrated Management Plans 2018 - National consultations for Upolu Island with all the village mayors both men and women; February 2017*

#### **b) NISSAP consultations November to December 2018**

Whilst the 6NR consultations and write-up was underway towards the end of 2018 (October – December 2018), it ran parallel to the NISSAP consultations and update from the NISAP 2008-2011. The aim of the NISSAP 2019-2024 update looked at the review of the previous invasive action plan strategy by identifying progress of activities, gaps and new emerging priorities for invasive species in Samoa. The information that was extracted from the NISSAP consultations contributed to the National Target-9 of the NBSAP 2015-2020 or ABT-9. There were two national consultations with a total number of participants estimating at around 60 people, most were from civil society stakeholders and government ministries such as the; Ministry of Agriculture and Fisheries (MAF), Ministry of Women, Communities and Social Development (MWCSA), Ministry of Finance (MOF), Ministry of Education Sports and Culture (MESC), Scientific Research Organization Samoa (SROS), academic institutions such as the; National University of Samoa (NUS) and the University of the South Pacific (USP), non-Government organizations such as the; Women in Business Development Inc (WIBDI), O le Siosiomaga Society Incorporated (OLSSI), Samoa Conservation Society (SCS) as well as the Food Agriculture Organization (FAO), United Nations Environment Programme (UNEP) and Secretariat of the Pacific Regional Environment Programme (SPREP) representatives. From the total number of 60 people that attended the workshop more than 50 percent were female.

#### **c) Global Access and Benefit Sharing (ABS) consultations October – December 2018**

Another programme which conducted workshops and consultations around the same time as the 6NR and NISAP 2008 - 2011 review was the global ABS project. . The outcome of this workshop contributed to an update for the NBSAP National Target 16 and 18. Similar to the NISAP 2008-2011 review, the ABS workshops were held with communities and at the national level and participants were from: civil society groups (NGOs); relevant government ministries, selected village communities, academic institutions and the private sector. There were representatives from women’s committee, youth groups, untitled men and village council during the ABS workshops at the selected communities, whilst national ABS workshops in town many participants were women representing their respective government ministry and organizations.





*Figure 2: Participants to the Access and Benefit Sharing national workshop, November 2018*



*Figure 3: Participants to the National Invasive Species Action Plan 2008-2011 Review and Update, December 2019*

### 1.5. Development of the 6<sup>th</sup> National Report and Dates of Assessments

The consultants were recruited towards the end of August 2018 and the following are events that took place with stakeholder consultations for the preparation of Samoa's 6NR:

#### **August 2018**

Consultants meeting with the client MNRE Division of Environment and Conservation (ACEO Seumalo Afele Faiilagi and Principal Terrestrial Conservation Officer Czarina Iese-Stowers and two other staff of DEC), and UNDP Samoa Country Representative the ARR Environment Ms Yvette Kerlake and her assistant. Finalized the work plan for the development of the 6NR and approved by the client.

#### **September 2018**

The consultants attended the Pre-CoP CBD Regional Workshop hosted by SPREP in partnership with UNDP Global focussing on the review of the Pacific progress towards implementation of their NBSAPs and preparation of their 6NR to the CBD. It was noted from the regional workshop that Samoa is the only country in the Pacific Region that was in the process of developing its 6NR.

Inception meeting with the NBSAP Steering Committee, which is the same committee for the 6NR, and the meeting was chaired by the ACEO-DEC. The inception meeting allowed the consultants to present on their workplan and dates for the 6NR stakeholder consultations both internal and external. This also presented the first inception report on workplan and methodology.



### **September – October 2018**

Meetings with specific stakeholders whose work is relevant to Samoa's NBSAP and the progress towards achieving the national targets.

Meeting with civil society groups and academic institutions representatives from the National University Samoa (NUS), University of the South Pacific (USP), O Le Siosiomaga Society Inc.; Women in Business Inc; Samoa Organic Coconut Oil company; and representatives from Chamber of Commerce and the Samoa Association of Manufacturing Enterprise (SAME) Inc; Samoa Umbrella Non-Governmental Organization (SUNGO); and the RED Cross etc.

Individual meetings were held with specific government ministries whose work is relevant to the 6NR such as the Ministry of Agriculture and Fisheries (Crops Division, Fisheries Division, and Quarantine Division); Ministry of Women Community and Social Development (Internal Affairs Division); Samoa Tourism Authority (STA); and SROS (Scientific Research Organization Samoa).

### **October 2018**

First National Workshop on the 6NR – this is to collect information and verify existing information collected using the UNDP Tracking Sheet with all the national targets/ABTs entered. This workshop targeted all external stakeholders who were part of the individual specific meetings as well as representatives from village mayors both men and women. It was noted from the discussion mainly with village mayors (community representatives) the distinct roles of men and women in the community, such as the village council mainly dominated by male who tends to focus more on the decision making and they are the first point of contact for any environment related program that is introduced in the community and it requires their approval.

The women's committee are usually the key implementers of a project together with the untitled men and youth. Thus during village council meetings it is representatives from these groups that present updates on projects at the village council (fono a matai) meetings.

### **November 2018**

2<sup>nd</sup> 6NR Steering Committee Meeting to present on 6NR update that is the write-up for each ABT and/or national targets.

2<sup>nd</sup> National 6NR workshop "Validation of Data Collected for 6NR – 1<sup>st</sup> draft Report"

### **December 2018**

3<sup>rd</sup> 6NR Steering Committee Meeting on progress of report and final planning for 3<sup>rd</sup> National Workshop to present on the 6NR

3<sup>rd</sup> National 6NR workshop – mainly with key stakeholders (most were members of the Steering Committee) to review the draft report and findings. This workshop also endorsed the completion of the first final draft 6NR for submission to UNDP.

### **January 2019**

UNDP Global received feedback and comments on the 6NR

### **February – March 2019**

Meetings with UNDP Samoa Office and MNRE DEC regarding the draft report and edits

### **April 2019**

Submission of final report 6NR to MNRE-DEC. Throughout the 6NR stakeholder consultations there were more female participants than male and this could be based on the designated government official or civil society representative that has been selected by their respective offices to attend the 6NR workshops. For example, within MNRE most of the staff that attended the workshops were Assistant Chief Executive Officers (ACEOs) at the management level, similarly with representatives from other government ministries. The level of government officials and civil society representatives were mainly from the senior level management, except representatives in the first 6NR workshops which included representatives from village communities who are village mayors both men and women (called government community representatives in the villages).

In Annex 1 it provides the list of organizations, government ministries, private sector and academic institutions that attended the 6NR consultations.

## **1.6. Relevant websites, web links and files**

Samoa's <https://www.cbd.int/doc/world/ws/ws-nbsap-v2-en.pdf>

<https://www.cbd.int/doc/world/ws/ws-nr-05-en.pdf>

<https://www.mnre.gov.ws/wp-content/uploads/2017/09/A1-Rt-14-15-Final-Eng.pdf>

<https://www.bipindicators.net/>

## Section II - Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets

### 2. Describe measures at the national level contributing to the 2015-2020 NBSAP implementation

The Samoa NBSAP 2015-2020, provides a list of about eighty actions and measures that corresponds to each of the 20 national targets and the number of actions per target varies. For example, NT 19 having nine actions and NT 17 having the least with only two actions. Most of the NTs actions ranges from three to five in total. Refer to Annex 2: Analysis of the Samoa NBSAP 2015-2020 Actions and Measures taken to implement the NT since the 5NR (2014).

The analysis of national strategies, policies and environmental programs highlighted in the following sections of this report shows measures and actions relevant to the NBSAP 2015-2020. The implementation of cross-cutting themes identified in these national strategies, sector plans and policies do contribute to the achievements for most of the NT, and the next section of the report will clearly explain the linkages.

#### 2.1. Cross-cutting Theme: Strategy for the Development of Samoa 2016-2020

There are a number of key measures that are pivotal to the implementation of the NBSAP at the national level, which is at various stages of progress in achieving the national biodiversity targets. The Strategy for the Development of Samoa (SDS) 2016-2020, as stated in the NESP<sup>3</sup> provides the overarching framework that sets the pace and tone of Samoa's sustainable and resilience development. The SDS 2016-2020 vision is "*Accelerating Sustainable Development and Broadening Opportunities for All*", and "*Environment*" makes up the fourth national priority for the country clearly showing significant values placed upon biodiversity and biological resources. The SDS 2016-2020 is the highest level of actions that contributes to addressing measures or issues highlighted in Samoa's NBSAP as outlined below in its Strategic Outcome (Box-1):

**Priority Area 4:** Environment has: Key outcome 13: Environmental Resilience Improved (targets improved environmental sustainability and disaster resilience).

##### **Box 1 - Strategic Outcome:**

1. Protection, conservation and sustainability of environmental and natural resources improved –  
Number of key habitats and "at risk" species protected increased; Areas of forests and marine sites protected increased – Protection plans implemented for "at risk" species;
2. Built environment is more sustainable – New buildings are 100% compliance with disaster and climate resilience standards;
3. Environmental compliance strengthened – Conservation areas protected and area increased; and
4. Climate and Disaster Resilience planning improved

**Source:** Strategy for Development Samoa 2016-2020 (pg.14)

- ✓ Key Outcome 14: Climate and Disaster Resilience (A climate and disaster resilient Samoa with planning, risk reduction, response and recovery improved with increased coordination amongst stakeholders)

##### 2.1.1. Biodiversity mainstreamed into the Strategy for the Development of Samoa 2016-2020

The SDS 2016-2020 continues to prioritize environmental sustainability as seen in the "Environmental Resilience" a key priority area together with climate change and disaster resilience. Mainstreaming environmental sustainability goes all the way back to the SDS 2008-2012 according to the 5NR. This is where "biodiversity conservation and sustainable use was mainstreamed and integrated into the national and sector level development plans since environmental sustainability was first recognized as a national priority in the SDS 2008 – 2012 though it was more a cross-cutting issue. The SDS 2012 – 2016 which followed, was the first SDS where the environment became a priority making up a forth pillar for sustainable development in Samoa. The current SDS 2016 – 2020 continues to priorities the environment and the two key outcomes are; environmental

sustainability and climate and disaster resilience. Biodiversity conservation plays an integral role in strategies for climate change mitigation, adaptation and resilience.

In Table 2 below, it provides a summary of NBSAP measures/actions identified in the latest SDS 2016-2020, and the current trend for biodiversity gaining recognition at the national government planning. It is important to note that resilience and climate change are key priority actions in the SDS 2016-2020, and as such are cross-cutting issues that are also relevant to the NBSAP national targets as shown in Table-3 below. Therefore, the actions and measures identified are very effective as it demonstrates the importance of actions to address biodiversity issues at the highest national level and the tools used to review this assessment.

**Tables 2: Summary of Actions and Measures in the SDS 2016-2020 prioritizing Biodiversity**

Actions and Measures “Cross-cutting themes” relevant to the Samoa NBSAP 2015-2020	Relevant National Target (NT) / ABT	Trend		Comment
		4 2009 / 2014	2018	
Maintain environment sustainability as a priority goal into the SDS 2016-2020 [NBSAP 2015 – action 1.2.1]	National Target NT) – 2  Aichi Biodiversity Target (ABT) - 2	↓	↑	The 2008-2012 and the 2012-2016 SDS didn’t specifically focussed on biodiversity as a priority area compared to the current SDS 2016-2020 whereby Key Outcome-13 environmental resilience highlights government prioritizing at the national level of protected areas, species diversity etc (refer Box 1 above)
Environmental resilience improved [Refer Box-1 above]	NT – 11, 12 and 6 ABT – 11,12 and 6	↓	↑	The current SDS 2016-2020 clearly supports the increase in protected areas, recovery of species at risk and strengthening environmental compliance and conservation, which was not in the previous SDS.
Climate and disaster resilience	NT – 15 ABT - 15	↑	↑	Climate and disaster continues’ to be a priority area for Samoa, since the previous SDS from 2008 to 2016, whereby emphasis focussed on economic resilience against extreme events.

**Table 3: Evaluate Effectiveness of Measures and Tools used for Assessment Cross-cutting Theme**

Measures & Actions “Cross-cutting Themes NBSAP”	NBSAP National Target	Effectiveness of Measure	Tools & Methodology used for assessments	Comments
Maintain environment sustainability as a priority goal into the SDS 2016-2020 [NBSAP 2015 – action 1.2.1]	National Target (NT) – 2  Aichi Biodiversity Target (ABT) - 2	Measure taken has been partially effective	Conduct National Environment and Biodiversity Awareness days  Conduct National Surveys on Environment related issues including biodiversity  Update of the SDS 2016-2020	Although environment resilience has been identified as a priority in the SDS 2016-2020, there are gaps in terms of the level of understanding and knowledge about Samoa’s biodiversity relating to protected areas, species and invasive species to name a few.
Environmental resilience improved [Refer Box-1 above]	NT – 11, 12 and 6 ABT – 11,12 and 6	Measures taken has been effective	Implementation of BIORAP surveys;  Spatial mapping of protected area network in Samoa that is Key Biodiversity Area (KBA)	The current SDS clearly shows the government commitment to environmental issues especially supporting biodiversity related programs, as shown in Box 1 above.

<sup>4</sup> The years 2009 and 2014 represents the 4<sup>th</sup> National Report (2009) and the 5<sup>th</sup> National Report (2014) being compared to the 6<sup>th</sup> NR current status

			Application of the RAPPAM methodology to monitor protected area network  Monitor progress of the implementation of Samoa NBSAP 2015; NISAP 2008-2011; and Species recovery plans.	
Climate and disaster resilience	NT – 15 ABT – 15	Measure taken has been effective	Review relevant documents – NAPA, 2 <sup>nd</sup> National Communication and implementation of climate change related projects etc	Climate change and disaster resilience program continues to be strong priority areas for Samoa due to vulnerability to extreme and hazardous natural events.

## 2.2. Other Cross-cutting Themes: Relevant Sector Plans, Policies and Strategies

There are various sector plans and policies from different government ministries that are all relevant to the implementation of the NBSAP 2015-2020 and at the same time their objectives are linked to the NBSAP national targets such as the following.

### 2.2.1. National Environment Sector Plan 2017-2021

The NESP 2017-2021 is another milestone achievement in the actions taken to support the implementation of Samoa's NBSAP 2015-2020. The review of the 2013-2016 NESP highlighted that about 92 per cent of actions have been implemented with an estimated 71 per cent of targets successfully achieved and the remaining partially achieved. Table 4 below summarizes these achievements and that the 12 key achievements listed in the review of the NESP 2013-2016 correspond to 10 national targets (NTs), and evidence of Samoa's commitment to the implementation of biodiversity activities that are in the NBSAP Action Plan 2015-2020.

**Table 4: NESP<sup>5</sup> 2013-2016 Achievements and Relevance to National Targets (NTs)**

<b>NESP 2013-2016 Achievements based on NESP review 2017</b>	<b>Relevant NBSAP Action &amp; Measures (refer detailed Annex 2)</b>	<b>Relevant to NTs</b>
Strengthened protection and maintenance of habitats and species through improved management of key biodiversity areas including community conservation areas, marine protected areas, national parks and reserves	11.1 Encourage and support the establishment of new terrestrial and marine PA's, CCA's and MPA's  12.2 Conduct surveys to determine the status of threatened and vulnerable species	NT – 11 NT - 12
Increased restoration of degraded habitats and improved conservation of threatened species	5.1 Assess the current conditions of all-natural habitats as a baseline for measuring the rate of loss and /or degradation  12.3 Develop review and implement species recovery and/or management plans	NT – 5 NT – 12
Enhanced resilience of the built environment through ongoing improvements to solid waste management, climate proofing of infrastructure and coastlines, piloting of renewable energy alternatives and energy efficient technologies	8.2 Minimize coastal pollution from unsound waste disposal practices purposes and to minimize coastal pollution. 15.1 Implement climate proofing projects including those promoting climate change resilience building in all sectors	NT – 8 NT – 15
Increased replanting and ecosystem restoration programs with communities	14.1 Develop and implement Management Plans for at-least 4 government managed terrestrial KBAs.	NT – 14
Increased access to sanitation and compliance with sanitation standards	Not relevant to NBSAP actions / measures	Not relevant
Improved information management and knowledge management with the establishment of	19.3 Review, enhance and update the existing Biosafety Clearing House	NT – 19

<sup>5</sup> List adopted from the NESP Achievements for 2013-2016 and modified to include NTs (NESP 2017-2021, pg 14)

<b>NESP 2013-2016 Achievements based on NESP review 2017</b>	<b>Relevant NBSAP Action &amp; Measures (refer detailed Annex 2)</b>	<b>Relevant to NTs</b>
a centralized information management facility or DKIF	Mechanism and Samoa Biodiversity Database. Other relevant action includes– 19.4, 19.5 and 19.6	
Improved efforts to reducing greenhouse gas emissions with the implementation of low carbon initiatives; increased promotion of renewable energy pilots and use of energy efficient technologies and ODS alternatives	3.1 Ensure imported agrochemicals are in compliance with international obligations under the Stockholm Convention and other MEAs and that their use is not harmful to Samoa’s biodiversity of conservation concern.	NT- 3
Increased participation of communities and stakeholders in environmental management initiatives through ongoing community-based programs and policy and planning consultations and dialogues	1.2 Promote educational and awareness programs on Biodiversity for different target groups, Other actions include 1.3 and 1.4	NT – 1
Improved sector coordination with establishment of coordination unit and national environment sector steering committee	No relevant action from Target-2	NT – 2
Enhanced enabling environment and governance arrangements as a result of continuing institutional reviews including functional analyses to improve efficiency and effectiveness of services	2.1 Maintain environment sustainability as a priority goal into the Strategy for the Development of Samoa	NT – 2
Improved dialogue and platform to facilitate genuine and durable partnerships with development partners	20.3 Maximise the use of competent local institutions, NGOs and experts to expedite the implementation of donor funded NBSAP activities.	NT – 20
Ongoing capacity building programs for improved institutional capacities of IAs	1.3 Promote opportunities and support learning-exchange programs on the values of biodiversity, the threats it faces and the steps the Government and the people can take to conserve, protect and use it sustainably.	NT – 1

From Table-4 above it clearly shows how the achievements of the NESP 2013-2016 supports the implementation of the NBSAP 2015-2020 actions and measures and it indirectly contributes to the progress towards achieving the national targets as identified.

However, it would make it easier for future assessment of Samoa’s NBSAP and the next NR if future consideration will look at integrating or aligned NBSAP national targets and actions/measures with the next update of the NESP. During the 6NR consultations it was confirmed from MNRE Environment Sector coordination unit that the list of the NBSAP indicators have been integrated into the NESP 2017-2021 monitoring framework to keep track on Samoa’s progress towards the implementation of the NBSAP 2015-2020 because this links to the achievement of environment priorities for MNRE as identified in the SDS 2016-2020. This is a positive way forward as it will make national reporting to international conventions easier, as data and information can be extracted directly from the NESP, which combines all environmental strategies, policies and action plans in its monitoring framework.

The NESP 2017-2021 is the principal sector guideline that monitor’s the MNRE’s progress towards achieving the SDS 2016-2020 Environment Priority Area and the Key Outcome 13 – Environmental Resilience Improved and Key Outcome 14 – Climate and Disaster Resilience. Table 5 below illustrates the linkages between the NESP 2017-2021, the SDS 2016-2020 and the NTs. It provides a clear display of actions and measures taken to implement the NBSAP and how they link to the Environment Sector Plan and ultimately achieving the SDS Strategic Outcome indicators.

**Table 5: NESP LTO<sup>6</sup> relevance to SDS 2016-2020 and NBSAP 2015-2020 NTs**

NTs	NBSAP Measure / Action	NESP Long Term Outcomes (LTO)	SDS Strategic Outcome for the Sector
NT – 11 NT – 12 NT - 4	11.1 Establishment of new terrestrial and marine PA’s, CCA’s and MPAs  12.3 Develop, review and implement species recovery and/or management plans  4.1 Implement management plans and by laws to regulate unsustainable resource and land use practices in terrestrial, water catchments and marine areas.	Long Term Outcome 1: Enhanced protection, conservation and sustainable management and development of Samoa’s environmental and natural resources	<ul style="list-style-type: none"> <li>➤ Number of key habitats and at-risk species protected increased</li> <li>➤ Areas of forest and marine sites protected increased</li> <li>➤ Protection Plans implemented for at risk species</li> <li>➤ Conservation areas protected and increased</li> <li>➤ Cumulative to total hectares of prioritized watershed areas rehabilitated and/ or declared reserves increased</li> </ul>
NT – 15	15.1 Implement climate proofing projects including those promoting climate change resilience building in all sectors.  15.3 Implement soft options to enhance climate change adaptation and mitigation objectives including trees and coral replanting schemes for degraded forests, mangroves and coral reefs.  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.	Long Term Outcome 2: A more sustainable and resilient built environment	<ul style="list-style-type: none"> <li>➤ New buildings are 100% compliant with disaster and climate resilience standards</li> <li>➤ 100% capacity for renewable energy electricity by 2025</li> <li>➤ Access to improved sanitation standards</li> </ul>
		Long Term Outcome 3: Climate Change and Disaster Risk Management mainstream across all sectors	<ul style="list-style-type: none"> <li>➤ Climate and Disaster Resilience planning improved</li> <li>➤ Climate and disaster resilience and responsive planning improved</li> <li>➤ Climate and disaster resilience integrated into all sector plans, Ministry and implementing agencies corporate plans</li> <li>➤ 100% compliance of Ministries and implementing agencies with climate and disaster resilience plans</li> </ul>
NT – 18	18.1 Facilitate the enactment of the Environment Management and Conservation Bill 2018.	Long Term Outcome 4: Effective enabling environment	<ul style="list-style-type: none"> <li>➤ Environmental compliance strengthened</li> </ul>
<b>Summary of the effectiveness of the measure/actions taken and tools and methodology used for Table-7 assessment</b>			
Measure of effectiveness	Measure taken has been effective – due to the level of national support for biodiversity program which is specifically mentioned in Samoa’s SDS 2016-2020.		
Tools and methodology used	The key documents used in the assessment of the measures and actions taken is the review of the Strategy for the Development of Samoa 2016-2020 and the National Environment Sector Plan 2017-2021.		

## 2.2.2. Agriculture Sector Plan 2015-2020 and Water and Sanitation Sector Plan 2016-2020

### a. Agriculture Sector Plan (ASP) 2015-2020

The Agriculture Sector Plan, End of Sector Plan Outcome 4 (ESPO), focuses on sustainable agricultural and fisheries resource management practices and climate resilience and disaster relief efforts strengthened relating to NT 6 and 7. The ESPO-4 highlights that the natural environment is central to food security and livelihoods and agriculture/fisheries export industries. It has been noted that climate change, being a major threat to the sector in exacerbating ecosystem degradations, needs to be addressed. Therefore, sustaining growth in the sector is critically dependent on the sustainable management of natural resources being the key to both mitigation of emissions and adaptation in the agricultural sector. Investment in building the capacity of subsistence farmers to implement practical adaptation measures to enhance the resilience of families and village communities to

<sup>6</sup> Table 5 adopted from the National Environment Sector Plan 2017-2021 (MNRE: 2017) pg. 15 with modification by the author



climate change and natural disasters are key areas to be promoted. In addition, emphasis has been placed on sustainable land use management, farm system diversification, integrated pest management, agroforestry and organic farming.

The fisheries division continues its efforts to focus on promoting and supporting ecosystem and community-based approaches to sustainable management of inshore and offshore marine resources. As well as, ensuring national bio-security is essential to protecting biodiversity and maintaining productive capacity for food security and to protect plant, animal and human health. All these measures or actions identified in the ASP 2016-2020 contribute to NTs 6, 7 and 9, directly and NTs 4 and 5 indirectly (improved marine resources and sustainable agriculture and reduce invasive species impact can positively contribute to ecosystem services and natural habitats recovery).

#### b. Water and Sanitation Sector Plan 2016-2020

The **Water and Sanitation Sector Plan (WSSP) 2016-2020** managed by the Water Sector Division of MNRE, has an overarching development goal “Reliable, clean, affordable water and improved sanitation within the framework of Integrated Water Resources Management for a resilient Samoa, sustaining health and alleviating poverty”. The scope of the sector strategies and actions comprises the conservation, development, use and monitoring and evaluation of all fresh water resources and receiving coastal waters in Samoa both in terms of water quality and water quantity. These actions are in response to the challenges faced by the water sector such as: wasteful water use, uncontrolled development in catchments, residential and agricultural development, environmental degradation, and pollution and weather extremes, including droughts and flooding. All of these threats have in recent years combined to accelerate the depletion and degradation of the available water resources.

**Table 6: Summary of the ASP 2016-2020 and WSSP 2016-2020 relevance to NTs**

National Target	Agriculture Sector Plan 2016-2020 End of Sector Plan Outcome and Intermediate Outcome (Measures)	Trend towards Biodiversity Prioritization	Link to NBSAP Measure/Action Refer Annex 2 – detailed information
NT – 7 NT – 6  <b>Secondary Link</b> NT - 15	ESPO4: Sustainable agricultural and fisheries resource management practices in place and climate resilience and disaster relief efforts strengthened	↑ Improved investment and support at the national level (government) and local level (communities)	Relevant NBSAP Action include: 7.2, 7.3 and 7.4 6.1 and 15.3
NT – 7 NT – 6 <b>Secondary Link</b> NT - 4	Intermediate Outcome: Increased adoption by communities and landowners of sustainable resource management practices in agriculture and fisheries	↑ Improved communities’ participation and capacity building trainings in sustainable farming and fisheries best practices	Relevant NBSAP Action include: 7.4, 6.1, 4.1 and 4.2
NT – 3 NT- 8	Safe management of agricultural chemicals practiced monitored and controlled	? Insufficient information to confirm safe management of agricultural chemicals	Relevant NBSAP Action: 3.1
NT – 6	Strengthened management of fisheries resources and control of fishing practices strengthened	↑ Due to increase projects with funding resources and capacity building trainings at national and community level.	Relevant NBSAP Action: 6.1
NT – 9  <b>Secondary Link</b> NT – 12 NT - 13	A well-functioning biosecurity service ensuring adequate levels of management and control of spread of endemically occurring pests and diseases and protection of Samoa’s plant and animal health status from establishment and spread of introduced exotic pests and diseases	→ Biosecurity at the national level with the control and management of imported goods continues to be effective. However, at the community level there is a trend of high risk exotic invasive species such as the African snail found in places where it didn’t exist before because of the lack of strong outreach monitoring and controlled programs in villages.	Relevant NBSAP Action: 9.2 and 9.4



<b>National Target</b>	<b>Agriculture Sector Plan 2016-2020 End of Sector Plan Outcome and Intermediate Outcome (Measures)</b>	<b>Trend towards Biodiversity Prioritization</b>	<b>Link to NBSAP Measure/Action</b> <b>Refer Annex 2 – detailed information</b>
NT – 11  <b>Secondary Link</b> NT- 5 NT -10 NT – 14	ESPO: Enhanced water resources resilience from ridge to reef	? Insufficient information to confirm that there has been an enhanced in water resources resilience because there are still many areas in Samoa experiencing water shortage	Relevant NBSAP Action: 11.1
NT – 19	Intermediate Outcome: Improved water related monitoring and information to inform warning (CLEWS)	↑ There has been a drive in the Water Resources Division to improve its data information management through GIS, installing of rain gauges in the field to collect data on the amount of rainfall and water level compared to the past 10 years.	Relevant NBSAP Action: 19.4 and 19.5
NT – 11	Legal frameworks strengthened	↑ Improved the number of legal documents under Water Resources that have been endorsed legally and some are underway.	Relevant NBSAP Action: 11.2
NT – 20	Partnerships strengthened	↑ Improved partnerships within the Water and Sanitation Sector not just with government and NGOs but also communities, academic and private sector	Relevant NBSAP Action: 20.3, 20.4 and 20.7
NT – 1	Community skills and confidence built	↑ The use of P3D models for watershed management demonstration with communities being involved in its development, has been a recent trend towards building community capacity and improved watershed management skills.	Relevant NBSAP Action: 1.2 and 1.3
<b>Measure of Effectiveness</b>			
	Measure taken has been partially effective as shown in Table 7 above based on the sector actions taken which correspond to the NBSAP actions and measures. Table 7 shows improvements in some areas and business as usual in other actions identified in the sector plans with insufficient information.		
<b>Tools &amp; Methodology used</b>			
	The documents used for this assessment are the “Review of the Agriculture Sector Plan ....” And the previous Water Sector Plan as well as the recent sector plan documents, NESP 2013-2016. As well as the MNRE and MAF Annual Reports, 2012 to 2017		

The WSSP 2016-2020 supports the establishment of community conservation areas to protect critical watershed areas and develop management plans to guide the sustainable management of water catchment resources. The NT 14 and Target 11 correspond to the WSSP 2016-2020 Water Resources sub-sector highlighted in Table – 6 above the linkages of the ASP 2016-2020 and WSSP 2016-2020 to the NTs and Actions. The sector plans present key measures taken at the national level through lead government ministries such as MNRE, MAF, MWCS and SWA that contribute directly to the sustainable management of biological resources and the protection of Samoa’s biodiversity.

### 2.2.3. Relevant National Policies and Strategies contributing to the implementation of the NBSAP

Samoa has adequate sector policies and legal frameworks to strengthen the implementation of the NBSAP 2015-2020 and support the progress towards achieving the national biodiversity targets or Aichi Biodiversity Targets (ABT) since both are the same. Table 7 below highlights how the existing national environmental policies and

strategies are relevant to the NBSAP 2015-2020 measures and actions, and the corresponding National Targets (NT).

**Table 7: Relevant National Environmental Policies and Strategies to the NTs and ABTs**

<b>National Policy and Strategy</b>	<b>Status</b>	<b>Relevant National Actions / Measures from NBSAP 2015-2020</b>	<b>National Target &amp; Aichi Biodiversity Target</b>
Cultural, Natural Heritage & Conservation Policy, 2000	Policy is out dated and needs to be updated. It reflects Samoa's obligation to World Heritage Convention	18.4 Conduct a targeted assessment of traditional knowledge practices and innovations relating to the use of Samoa's biodiversity.	NT 18 – Traditional Knowledge
National Solid Waste Management Strategy 2019-2023 draft	The strategy focussed only on solid waste management in Samoa. The strategy is a product of the MNRE Waste Management Act 2010.	8.3 Effectively enforce the protection of river bank reserves for catchment purposes and to minimize coastal pollution.	NT 8 - Pollution
National Chemical & Hazardous Waste Management 2012	Policy emphasized the need to manage hazardous waste, it reflects Samoa's obligation to Stockholm Convention, Rotterdam Convention, Montreal Protocol and Basal Convention	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.	NT 3 – Negative and Positive incentives
National Land Use Policy 2001	Policy needs to be updated. Reflect Samoa's obligation to the UNCCD	5.1 Assess the current conditions of all-natural habitats as a baseline for measuring the rate of loss and/or degradation. 5.3 Strengthen monitoring and effectively enforce processes to properly screen and minimize the negative impacts of development activities on natural habitats.	NT 5 – Habitat fragmentation and degradation
National Policy on Forestry for Sustainable Development 2007  National Forestry Plan (NFP) 2016-2020  National Strategy & Action Plan 2015-2020 for Two Million Tree Planting	Policy needs to be updated. Primary focus is to revitalise the sector through enabling institutional and legislative changes. The tree planting campaign aimed to increase forest cover, increase protection of biological diversity, secure food security and to minimize climate change impacts. Reflect Samoa's obligation to the Convention Biological Diversity, UNCCD and UNFCCC	7.1 Finalize implement and effectively enforce National Forestry legislations and policies framework 7.2 Support and encourage the development of woodlots and agroforestry systems, with management plans, seedlings and marketing information for five years.  5.3 Strengthen monitoring and effectively enforce processes to properly screen and minimize the negative impacts of development activities on natural habitats.  15.3 Implement soft option to enhance climate change adaptation and mitigation objectives including trees and coral replanting schemes for degraded forest, mangroves and coral reefs.	NT 7: Sustainable Resource Management  NT 5: Habitat Fragmentation and Degradation  NT 15: Resilience enhanced ecosystem restored
National Water Resource Management Policy 2010  National Upland Watershed Conservation Policy 2015  Water Allocation Policy 2013  National Water Services Policy 2010	All the water related policies and strategies targets the management of all water sources underground and surface water (water towers on mountains such as lakes), to ensure sustainable management. Establishment of conservation areas in watershed areas or catchment areas. Monitor water abstraction, and issuing water licensing to businesses.	11.1 Encourage and support the establishment of new terrestrial and marine PA's, CCAs and MPAs.  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.  8.3 Effectively enforce the protection of river bank reserves for catchment purposes and to minimize coastal pollution.	NT 11: Protected Area (17% terrestrial and inland water 10% coastal marine area)  NT 3: Negative and Positive Incentives  NT 8: Pollution  NT 14: Essential ecosystem services restored

National Policy and Strategy	Status	Relevant National Actions / Measures from NBSAP 2015-2020	National Target & Aichi Biodiversity Target
		14.1 Develop and implement management plans for at-least 4 government managed terrestrial KBAs.	
Reclamation Policy 2000	Policy needs to be updated. The main objective is to guide the monitoring of land reclamation activities according to standards set-forth by Land Management Division of MNRE.	10.1 Effectively promote and implement existing planning and approval frameworks to reduce coastal reclamation and sand mining activities 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.	NT 10: Pressures on vulnerable ecosystems minimized.
National Bio-prospecting Policy 2001	The Policy is in the process of updating. A draft National Access and Benefit legal framework 2018 is soon to be completed.	16.2 Develop and endorse national legal policy framework for the Nagoya Protocol 16.3 Develop and implement action plan addressing national priorities under the Nagoya Protocol 16.4 Promote public awareness and understanding of Access to Benefit Sharing of Traditional Biodiversity Knowledge.  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. 18.3 Develop appropriate regulations and a policy framework to support and clarify the implementation of measures regarding access to benefit sharing of traditional knowledge and genetic materials as provided in the Environment Management and Conservation Bill 2013.	NT 16 Nagoya Protocol Operational  NT 18 Traditional Knowledge Integrated
National Policy on Combating Climate Change 2007  Community Integrated Management Plans 2018	Policy targets measures to address adverse impacts of climate change.  The recently launched CIM Plans 2018 are Samoa's climate resilience investment plans that provide sustainable solutions to district and community environmental issues. Reflect Samoa's obligation to the UNCCCD	15.1 Implement climate proofing projects including those promoting climate change resilience building in all sectors.  10.4 Updated and implement the Community integrated management plans	NT 5: Resilience enhanced and ecosystem restored  NT 10: Pressures on vulnerable ecosystems minimized
National Bio-Safety Policy 2004	Policy aims to ensure adequate level of protection in the safe transfer, handling and use of GMOs that may have adverse impact biodiversity. Policy needs to be updated	19.9 Review existing draft National Biodiversity Framework and strengthen Biosafety Steering Committee	NT 19 Knowledge improved shared and transferred
National Invasive Species Action Plan (NISAP) 2008-2011	The objective is to protect Samoa's native biodiversity from the impacts of invasive species. The NISAP is currently under review and updated for 2018-2022.	9.1 Review and secure funding for implementation of the National Invasive Species Action Plan (NISAP) 2008-2011 9.2 Develop, endorse and implement the draft Samoa's Invasive Species Emergency Response Plan (SISERP) 2015-2020	NT 9: Invasive Species

National Policy and Strategy	Status	Relevant National Actions / Measures from NBSAP 2015-2020	National Target & Aichi Biodiversity Target
Samoa Invasive Species Emergency Response Plan (SISERP) 2015-2020	The SISERP is still in draft however it is an emergency readiness plan for Samoa to activate in time of a deadly IAS accidental arrival in Samoa.	9.4 Strengthen collaboration of relevant government agencies to monitor and properly manage the discharge ballast water from ships.	
Recovery Plan Manumea or Tooth-Billed Pigeon 2006-2016  Recovery Plan for the Ma'o or Ma'oma'o Bird 2006-2016	The plans are out dated and it focussed on methods used for the recovery of Samoa's threatened bird species. The plans need to be updated.	12.2 Conduct surveys to determine the status of threatened and vulnerable species 12.3 Develop, review and implement species recovery and / or management plans.	NT 12 Extinctions prevented and status improved.
Samoa's Aligned National Action Programme: To combat Land Degradation and mitigate the Effects of Drought 2015-2020	The NAP aims to address land degradation and drought issues in the most vulnerable and affected populations and ecosystems of the country, through its program of action.	15.2 Restore 3% of degraded ecosystems on annual basis 5.1 Assess the current conditions of all natural habitats as a baseline for measuring the rate of loss and/or degradation.	NT 5: Habitat fragmentation  NT 15: Resilience enhanced ecosystem restored

As already stated, Samoa is endowed with policies, strategies, action plans and legislation that directly support the implementation of the NBSAP 2015-2020 national targets. Table 7 clearly demonstrates this link to the action and measures as identified in the NBSAP and at the same time directly links to more than 50 percent of the national targets.

However, some of these policies identified, although relevant to the sustainable management of biological resources and the protection of biodiversity, there is a need for update as some are over 10 years since its endorsement such as the Land Reclamation Policy 2000 as one example.

#### 2.2.4. Legislative Framework and International / Regional Agreements

The NBSAP is a document that is conceived from the CBD. *General Measures for Conservation and Sustainable Use of the Convention on Biological Diversity* as referred to in **Box-2**.

**Box 2:** Each Contracting Party shall in accordance with its particular conditions and capabilities

- (a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect *inter alia*, the measures set out in this Convention relevant to the Contracting Party concerned: and
- (b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

*Source: Extracted from the CBD document (United Nations: 1992)*

Samoa's obligation to the CBD Article 6 is seen in the measures taken at the national level as mentioned earlier from: key national strategy for Samoa the SDS 2016-2020, to sector plans, policies and national strategies all corresponds to one or more of the NTs. In further strengthening Samoa's CBD obligations and to provide legal instruments to guide the conservation and sustainable use of biological diversity a number of legislations exist as well as Multilateral Environmental Agreements (MEAs) that support the NBSAP implementation at the national and community level. In Table 8 it provides the list of relevant legislation that contributes to some of the NTs.

**Table 8: Relevant Legislations corresponding to National Targets**

Relevant Legislation	National Targets
Plastic Bag Prohibition on Importation Amendment Regulation 2018	NT 8
Marine Wildlife Protection Amendment Regulations 2018	NT 12
Fisheries Management Act 2016	NT 6
Forestry Management Regulation 2015	NT -5
Intellectual Property Act 2011	NT 16 and 18
Protection of Wildlife Regulation 2014	NT 11, 12 and 18
Water Resource Licensing Regulation 2013	NT 14
Forestry Management Act 2011	NT 5
Waste Management Act 2010	NT 8
Water Resources Management Act 2008	NT 14
Marine Pollution Prevention Act 2008	NT 8
Marine Protected Areas (MPA) By-Laws 2007	NT 11
Quarantine (Biosecurity) Act 2005	NT 9
Samoa National Biosafety Framework 2004	NT 3, 13 and 19
Planning and Urban Management Act 2004	NT 10
Copy Right Act 1998	NT 18
Local Fisheries Regulations 1996	NT 6
Village Fono Act 1990	NT 2 and 18
Lands, Survey & Environment Act 1989	NT 1- 20
Plants Act 1984	NT 12, NT 13
National Parks and Reserves Act 1974	NT 11
Exclusive Economic Zone Act 1977	NT 6
Forest Act 1967	NT 5, NT 7
Noxious Weeds Ordinance 1961	NT 9
Agriculture and Fisheries Ordinance 1959	NT 5 and 6
Mt. Vaea Scenic Reserve & Mt. Vaea Scenic Reserve Ordinance 1958 + Amendments	NT 11

Table 8 above is a list of relevant environmental legislations that supports the implementation of the NBSAP 2015-2020, and it shows numerous legal instruments already in place. However, more than half of these legislation were developed before 2010 and most need to be reviewed as they are out dated. There are only a few amended or up dated legislation and regulations since 2010 such as the Forestry Act 2011, Fisheries Management Act 2016, Marine Wildlife Protection Amendment Regulations 2018, Forestry Management Regulation 2015, Water Resource Licensing Regulation 2013 and the Plastic Bag Prohibition on Importation Amendment Regulation 2018. The key piece of legislation which could improve the implementation of most of the national targets is the Environment Management and Conservation Bill 2013/2018 which has been in draft for almost ten years now. There are also other bills which are equally important to the implementation of Samoa's NBSAP 2015-2020 such as the Trade in Endangered Species Bill, draft National Access and Benefit Sharing Legal Framework, Climate Change Bill and the Soil Resource Management Bill. It is pertinent that some of these key legislations in draft should move towards finalization and endorsement, because they can make a big difference in providing legal support to the protection and conservation of biological diversity resources for Samoa.

Samoa has ratified a number of international conventions and the Convention on Biological Diversity that it became a party to in 1994, is the key convention that binds the NBSAP implementation. Table 9 below shows all the international and regional conventions that Samoa is a member and their relevance to the NTs. As noted

from Table 9 almost 90 per cent of international environmental conventions and regional agreements that Samoa has signed on to are directly relevant to the NBSAP and its national targets.

**Table 9: Multilateral and Regional Agreements applicable to Samoa NTs**

<b>Multilateral Environment Agreements</b>	<b>Year</b>	<b>NTs</b>
Rio Convention (Biodiversity, Land Degradation and Climate Change)	1992	NT 1-20
United Nation Convention to Combat Degradation (UNCCD)	1998	NT 5 and 7
World Forest Charter	1994	NT 5
United Nations Framework on Forestry	2003	NT 5, 7 and 14
Convention on Biological Diversity	1994	NT 1-20
Nagoya Protocol	2014	NT 16 and 18
Cartagena Protocol on Biosafety	2002	NT 3, 13 and 19
United Nation Convention on Law of the Sea	1982	NT 6
UNCLOS – Straddling and Highly Migratory Fish Stocks	1996	NT 6
World Heritage Convention	2001	NT 1, 2, 11 and 12
Waigani Convention	2001	NT 8
Basel Convention	2002	NT 3 and 8
Rotterdam Convention	2002	NT 3 and 8
Stockholm Convention on Persistent Organic Pollutants	2002	NT 3 and 8
International Convention Protection of Pollution from Ships	2002	NT 3 and 8
United Nation Framework Convention Climate Change	1994	NT 10 and 15
Kyoto Protocol	2000	NT 15
Convention on the Conservation of Migratory Species of Wild Animals	2005	NT 12
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	2005	NT 11 and 12
RAMSAR Convention on Wetlands	2005	NT 11
<b>Regional Agreements</b>	<b>Year</b>	
SPREP/Noumea Convention	1990	NT 1-20
Rarotonga Treaty	1985	NT 11 and 12
Wellington Convention	1979	NT 8
Protocol for the Prevention of Pollution in the Pacific by dumping	1986	NT 8
Protocol concerning Cooperation in combating Pollution Emergencies in the South Pacific Region	1986	NT 3, 8 and 9

### 2.3. Institutional Set-up and Programs:

#### 2.3.1.Environment Sector Coordination Division

As mentioned earlier, the mainstreaming of environmental sustainability stems from the SDS 2008 - 2012. The environment was a national priority for the first time as one of the main pillars for sustainable development. This also included the recognition of climate change as the main threat to Samoa's sustainable development aspirations. The environment was again a national priority in the SDS 2012 – 2016 where environment sustainability, climate and disaster resilience were key outcomes. In 2013 the Environment Sector Coordination Division was established within the MNRE to facilitate the environment sector wide coordination planning, implementation, monitoring, review and the reporting of the sector programme to achieve environmental sustainability, climate and disaster resilience following the launch of the NESP 2013 - 2016.

#### 2.3.2.Conservation & Biodiversity Information (NT 1, 2, 4, 11, 12, 16,17,18,19 and 20)

The conservation and sustainable management of biological diversity and resources continues to receive priority recognition at the national level with the SDS 2016-2020 and the NBSAP 2015-2020 which translate Samoa's commitments under the Aichi Biodiversity Targets into national targets has been integrated into the NESP 2017-2021. Samoa has taken exceptional measures in promoting biodiversity awareness and education over the past 10 years. There has been a substantial number of biodiversity conservation awareness and educational programs that have been implemented through national biodiversity related events from 2012 to 2017<sup>7</sup>. There have also been many learning exchanges, school programs and competitions, information sharing with and among relevant stakeholders. Biodiversity knowledge products and information uploaded on the Data Knowledge Information Facility (DKIF) the central database for information relevant to the Rio conventions are deposited and shared.

<sup>7</sup> MNRE (2017) National Environment Sector Plan 2017-2021 pg. 18

<sup>8</sup> MNRE (2012) and (2017) Annual Reports

The recent review of the NESP 2012-2016 highlighted the increase of awareness on environment and climate change issues.

Regarding the protected area network, Samoa has done extremely well given the growth in the number of established conservation sites, national parks and reserves under terrestrial area as well as the increase in number of community managed fish reserves, the three marine protected areas and the establishment of the marine sanctuary. The marine sanctuary covers all of Samoa's EEZ and strengthens the protection and conservation of all whales, dolphins, turtles and shark species.

It is estimated that a total of 78,248 hectares of land and sea area are under protection, and about 71,739.22 hectares of land and 6508.8 hectares marine area under (this does not include the 106 Fish Reserves) protected areas<sup>9</sup> (refer Annex 4 Protected Area Network Dataset). Most of these PAs are within Key Biodiversity Areas (KBAs) - Samoa's priority areas for conservation. The 8 terrestrial KBAs and 7 marine KBAs continue to hold high value in national environmental planning and consideration for the protection of critical ecosystems such as the Central Savaii KBA site. However, a major issue for the conservation of KBAs relates to Samoa's land tenure systems / land ownership system because most land within KBAs is customary owned and the conservation of these sites is therefore dependent on community and district governance leadership and management.

### 2.3.3. Village Governance and Community Conservation Programs

Samoa has been very active in community engagement and the development of management plans and by-laws to govern environmental resources in villages and districts. There are some distinct community conservation programs that can be regarded as success stories given their longest existence in village communities and replication. One such program is the sustainable management of subsistence fisheries in the inshore marine area known as the "*Community Based Fisheries Management Program (CBFMP)*" with a total of 106 participating villages and 78 approved village by-laws to govern the management of community marine reserves and impose fines on transgressors<sup>10</sup> managed by the Fisheries Division of MAF. The example in **Box 3 Case Study 1**, highlight the important contribution of traditional governance to the management of natural resources such as marine reserves.

#### **Box 3: Case Study 1– Traditional governing system integrated into the Community-Based Fisheries Management Program. [refer to Section V for detailed story]**

This success story shows how traditional governance are best used to support conservation programs in the village communities. Samoa does not have indigenous groups as per definition by the United Nation, however traditional values and cultural norms are embedded in most activities in village communities.

The CBFMP was conceived in 1995 with assistance from the Australian Agency for International Development (AusAID) and it is one of the longest surviving successful programmes within the Fisheries Extension Program of the Fisheries Division, MAF. The process used a "bottom-up" approach to management in that each participating village develops its own strategy to manage its marine resources and its environment, rather than being told what to do by a government authority (Gillett and Tauati, 2018). The program according to Samuelu and Tuaopepe (2011) integrates well with traditional systems in village communities in Samoa. In-fact it is known that the success of this program is driven by the traditional governing system that manages and monitor marine fish reserve in every village that is a member of the program. The overuse and degradation of inshore fishery resources were problems this programme identified and aimed to provide effective conservation and management measures to protect Samoa's coastal resources and marine environment. The design of CBFMP recognizes the social norms and customs of Samoan people.

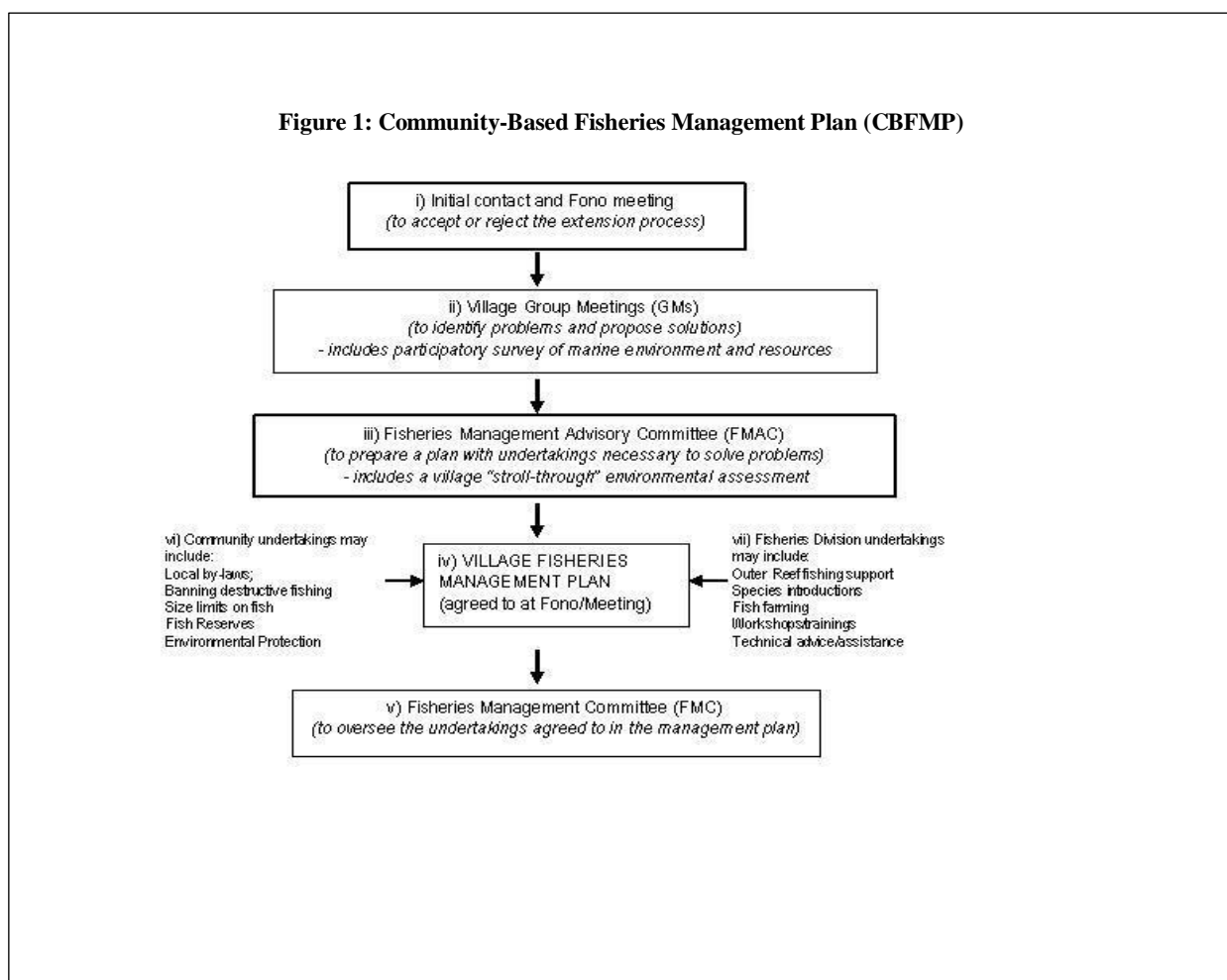
The village council is the decision-making body in the community, but the programme's process allows ample opportunity for all sectors to participate, the chiefs, untitled men/youth and women. CBFMP allows decisions for the management of the marine resources are initiated by the communities themselves whilst the Fisheries Division provides the technical support to the decisions made. It provides the platform for the fishing communities to develop village fisheries management plans and bylaws and fisheries reserves and empowers communities through there in management, monitoring, enforcement and ownership. Figure 2 illustrates the process involved in establishing the programme and fisheries management plans in Samoan communities.

<sup>9</sup> MNRE (2018) Protected Area Network Dataset for MNRE and MAF, Division of Environment and Conservation

<sup>10</sup> Fisheries Sector Plan 2016 presentation



**Figure 1: Community-Based Fisheries Management Plan (CBFMP)**



#### 2.3.4. Threatened Species and the International Union for the Conservation of Nature (IUCN) Red List – actions and measures taken

The list of threatened species from Samoa on the IUCN Red List has continued to increase, and the findings from the Biodiversity Rapid Assessments (BIORAP) surveys confirmed that some of the critically endangered species that are endemic were not sighted during various ecological surveys including the 1992 Lowland Ecological Survey (1992: Department of Conservation New Zealand) and the Upland Ecological Survey (1994: Butler) are now considered extinct such as: the Samoan swallowtail butterfly (*Papilio godeffroyi*), the sheath-tailed bat (*Emballonura semicaudata*), and the Samoan moorhen (*Gallinula pacifica*). The national flagship bird- the manumea or tooth-billed pigeon (*Didunculus strigirostris*) has had very few confirmed sightings in recent BIORAPs although the remaining population and distribution of the manumea is very hard to assess due to its cryptic nature. In the Table 11 below, it provides an update on some of the IUCN Red List for Samoan threatened species as identified in the 5NR (2014) and it clearly shows that most of the threatened species on the IUCN Red List has had no major changes since 2012. The only change is the status of the tooth-billed pigeon which is updated from endangered to critically endangered, which is not an improvement. Therefore, Samoa is at a very vulnerable position in terms of its species diversity especially endemic species and those on the brink of extinction.

**Table 11: IUCN Red Listed Threatened Species update from 2012 to 2018**

Species	IUCN Red List Status 2012	Update based on recent information (BIORAP)	Updated Status IUCN Red List 2018
<i>Acropora ruds</i> Staghorn coral	Endangered (with decreasing trend)	Status unchanged	Endangered
<i>Cheilinus undulates</i> Humphead wrasse Malatea	Endangered	Status unchanged	Endangered
<i>Chelonia mydas</i> Green Turtle	Endangered	Status unchanged	Endangered



Laumei			
<i>Didunculus strigirostris</i> Tooth-billed pigeon Manumea	Endangered	BIORAP 2012, 2014 and 2016 no sightings but heard during survey.  MNRE survey 2013 confirmed sighting of a juvenile manumea at Salelologa lowland coastal forest area.	Critically endangered
<i>Eretmochelys imbricate</i> Hawksbill turtle Laumei fai uga	Critically endangered	SOE 2013 reported declining number. However continued monitoring programs 2014-2017 by DEC show an increase in numbers of turtles (migratory species) but hawksbill status has not changed.	Critically Endangered
<i>Gallicolumba stairii</i> Friendly ground dove Tuameo	Vulnerable	2008 the eradication program on Nuutele island for rodents, resulted in the increase number of ground dove sighted along the coastal areas.	Vulnerable
<i>Gallinula pacifica</i> Samoaan moorhen Puna'e	Critically endangered (possibly extinct in Samoa)	BIORAP 2012, 2014 and 2016 no sighting	Confirmed extinction
<i>Gymnomyza samoensis</i> Forest honeyeater Ma'oma'o/Ma'o	Endangered	Research by Rebecca S (2011-2013) identified areas of breeding ground and habitats for this species. The biggest threat are invasive rodents preying on nesting areas for the Ma'o.	Endangered
<i>Nesofregatta fuliginosa</i> Polynesian storm petrel Taio	Vulnerable	No recent information	Vulnerable
Pacific sheath-tailed bat <i>Emballonura semicaudata</i> Tagiti	Endangered (possibly extinct)	BIORAP 2012,2014 and 2016 no sightings	Confirmed extinct
<i>Zosterops samoensis</i> Samoaan white eye Mata pa'epa'e)	Vulnerable	BIORAP 2012 and 2016 noted the good numbers of birds present at high elevation area (montane forest)	Vulnerable

### 2.3.5. Access and Benefit Sharing: Traditional Knowledge Associated with Genetic Resources in Samoa

Samoa ratified the Nagoya Protocol in 2014 and the implementation of actions as set forth in the NBSAP has been stagnant due to lack of financial support to implement the Protocol. It was not until recently funding was secured under a GEF funded project on Strengthening human resources, legal framework and institutional capacities to implement the Nagoya Protocol (2017-2019). Currently, there is only the Bio-prospecting policy 2001 and Samoa uses an access permit system to allow access to its genetic resources to be used for bio-discovery research. The enactment of the draft national legal policy framework for the Nagoya Protocol will improve much of the work on access to genetic resources and the fair and equitable sharing of benefits arising out of the utilization of these resources.

There has been strong support from most levels for the protection of traditional knowledge at the national level, as noted during various consultations for the ABS legal framework, EMC Bill, National Interim Report on the implementation of the Nagoya Protocol.

Apart from the draft EMC Bill, other relevant legislation providing protection to traditional knowledge include the intellectual property laws in Samoa, the Copyright Act 1989 and the Intellectual Property Act 2012. A current analysis of traditional knowledge and options for protection is being undertaken on wider protection

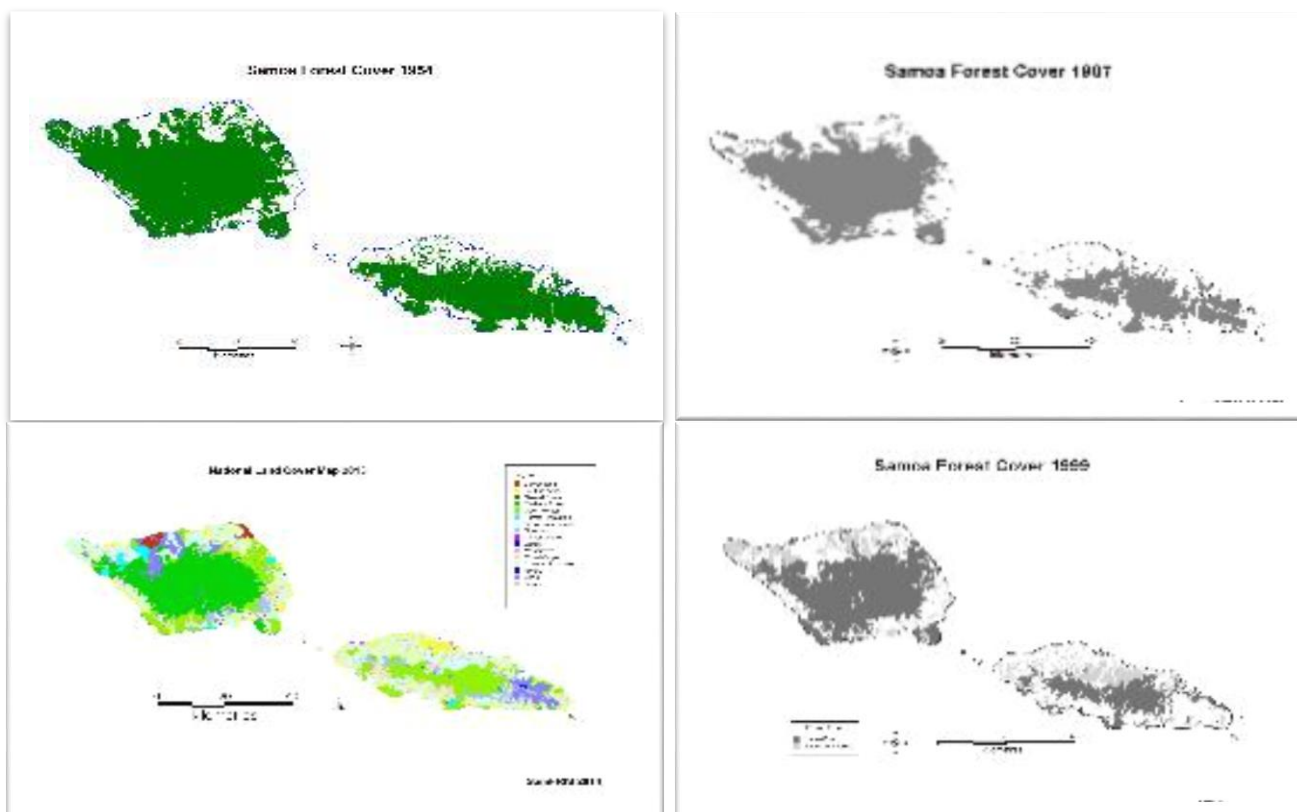
mechanisms for traditional knowledge under the UNDP-GEF global access to benefit sharing project. Although much has been implemented under the NBSAP, there has been a lack of consolidation of information into a national biodiversity database and there is a need to update the existing clearing house mechanism biodiversity database for information sharing and knowledge transfer. Resource Mobilization is an important NT to ensure opportunities are explored for resources available to support the implementation of all the 20 national targets. Having the GEF Division within MNRE strengthens DEC’s position in accessing GEF support and additional potential funding is possible under climate investment programs such as the Global Climate Fund.

### 2.3.6. Forestry (NT 5, 7 and 11)

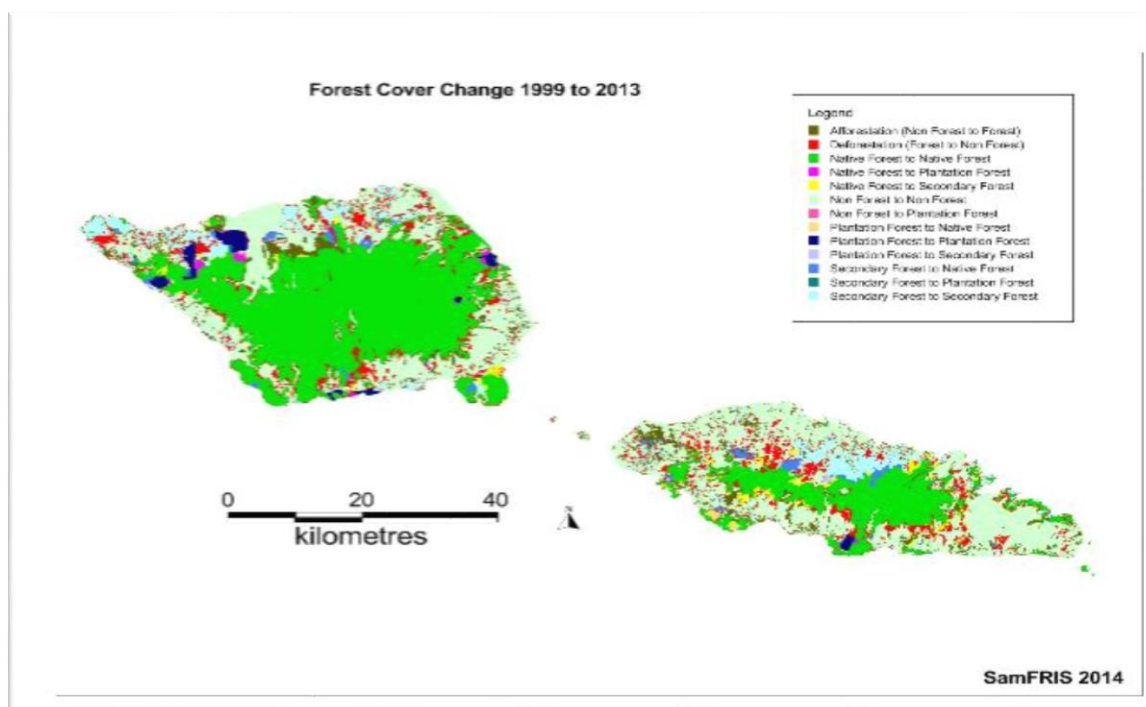
The BIORAP (biological rapid assessment) surveys have mapped out critical habitats proposed under the protected area network. Between 1999 – 2013 forest cover had decreased by 1.7% (a reduction in forest cover from 60% to 58% of the land area of the country)<sup>11</sup>. This small percentage in forest cover reduction reflects the decrease in logging activities and taro plantation impact from the taro leaf blight, which resulted in many farmers ceasing land clearance for cultivation. Figure 2 below shows the trend in the decrease in deforestation activities from 1999 – 2013.

In addition, to the Forest Management Act 2011 and the National Forest Plan 2016-2020, which guides the use of forest resources. The 2 million tree planting campaign has raised awareness on the importance of forest resources and the program is now in its fourth year with a strong drive in replanting of critical degraded habitats. According to the NESP 2017-2021, improved management of Samoa’s wetlands and national parks through strengthened planning, monitoring and enforcement will continue to be prioritized, by enforcing the Forestry Management Act 2011. However, there is still pressure on some of these natural habitats such as mangrove ecosystems, lowland forest and wetlands from expanding agricultural and infrastructural developments and land reclamation.

**Maps 1 - 5: Forest Cover Changes from 1999 -2013**



<sup>11</sup> Atherton, James (2018) Presentation on GIS Mapping and Analysis for the Samoa 6<sup>th</sup> National Biodiversity Report to the CBD, at the 6NR Validation Workshop 18 November 2018, MNRE



### 2.3.7. Water Resources (NT 11-14)

Safeguarding of ecosystem services such as water resources has been identified in the NBSAP Action Plan as a priority given the challenges it faces from wasteful water use, uncontrolled catchments clearance, residential and agricultural development, environmental degradation, pollution and weather extremes, including drought and flooding, in recent years combined to accelerate the depletion and degradation of the available water resources. Thus investments in the protection of water catchment areas are some measures taken to improve ecosystem services. According to the SMSMCL Project they have restored 1.5 hectares of land at Lake Lanotoo with 1,500 native trees planted; 5 hectares of land at the new Malololelei Bio-Park, and over 10 hectares of land at Mt Vaea. The SMSMCL project also invested in the procurement of 30 acres of degraded land at Malololelei for ecological restorative activities<sup>12</sup>. This investment under the SMSMCL project are part of the protection of the greater Vaisigano/Apia Catchment Area. There are Management plans completed for 3 KBA sites which include: Lake Lanotoo part of Apia Catchment Area, Le Pupu Pue National Park, and Mauga Salafai National Park part of the Central Savaii KBA. The establishment of 18 Water Catchment Management Plans out of 22 villages working with the Water Resource Division of MNRE in the protection of natural water sources in Samoa, indicates the high value imposed on natural water sources. For instance, the NESP 2017-2021 emphasized, that the Water and Sanitation Sector will continue to prioritize efforts to enhance the sustainability of Samoa's water resources through ongoing rehabilitation of degraded watershed areas in partnership with communities; protection of critical riparian zones from unsustainable socio-economic developments; and regulations of water abstraction activities.

### 2.3.8. Sustainable Land Management (NT 5, 7, 11 and 14)

The impact of traditional land clearance has severe consequences on environmental resources because it is one of the causes of habitat loss, habitat fragmentation and reduction in vegetation cover in sensitive environments including catchments and erosion-prone areas. The use of environmental resources is linked to the traditional land tenure system whereby 80% of land are under customary ownership and this is where the power lies in the access and use of Samoa's land resources. The land tenure is changing in Samoa there is a trend of moving from customary land to freehold land. As shown in Table 12, 85 per cent of parcels for major crop households were from customary land in 2015 which is a drop from 94 per cent in 1989, whereas the use of freehold land for agricultural purposes has risen sharply over the same period<sup>13</sup>. Land use for agricultural activities shows a very significant trend in the different land use patterns, for example: 40 per cent of land

<sup>12</sup> National Environment Sector Division (2018) Detailed list of MNRE Projects and Brief Reports on Progress, prepared by National Environment Sector Division, MNRE  
<sup>13</sup> Samoa Bureau of Statistics (2016) Agricultural survey 2015 report, Samoa Bureau of Statistics – Apia, Samoa

operated by major crop households was mainly for permanent crops, such as fruit and nut trees, banana and coffee with an estimated land area of 76,803 acres; temporary crops such as taro and vegetables accounted for 69,091 acres; and livestock coverage of land area is estimated at 29,850 acres and land not used for agricultural purposes decreased from 6.5 per cent 2009 to 2.2 per cent in 2015 (ibid).

**Table 12: Per cent of parcels by tenure type, Samoa, 1989-2015**

Land Tenure	1989	1999	2009	2015
Customary land	94%	90%	86%	85.3%
Leased customary land	1%	1%	1%	1.2%
Leased government land	2%	2%	3%	1.2%
Own freehold land	3%	6%	9%	10.8%
Leased freehold land	-	-	1%	0.8%
Other	-	1%	1%	0.7%

Source: Report on Samoa's Agriculture Survey 2015.

While there is a strong move to increase productivity in the agricultural sector for export, there has also been a drive to reverse land degradation through the forestry sector. The enforcement of legal instruments that are in place (National Forestry Plan 2016-2020 and Forestry Management Act 2011) and the implementation of action strategies (eg. the 2 Million Tree Planting Strategy 2015-2020) all contribute to the NBSAP action plan activities. These include the finalization and implementation of effective enforcement of the National Forestry legislations and policy; support the development of woodlots and agroforestry systems with management plans, distribution of seedlings and marketing information for the next five years<sup>14</sup>. There are on-going agroforestry and woodlots programs, to date (MNRE, 2017<sup>15</sup>) since 2012, an estimated total number of 833 farmers have registered for woodlots and agroforestry an annual target of 200 farmers although this is short by 100 plus due to farmers slowly accepting this system.

Increase in capacity building trainings and workshops offered to support agricultural development in Samoa include agroforestry trainings, livestock and poultry trainings to cattle and sheep husbandry and livestock production and management. Development of aquaculture requires an Environmental Impact Assessment (EIA) in order for a Development Consent to be reviewed and screened to ensure that no accidental release of species into the natural environment and that the construction of tanks are air-tight to avoid any accidents that could harm natural habitats. Overall, the government has shown much commitment in its effort to ensure sustainable resource management consideration is integrated into the use of biodiversity resources.

### 2.3.9. Sustainable Fisheries (NT 6)

Promoting sustainable fisheries both inshore and offshore areas are vital steps to sustaining Samoa marine resources and the MAF Fisheries Division have put in place measures to guide the utilization of marine resources such as the: Review of the Community-based Fisheries Management Plan 2017; Tuna Fisheries Management Plan 2017-2021; Tuna Fisheries National Monitoring Control and Surveillance Strategy 2016-2020; Fisheries Management Act 2016 and Aquaculture Development and Management Plan. It is also noted from the NESP 2017-2021 that improvement to the sustainable management and development of marine and ocean resources will take on a much more integrated approach to coastal management, inshore and offshore fisheries management involving a diverse range of stakeholders. In Table 13 it provides the status of aquaculture development in Samoa with tilapia farm having the highest number of nurseries followed by the giant clam hatchery, and the rest are below 10 the number of breeding grounds. The increase in tilapia farming is to ensure food security and another source of affordable protein to support the livelihood of Samoan people. There is growing demand from communities for giant clams to restock their inshore marine areas and this is very much supported through the fisheries Community Based Management Fisheries Programme (CBMFP).

**Table 13 Aquaculture Developments in Samoa<sup>16</sup>**

Type of Aquaculture Farms	Number of Nurseries	Location
Giant clam nurseries	42	(15 Upolu, 3 Manono and 24 Savaii)

<sup>14</sup> MNRE (2014) Samoa National Biodiversity Action Strategy (NBSAP) 2015-2020, Samoa

<sup>15</sup> MNRE (2017) Annual Report for Financial Year 2016/2017, MNRE

<sup>16</sup> Information in the table extracted from the Review of the National Environment Sector Plan 2013-2016 (pg.6) produced by the National Environment Sector Division -2016.

		Toloa Multispecies Hatchery
Mud crab farms	2	Vaovai and Sama'ilauano Falelatai
Sea grapes	8	Upolu (Faleula, Leauvaa, Salua Manono-tai and Savaia); three in Savaii (Vaisala, Asaga and Sapulu Salelologa) and one at the Toloa Hatchery
Tilapia Farms	56	47 Upolu island and 9 Savaii island
Prawn farm	1	Lotofaga Safata (Upolu Island)

### 2.3.10. Bio-security (NT 3 and 9)

The measures taken towards the management of invasive species within critical ecosystems continues to be a priority, and more investment is needed to support the improvement of actions to, prevent, control and/or eradicate invasive alien species (IAS). There have been some key actions in place such as identifying invasive species pathways that are highlighted in the NISAP 2008-2011. The financial support from the Global Environment Facility Pacific Alliance for Sustainability: Invasive Alien Species Project (GEF-PAS) has enabled substantial work on some priority invasive species such as the myna bird (*Acridotheres tristis*, *Acridotheres fuscus*), water lettuce (*Pistia stratiotes*), rattan palm (*Calamus caesius*), African tulip (*Spathodea campanulata*), silk tree (*Albizia chinensis*, *Albizia falcuteria*), Panama and African rubber trees (*Funtumia elastica*, *Castilla elastica*) to name a few. Key outstanding actions which are currently being addressed in the updated NISSAP 2018-2022 includes:

- ✓ NISAP 2008-2011 is currently being review by a consultant and should be completed by end of 2018;
- ✓ SISERP 2019-2024 endorsed by cabinet and
- ✓ The centralized IAS database is now in the process of being developed.

The Samoa National Invasive Task Team (SNITT) is the core national working group that collaboratively work towards the prevention, control and/or eradication of IAS in country. The MAF Quarantine Division, enforce bio-security to intercept and prevent the intentional or accidental introductions of pests via different pathways. According to the NESP 2017-2021, efforts towards the control of invasive species within threatened ecosystems as well as close monitoring of their status and impacts will continue and increase.

### 2.3.11. Waste Management, Hazardous Waste and Sanitation (NT 4 and 8)

Samoa has been very active in the management of solid waste and this is critical in ensuring that we achieve sustainable consumption and production. There is a draft National Waste Management 2019-2023 in place which needs finalization. On-going plans to prolong the lifespan of the Tafaigata landfill to accommodate increased volumes of waste generated has been addressed through waste segregation trials conducted for households and business to reduce the amount of waste discharge at the landfill by filtering out waste that can be recycled, and reuse through other means. There has been discussion as mentioned in the NESP 2017-2021 of establishing a separate waste management unit/division given its current scope of work and the limited staff available. The idea emerged from the Public Service Commission functional analysis for MNRE which recommended the recruitment of an Assistant CEO and other principal and senior level position. However, at the community level much work on waste management has been implemented through village by-laws. The recently updated Community Integrated Management (CIM) Plans 2018, village interventions include waste management as one of the key actions suggested by village communities to ensure that road side drainages are cleared of debris and rubbish, as well as village beautification (Samoa Tourism Authority Program) and installing proper rubbish stands for solid waste management collection.

There is considerable effort needed to strengthen sound management of chemicals and hazardous waste and as such there has been limited substantive information regarding the detrimental impact from excessive use of pesticides on land.

The NESP 2017-2021 (MNRE: 2016) highlights that concerted efforts will go towards strengthening of the existing policy and legislative framework, implementation of the National Chemical and Hazardous Waste Management Policy and recommendations from the National Chemical Profile (NCP). This will involve subsequent focus on improving accuracy and consistency of chemical trade information through improved



infrastructures and systems to track chemical importation use, storage and disposal. There are a number of agencies with overlapping mandates concerning chemical management as such stronger efforts is expected to be employed to encourage coordination of regulatory functions and responsibilities between MNRE, MOF, Ministry of Health (MoH), Ministry of Agriculture and Fisheries (MAF) and Ministry of Education Sports and Culture (MESC). This will require putting in place mechanisms to facilitate systematic monitoring and assessment of health impacts and environmental pollution arising from the negligent use, storage, and disposal of chemicals.

Furthermore, the Environment Sector in close collaboration with the Water and Sanitation Sector, Health Sector and the Building Sector will work towards improving the sustainable management of wastewater systems in Samoa. This involves the improved coordination of regulatory functions and responsibilities in relation to monitoring and enforcement of approved standards as set out in the agreed Memorandum of Understanding (MOU) between MNRE, Ministry of Works Transport and Infrastructure (MWTI) and MOH. As well, streamlined reporting and sharing of resources including information/data, finances and technical expertise critical to achieving mutual goals in the sanitation agenda will be encouraged.

With the finalization and endorsement of the new and improved National Building Code and National Effluent Standards for Samoa, a stronger performance in terms of monitoring and enforcement is expected to be achieved through joint efforts of MWTI, MOH and MNRE. The draft National Sanitation Policy will be finalized and formalized through cabinet approval.

#### 2.3.12. Climate Change (NT 10 and 15)

It is widely understood that climate change is a cross-cutting development issue that can be a barrier to the achievement of sustainable resource management given its detrimental and also long term impacts on biodiversity as well as exacerbating extreme events such as – cyclones, flooding and storm surges to name a few. The government has vested interest in further consolidating climate change investment and programs given the current vulnerabilities hence the need to strengthen policy and legislative framework for Climate Change Adaptation and Mitigation. The Climate Change Bill is in the process of finalization and the national policy and the National Climate Strategy and Climate Change Adaptation Plan all form the baseline towards proposing a new government agency focussing on Climate Change Investment and Resilience Program for Samoa in the future. The emphasis placed on climate change issues equally addresses biodiversity and biological resources issue because the adverse impacts on our biodiversity and natural habitats are exacerbated by climate change. For instance, given the small size of Samoa and with over 70 per cent of the population along the coast. Most of the physical infrastructures for adaptation is concentrated along the coast creating an active zone whereby natural habitats and species are constantly under pressure from physical destruction, land-based pollution and exploitation of marine resources.

Climate change has been one of the key stressors on coral reef ecosystems due to the increase in sea surface temperatures causing mass coral bleaching, however there is limited information understanding the actual impact from ocean acidification. But as indicated by the FAO (2018)<sup>17</sup>: while there is certainty in the direction and magnitude of ocean pH decline and its largely negative impacts on marine organisms, most projection models do not incorporate the potential impacts of ocean acidification (OA) on fish and fisheries. This is because we lack sufficient understanding of the capacity for marine organisms to adapt through acclimation, trans-generational and evolutionary adaptation to reliably predict OA impacts on marine populations and ecosystems.

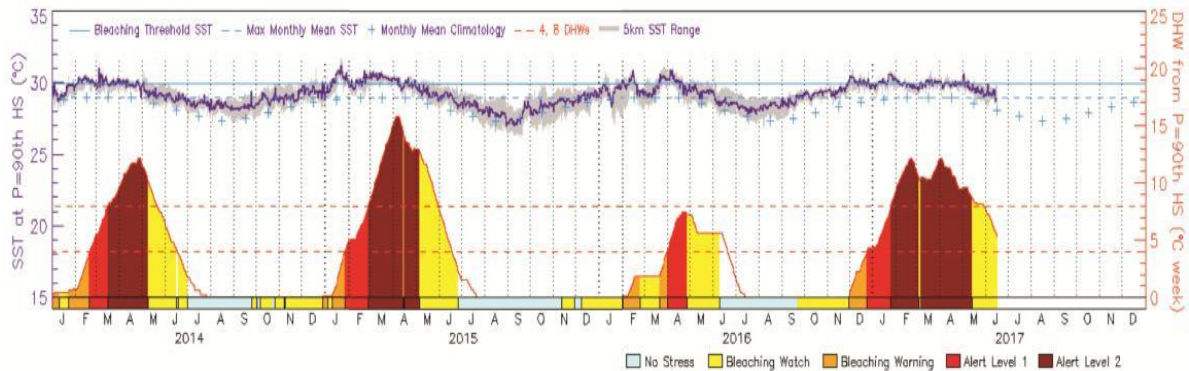
Based on remotely sensed sea surface temperatures (SST), coral reefs in Samoa experienced three severe thermal anomalies of up to 16 degrees heating weeks (DHW) between 2014 and 2017 as shown in Chart 1. Overall, climate change and variability is one of the biggest threats to biodiversity now and in the future.

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<sup>17</sup> Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. & Poulain, F., eds. (2018). Impacts of Climate Change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options. FAO Fisheries and Aquaculture Technical Paper No. 627. Rome, FAO. 628pp.



**Chart 1: Sea surface temperature at Samoa from 2014-2017 with calculated degree heating weeks (DHWs)**



#### 2.4. Gender Responsiveness examples from lead government agencies and programs

The MNRE has grown from a small government department with five divisions in the 1990s and a male dominated management to a large ministry with 15 divisions all directly and indirectly support the implementation of the NBSAP 2015-2020. From these 15 divisions only four are headed by men including the Chief Executive Officer, the rest of the management are female, with the leadership or head of the ministry under the guidance of the prominent female cabinet minister. Having a female dominated management and leadership is not based on a gender balance approach, but the level of education that women in Samoa have accomplished and the calibre of women to hold senior level position in government whereby not long ago it was dominated by men. This is an example, of a growing government workforce with women playing major roles contributing to the nation's economy and is leading the management of Samoa's natural resource base. Another example is shown in Box 4 below of women participation in environmental related programs in village communities through seeking support from the UNDP-GEF Small Grants Programme in Samoa.

**Box 4: Case Study 2 – Example of Gender responsiveness from the UNDP-GEF Small Grant Programme Women's Committee project on Mangrove protection at Vailoa Faleata (refer Annex 2 for detail story)**

The Samoa GEF-SGP Country Programme for OP6 2015-2018 has two strategic focuses: (1) Cross-cutting OP6 Grant Making Strategies and (2) Landscape and Seascape based OP6 as the basis for all its grant programme activities. The strategy also promotes Gender inclusiveness with a specific section of the strategy that supports social inclusion such as "the SGP will continue to encourage and facilitate social inclusion to empower those marginalized by building and empowering them to participate in the community". This case study 2 is adopted directly from the UNDP-GEF SGP successful Women's Committee Project for the conservation and protection of the Vaiusu Bay mangrove ecosystem.

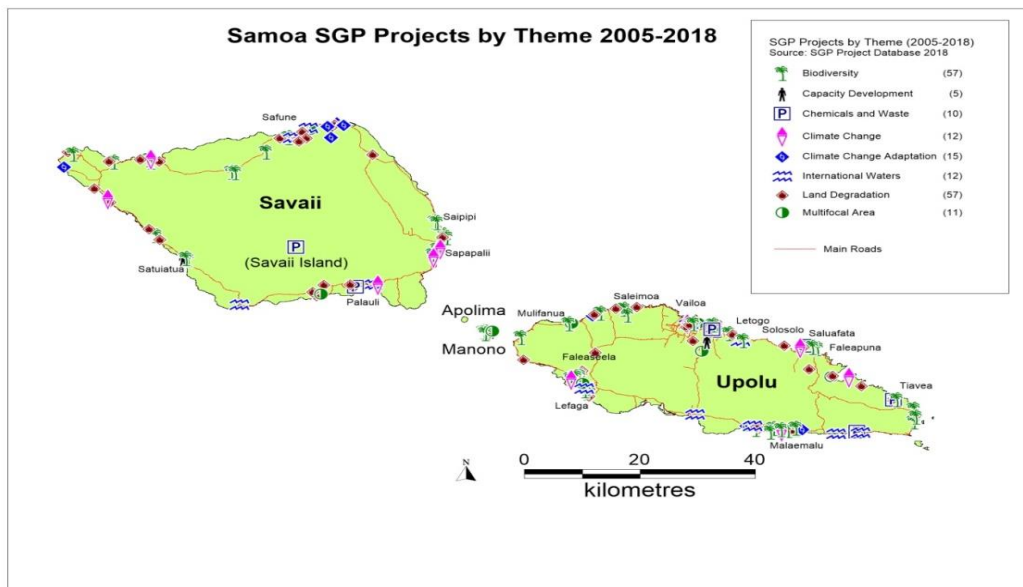
The Women's Committee of Vailoa were the primary implementers and decision makers of the project's activities. These women were instrumental through their involvement at the village council meetings. They are well organised and quite vocal with issues that affect them like the conservation efforts in this project. A key challenge for women was the performing of strenuous activities such as labour work. The village openly discussed this issue, and high chiefs were amenable in removing such stereotypes against the women. The women continued to host fortnightly cleanups of the mangroves area and had built a committee house beside the village springs. From this house, the women monitor the progress of the mangroves and the cleanliness of the spring pools. Consequently, Vailoa is witnessing an increased mangrove growth and clean water for drinking, bathing and other uses. The village men support and encourage the women to take the lead in village activities that they had often dominated. A Vailoa woman named Taiafi Matala played a necessary part in the research/audit component of the project. She was the only one who could identify the Samoan traditional names and uses of the floristic and fauna biodiversity through her traditional knowledge and experience. She is a fisher woman by profession and has lived all her life around the mangroves area which has been the primary source of income and livelihood for her family.

The village council and women's committee of Vailoa have been very proactive in advocating its mangroves protected area to neighbouring villages in their district. The result was a significant policy outcome where the village established partnerships not only with SGP but also with government agencies like the MNRE. These partnerships are essential as Vailoa continues to plan and organise environment and socio-economic initiatives. With strong leadership and collaboration with state and non-state organisations, Vailoa produced its Mangrove Management Plan and passed village bylaws in 2015 to strengthen the management and ongoing monitoring of mangroves and the springs. Moreover, Vailoa has installed a project signboard which contains the village bylaws for the mangroves conservation.

The Vailoa GEF Small Grants Project which focused on the rehabilitation of the mangrove ecosystem had demonstrated the active participation of the women’s committee in this project and youth group in the village. The representative from the youth group and a female and the fisher woman Taiafai Matala had exemplified the role of women in this project by emphasizing that women too are custodian in the sustainable management of natural resources and their knowledge of biodiversity surrounding their natural environment, and thus women participation in any biodiversity related project is just as important as men. The map below of the Samoa SGP projects from 2005–2018 shows the wide coverage of biodiversity related projects from inland conservation areas to coastal resources managements from marine reserves to the conservation of mangrove and wetland ecosystems.



Figure 4: Members of the Vailoa Women’s Committee and Youth during the mangrove replanting activity of the project (2017) Photo by UNDP-GEF SGP Samoa.



Map 6: Samoa SGP Projects by Theme 2015 – 2018. Source James Atherton 2018

It was noted during the Steering Committee meetings and national workshops that the women participants were mainly senior level who have sound knowledge on Samoa’s biodiversity as well as policy and sector level development. Female participants to the 6NR both from government and civil society have been active participants providing constructive comments and feedback on the report. The last 6NR workshop to review the report, there were more female than male participants and everyone who was at the workshop contributed specifically to national targets that is relevant to their line of work.

Women in Samoa are at key positions in biodiversity and environment related work, from high level political arena the Deputy Prime Minister and Minister for Natural Resources and Environment is a female and an influential political leader the Honourable, Fiame Naomi Mata’afa. She is a champion in promoting

environmental and biodiversity conservation programs in the country. As mentioned at the management level, most of the divisional heads of government ministries are women. For example: the Environment Sector Division of MNRE headed by another female who has been exceptional in mainstreaming biodiversity and environment related programs into the NESP and the SDS2016-2020, as well as monitoring how environment programs have been implemented and achieving the goals set forth in the SDS 2016-2020. The Women in Business Development Inc. (WIBDI) is the woman lead NGO supporting sustainable livelihood programs through their work with over a thousand farmers nation-wide and about 600 of those farmers have been organically certified, <http://www.ipsnews.net/2014/09/organic-farmers-cultivate-rural-success-in-samoa>. These are only a few examples of women leadership in Samoa and that women are heavily involved in biodiversity conservation work in Samoa.

## 2.5. For the implementation measure, indicate to which NT and ABT it contributes to.

The NTs have been translated directly into the (ABT) and therefore as highlighted in the cross-cutting themes with relevant measures identified in section 2.3 (from 2.3.1 to 2.3.12) their contribution to all the ABTs and national targets (NTs). In Table 14, the assessment of measures from the cross-cutting themes identified reiterate their relevance to the implementation of the 2015-2020 NBSAP and its NTs.

**Table 14: Assessment of the effectiveness of measures, trends and tools and methodology identified in the cross-cutting Themes**

Cross-cutting Themes Measures / Actions identified	Effectiveness of the measure	Trend -	Tools and methodology used for the assessment of effectiveness
2.3.1 Conservation & Biodiversity Programs	Measure taken has been effective	↑ Improve recognition of biodiversity and conservation programs at national and community level	Review of relevant documents such as: NBSAP 2015-2020; State of Environment Report 2013; 4NR and 5NR.  National workshop consultations and community consultations on environment related programs  Public awareness and environment educational events  Spatial mapping- preparation of biodiversity related maps
2.3.2 Village Governance and Community Conservation Program	Measure taken has been effective	↑ Improve community conservation programs	Review of relevant documents such as: NBSAP 2015-2020; State of Environment Report 2013; 4NR and 5NR.  Community field training on marine and terrestrial conservation programs  Field monitoring data collection  Spatial mapping
2.3.3 Threatened Species and IUCN Red List	Measure taken has been ineffective	↓ No change since 5NR however some endangered species status has continued to decline.	IUCN Red List regular update  BIORAP surveys  Spatial mapping
2.3.4 Access Benefit Sharing and Traditional Knowledge	Measure taken has been partially effective	→ No change since 5NR however the current global ABS project will see the improvement in the implementation of outstanding NBSAP actions under the ABS.	National and community workshop on ABS  Review of existing documents: NBSAP 2015-2020; State of Environment Report 2013; 4NR and 5NR.  Documentation of TK using current ABS global project
2.3.5 Forestry	Measure taken has been effective	↑ Improve Forestry legal framework and policies have been endorsed	Review relevant documents: NBSAP 2015-2020; State of Environment Report 2013; 4NR and 5NR. MNRE Annual Reports 2010/2011 and 2016/2017  Forestry Operational Plan 2016-2020 2 Million Tree Planting Strategy 2015-2020 Forestry Management Act 2011 FAO Evaluation of the GEF FPAM project (2017)

			<p>Survey: National Forestry Inventory 2014</p> <p>Spatial Mapping: SamFRIS 2014</p>
2.3.6 Water Resources	Measure taken has been effective	↑ Improve Water legal framework and policies have been endorsed	<p>Review relevant documents: NBSAP 2015-2020; State of Environment Report 2013; 4NR and 5NR. MNRE Annual Reports 2012/2013 and 2016/2017; SMSMCL Project 2015-2020; Water Resources Policies and Strategies listed in Table 8 and Table 9 of this report</p> <p>Survey characterization of watershed areas</p> <p>P3D model – development of watershed areas with communities</p> <p>Spatial Mapping: review existing watershed area maps</p>
2.3.7 Sustainable Land Management (SLM)	Measure taken has been effective	↑ Improve SLM legal framework and policies have been developed. Farmer programs are actively implemented under the NAP 2015-2020.	<p>Review of existing relevant reports and document changes such as: Samoa Aligned National Action Programme to combat Land Degradation and mitigate the effects of drought 2015-2020</p> <p>Field survey collect information on sustainable farming practices from SMSMCL Project</p> <p>Workshops and consultations for farmers</p>
2.3.8 Fisheries	Measure taken has been effective	↑ Improve Fisheries legal framework and policies have been developed. Establishing of marine reserves with communities continues to be a successful program.	<p>Review of existing reports and document changes: Fisheries Annual Report 2016/2017, Samoa Tuna Management and Development Plan 2017-2021; Coastal Fisheries Plan 2017; National Aquaculture Plan 2013-2018;</p> <p>Marine BIORAP surveys and research by DEC and Fisheries</p> <p>Spatial mapping – survey sites</p>
2.3.9 Biosecurity	Measure taken has been partially effective	→ No change since 5NR. The current update of the NISAP 2008-2011 will most likely provide improvement in biosecurity measures.	<p>Review relevant documents (referred to section 2.1.6) to the NBSAP Target: 3 and 9 sub-section 2.1.6f of this report which includes the following documents: NISAP 2008-2011 MNRE Annual Report 2012-2013 MAF Annual Report 2013-2014 <a href="https://www.sprep.org/att/irc/ecopies/countries/samoa/198.pdf">https://www.sprep.org/att/irc/ecopies/countries/samoa/198.pdf</a></p> <p>Spatial Mapping – Surveys: Invasive Species survey conducted under the GEF PAS project between 2013 – 2016 of rodents, invasive weeds and plants.</p>
2.3.10 Waste Management	Measure taken has been effective	↑ Improve Waste Management programs evidence in the new legal framework and policies in place and implementation of the ban on plastic	<p>Review relevant documents Community Development Plan 2016-2021 Samoa Tourism Plan 2014-2019 <a href="https://www.mnre.gov.ws/about-us/divisions/puma/">https://www.mnre.gov.ws/about-us/divisions/puma/</a> MNRE Annual Report 2016-2017 DEC Draft National Waste Management Strategy 2019-2023 Plastic Bag Prohibition on Importation Amendment Regulation 2013/2018 to phase out the use of plastic in Samoa</p> <p>Field surveys and research: Solid Waste Minimization Survey</p> <p>Spatial Mapping: Rubbish collection sites in Upolu and Savaii</p>

2.3.11 Climate Change	Measure taken has been effective	↑ Improve Climate change and disaster continue to be priority programs at the national and community level.	Review relevant documents Community Development Plan 2016-2021 Samoa Tourism Plan 2014-2019 <a href="https://www.mnre.gov.ws/about-us/divisions/puma/">https://www.mnre.gov.ws/about-us/divisions/puma/</a> MNRE Annual Report 2016-2017 DEC Draft National Waste Management Strategy 2019-2023 Plastic Bag Prohibition on Importation Amendment Regulation 2013/2018 to phase out the use of plastic in Samoa Field surveys and research: Solid Waste Minimization Survey  Spatial Mapping: Rubbish collection sites in Upolu and Savaii
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### 2.5.1. Other tools and methodology used for the assessment

There were other tools and methodology used during the assessment provided by UNDP Global such as the list in Table 15 below:

**Table 15 Other tools and methodology used for the assessment**

Webinar	Video Link	Language
CBD Online Reporting Tool	<a href="https://youtube/KpWR6Bx4T1w">https://youtube/KpWR6Bx4T1w</a>	English
Integrating Spatial Data into 6NR	<a href="https://youtube/89HM7MqqL94">https://youtube/89HM7MqqL94</a>	English
6NR Data Tracking Tool	<a href="https://youtube/EzVKx7wPk4Q">https://youtube/EzVKx7wPk4Q</a>	English
6NR Biodiversity Indicators: Tips and Information Sources	<a href="https://youtube/Hlba5CkHKZA">https://youtube/Hlba5CkHKZA</a>	English
UN Biodiversity Lab Oceania Pacific	<a href="https://youtube/oDXH89Xq10">https://youtube/oDXH89Xq10</a>	English
Technical Guidance and Tools		
Tool / Guidance	Link	
Technical Reporting Guidance	<a href="https://bit.ly/2GCdkUR">https://bit.ly/2GCdkUR</a>	
Technical Review Framework	<a href="https://bit.ly/2AfJWDK">https://bit.ly/2AfJWDK</a>	
Data Tracking Tool	<a href="https://bit.ly/2Pu0V9L">https://bit.ly/2Pu0V9L</a>	

### 2.6. Other relevant information

#### Multi-sectoral approach based on other sector donor funded projects that supported biodiversity related activities in the NBSAP 2015-2020

Climate change projects with a multi-sector approach that have supported the implementation of biodiversity related activities as identified in the NBSAP are shown in Table 16 below.

**Table 16: List of Multi-sector projects that contributes to the achievements of the NTs**

Multi-sector project	Year	Donor Funded	NT
1. Sustainable Land Management (SLM)	2005-2011	GEF-LMD	NT 5, 7 and 11
2. Integrated Climate Change Risks into Health & Agriculture Project (ICCRAHS)	2009-2013	GEF-LDCF	NT 7
3. Integrated Climate Change Resilience in Forestry Systems (ICCRIFS)	2010-2015	GEF-LDCF-Forestry Division	NT 11, 5 and 7
4. Forest and Protected Area Management (FPAM)	2011-2013	Government of Japan	NT 11, 14 and 5
5. Samoa Agroforestry and Tree Farming Project (SATFP)	2012-2016	AusAID	NT 11, 14 and 5
6. Enhancing Resilience of coastal communities to climate change	2012-2018	Adaptation Fund UNDP	NT 1 - 20
7. Enhancing Climate Resilience of Coastal Resources & Communities (PPCR Project)	2013-2019	World Bank	NT 1-20



8. Strengthening Multi-Sector Management of Critical Landscape (SMSMCL) Project	2014-2019	GEF/UNDP	NT 1,2,5,7,9, 11,12,13,14,15,18,19 and 20
9. Economy Wide Integration of Climate Change (EWACC) Project	2015-2020	GEF/UNDP	NT 1, 2, 11, 12 and 14
10. Fagalii Ridge to Reef Project (R2R)	2016-2019	GEF/SPC	NT 11, 12 and 14

In Table 16 above, most of these projects were funded under climate change investment targeting resilience for communities. However achievements of resilience objectives cannot be realized unless biodiversity aspects are addressed. Therefore, most projects supported the following areas of biodiversity conservation: forestry recovery programs through reforestation and restoration activities, BIORAP surveys conducted in KBA sites, replanting along riparian areas and riverbanks to reduce soil erosion, invasive species related activities to prevent, control and/or eradicate invasive species from protected area sites such as national parks etc, supporting community income generating activities through agro-forestry, multi-cropping and integrated pest management practices for subsistence agriculture, to name some of the activities that directly benefit biodiversity conservation and protection of biological resources from climate change funded projects.

## 2.7. Relevant websites, web links and files:

<https://www.mnre.gov.ws/>  
<https://www.mnre.gov.ws/about-us/divisions/puma/>  
[https://www.adaptation-undp.org/.../inception\\_workshop\\_report\\_-\\_samoa\\_af\\_11-03-](https://www.adaptation-undp.org/.../inception_workshop_report_-_samoa_af_11-03-)  
<https://www.pacificclimatechange.net/.../enhancing-resilience-coastal-communities-sa...>  
<https://www.pacificclimatechange.net/.../enhancing-resilience-coastal-communities-sa...>

## 2.8. Obstacles and scientific and technical needs related to the measures taken

The two main issues identified are: 1) obstacles faced in the implementation of actions due to a lack of financial resources, coordination, reliable data availability, exploring sustainable opportunities and conflicting perceptions of sustainable development; and (2) capacity development and needs of lead government agencies staff and partners that will assist in proactively completing the implementation of actions. Table 17 below provides a detailed analysis of the obstacles and capacity needs and gaps that need consideration for MNRE and partners to fully implement the NBSAP Action Plan 2015-2020 and move towards achieving the NTs and ABTs.

**Table 17: List of Obstacles and Capacity Needs to consider for the Achievements of NTs**

National Target / ABTs	Description of Measure / Action from NBSAP	Obstacles / Barriers	Capacity Needs and Support
NT 1: By 2020, at the latest, the people of Samoa are aware and appreciative of the values of biodiversity, the threats it faces and the steps they can take to conserve 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	Lack of financial and human resources to conduct a nationwide assessment.  Limited local budget	Targeted training course for specific staff on survey development and assessment
	1.3 Promote opportunities and support learning-exchange programs on the values of biodiversity, the threats it faces and the steps the Government and the people can take to conserve, protect and use it sustainable	Limited opportunities and financial resources available to support on-going learning exchanges	Develop a south-south exchange program with other Pacific Island countries or community exchange between villages.  Government secondment programs  Village to village learning exchange
NT 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and	2.2 Conduct and explore options on the use of Payment of Ecological Services (PES)	Limited understanding about the use of PES (Payment for Ecosystem Services) in	Seek training opportunities in Payment for Ecosystem Services (PES Training) through on-job training or



poverty reduction strategies and planning processes and are being incorporated into national accounting and budgetary processes, as appropriate, and reporting systems.	approaches or tools in national accounting	national planning and sector plans.  No local expert on PES	specific trainings offered at local or overseas universities.  Bilateral donors to support selected staff attending specific training  Government short term course
	2.3 Encourage the use of economic valuation (cost-benefit analysis) of ecological and biodiversity services	There is limited capacity to calculate economic valuation of biodiversity services. Minimal consideration is also given to integrate economic valuation into national economic planning. \	Engage opportunities that are offered through overseas / local workshop trainings on economic valuation of natural resources.  Hire/seek technical support to train local staff  <i>Seek external support:</i>
<b>NT 3:</b> 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 Convention and other relevant international obligations, taking into account national socio-economic conditions.	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	Limited tools and mechanisms to provide guidance for national implementation.	Targeted training to assist local staff in developing a system to track importation and use, safety application and storage of agro-chemicals  Increase media outreach TV ads, documentary, social media (twitter, Facebook or instagram) both English and Samoan on the process for importation, use and disposal of agrochemicals.
<b>NT 4:</b> 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 [developed and] implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits	4.2 Promote sustainable agriculture including integrated pest management practices, organic agriculture, conservation and management of genetic resources and proper soils management practices.	Limited financial resources and man power to maintain continuous organic or agroforestry agricultural activities. Interest in sustainable agricultural practices are also short lived because of limited returns	Targeted capacity building trainings: For farmers registered under woodlot programs for communities to be consistent in order to attract more farmers to join and increase number of agroforestry activities; Consider agroforestry trainings to also include other edible plant and tree species that are seasonally harvest to earn income for farmers whilst waiting out timber trees or woodlots.
<b>NT 5:</b> By 2020, the rate of loss of natural habitats, including forests, is at least halved [50%] and where feasible brought close to zero, and degradation and fragmentation is significantly reduced	5.2 Develop new and/or strengthen existing guidelines to control and monitor the use of resources within natural habitats.	Lack of consolidated national data on land-use cover for Samoa is a major hurdle and it makes it difficult to have accurate baseline information. Although some information are available but it is not sufficient to provide accurate assessment of the rate of habitat loss and land degradation.	Strengthen a coordinated approach between the relevant agencies in the compilation and analysis of available data and information.
<b>NT6:</b> 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	6.2 Promote eco-tourism activities beneficial to the conservation of marine species and critical habitats.	Weak or fragmented coordination between tourism operators, communities and relevant government ministries to promote eco-tourism activities.	Encourage the inclusion of eco-tourism activities and introduce payment for ecosystem services in village management plans.  Training to be provided for communities to strengthen

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.			<p>coordination and support decision making in managing village based resources.</p> <p>Promote citizen science where tourists/visitors can assist in the collection of data within reserves.</p>
<b>NT 7:</b> By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring the conservation of biodiversity	7.3 Increase capacity of relevant stakeholders for promoting and supporting agroforestry and other mixed crops, trees, and livestock systems.	Inconsistency of support to farmers due to limited financial resources and man power to contiguously provide extension farming trainings in the field.	Make it a requirement for stream of relevant new staff to be certified trainers for relevant programmes to support farmers and fisher communities.
	7.4 Enforce effective management of aquaculture activities to avoid accidental release of species into pristine environments and ecosystems.	Lack of ongoing monitoring and training support to aquaculture farmers to prevent accidental spill of tilapia in the natural water systems.	
<b>NT 9:</b> 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	9.2 Develop, endorse, and implement Samoa's Invasive Species Emergency Response Plan (SISERP) 2019-2024.	There is no current allocated funding to support emergency responses.	<p>- Develop budget plan for approval for emergency responses.</p> <p>Develop sustainable funding mechanisms.</p>
<b>NT 10:</b> 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.	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	Limited information available from MNRE to show the volume of sand extraction or the size in hectares of coastal reclamation on an annual basis. This gap in data limits information on whether development activities has increase or decrease over the years and whether its adding pressure or not to the country's finite resources.	Capacity building for relevant personnel to collate and establish data base for sand extraction.
<b>NT 11:</b> 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.	11.1 Encourage and support the establishment of new terrestrial and marine PA's, CCAs, and MPAs	Land tenure system is a major limitation to the establishment of PA as any activity proposed for PA as land under customary and freehold proposed for conservation are very much dependant on the consent and discretion of landowners.	<p>Targeted capacity development needs and trainings that should be considered for effective management of PAs;</p> <p>Design technical trainings for PA practioner's in Samoa on Management Effectiveness Assessment in order to carry out monitoring programs for Protected Area.</p> <p>Work and build capacities of landowners to support the PA concept and its significance.</p>
<b>NT 12</b> 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.	12.2 Conduct surveys to determine the status of threatened and vulnerable species	Limited knowledge and understanding on the ecological habitats and behaviour for some of these threatened species on the IUCN Red List	Build and improve local capacity on methods, techniques and analytical skills used in monitoring and capturing information on threatened and rare species and also analysis.

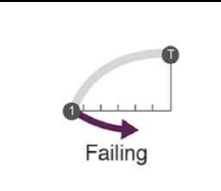
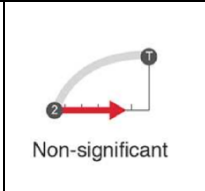
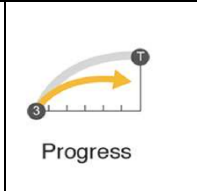


<p><b>NT 13</b> By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is at least maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.</p>	<p>13.1 Invest in an ongoing biosecurity awareness raising program for the public to enhance understanding of the risks to biodiversity and the economy associated with illegally introduced germplasm</p>	<p>Lack of financial support to implement consistent biosecurity awareness programmes.</p>	<p>Seek external financial support.  Need to strengthened research into bio-control and biosecurity risk of illegally introduced germplasm.</p>
<p><b>NT 15:</b> 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.</p>	<p>15.1 Implement climate proofing projects including those promoting climate change resilience building in all sectors.</p>	<p>There is limited knowledge about carbon storage for most of the related climate change projects being implemented. For example; the real impact of all these projects on the ground in terms of increase in carbon storage from forest restoration programs.</p>	<p>Training on methods, techniques and analysis to measure carbon biomass ;</p>
<p><b>NT 16</b> 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.</p>	<p>16.4 Promote public awareness and understanding of Access and Benefit Sharing of Traditional Biological Knowledge</p>	<p>Limited funds to conduct targeted awareness to different stakeholder groups i.e. resource users, resource owners, legislators, politicians etc</p>	<p>Allocate national budget for ongoing awareness and educational programmes on ABS.</p>
<p><b>NT 18</b> 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.</p>	<p>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</p>	<p>The EMC Bill has yet to be passed to inform the development of relevant regulation for the protection of traditional knowledge, practices and innovations relation to biodiversity.</p>	<p>Targeted training for selected personnel to undertake an assessment survey of traditional knowledge, practices, and innovations relating to the use, management and conservation of Samoa's native biodiversity with communities.</p>
<p><b>NT 19</b> 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.</p>	<p>19.4 Develop systems and protocols for biodiversity data management including protocol for recording and saving field survey data and reports. 19.8 Initiate an NBSAP awareness raising program targeting local communities, schools, and the business sector to promote NTs, and priority actions</p>	<p>Existing systems for biodiversity data management are not operational and updated.  Clearing House Mechanism (CHM) not Functioning. The DKIF should be utilized for Biodiversity information sharing</p>	<p>Train personnel on effective data management system which have been recently introduced such as the SkyCollect and INFORM which are easy to manage, update, share, transferred and maintained.</p>

## Section III - Assessment of progress towards each National Target

### 3. Description of National Targets and Assessment of Progress towards Achievements

Table 19 below provides an assessment of progress made towards individual targets of the NT/ABT, as well as the **Level of Confidence** (\* \* \*), based on the available evidence. It aims to provide summary information on whether or not we are on track to achieve the targets.

The assessment uses a five-point scale below.





					
<b>Progress</b>	Moving away from target (things are getting worse rather than better)	No significant overall progress (overall, we are neither moving towards the target nor away from it)	Progress towards target but at an insufficient rate (unless we increase our efforts the target will not be met by its deadline)	On track to achieve target (if we continue on our current trajectory, we expect to achieve the target by 2020)	On track to exceed target (we expect to achieve the target before its deadline)





#### 3.1. Assessment of Progress towards achieving the NTs and ABTs

Throughout the 6NR from section 1 to section 2 a series of assessments at the national level on how the NBSAP 2015-2020 measures and actions identified have been implemented and at what level of progress towards meeting the 20 national targets. As mentioned earlier the 20 NT were adopted from the global CBD Strategic Plan 2011-2020 with the 20 Aichi Biodiversity Targets and this was specifically identified in Samoa's 2015-2020 NBSAP and the 5NR, but the 20NT were not included in the various national strategies, sector plans and policies for Samoa such as the SDS 2016-2020, and the NESP 2017-2021 to name a few.




However, in analyzing and assessing the status of biodiversity and biological resources in Samoa it was noted from the cross-cutting issues or themes in section-2 that implementation of national environment programs either in community conservation, forestry, fisheries etc. they all contribute to the achievement of the 20 national targets based on the relevance of the actions.


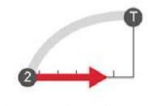

**Table 18: Assessment of progress towards achieving the NTs or Aichi Biodiversity Targets**



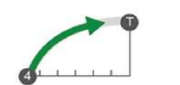

NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
<p>1. By 2020, at the latest, the people of Samoa are aware of the values of biodiversity, the threats it faces, and the steps the Government and the people can take to conserve, protect, and use it sustainably</p>	<p>There have been numerous efforts and investments in biodiversity awareness and education over the last 20 years since Samoa ratified the CBD in 1994. However, the fragmentation in how these national campaigns are conducted makes it difficult to gauge how people value biodiversity. While Samoans are clearly aware of biodiversity it is unclear to what extent they value it culturally, economically, socially and biologically and this gap needs to be addressed. We need a concerted effort to run a nationwide survey specifically on the value of biodiversity to Samoan people.</p>	<p>***</p>  <p>Progress</p>
<p>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 and budgetary processes, as appropriate and reporting system.</p>	<p>The first part of the target on mainstreaming and integrating biodiversity into national plans and strategies is already in place, although there is a need to update the relevant legal instruments. Furthermore, there is limited information relating to the connection between poverty reduction strategies and biodiversity. As well, there has not been any work conducted on planning processes and biodiversity being incorporated into national accounting and budgetary processes</p>	<p>**</p>  <p>Progress</p>
<p>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.</p>	<p>Progress towards this target is hard to measure based on the information available because there are no actual data to confirm that subsidies harmful to biodiversity have been reduced drastically. There has been scoping studies conducted under the GCF (Green Climate Fund) for Payment for Ecosystem Services coordinated by the Environment Sector Division, however there is limited information on the application of Payment for Ecosystem Services (PES) as a source of income and opportunity for conservation of natural resources. There is lack of data to assess change in terms of economic incentives either positively or negative.</p>	<p>**</p>  <p>Non-significant</p>
<p>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</p>	<p>Samoa's ecological footprint is considered to generally be within sustainable levels, and there has been great investment in reforestation programs. Commercial logging is no longer a major threat to forest resources and there is a ban on timber export from Samoa. Samoa has in place institutional framework and policies to guide sustainable production and consumption with the support from all relevant stakeholders such as the Forestry Act Management 2011. The ban on the importation of plastic is another major step forward towards sustainable consumption and production.</p>	<p>***</p>  <p>Achieve</p>



NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
use of natural resources well within safe ecological limits		
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	Samoa has made progress towards its international obligations to the three Rio Conventions and RAMSAR Convention relevant to the achievement of ABT 5, but limited up to date data on the actual status of forest recovery since 2013, coupled with the poor progress towards protection of mangrove and wetland forest ecosystems constrain progress towards achieving this target. There is urgent need to assess the rate of forest recovery through another SamFRIS survey and consideration should be made to the enactment of the EMC Bill in the near future.	***  Progress
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.	Sustainable fisheries management is important for Samoa's economy, food security and marine environment. Practicing sustainable harvest and continued monitoring of marine protected areas and fish reserves all ensure that there will be no significant adverse impact of fisheries on marine ecosystems. Investment in fisheries has shown positive outcomes in terms of the increase in number of villages participating in the CBMFP, as well as the update policies, strategies and legislative framework in place to support sustainable management of fisheries resources. As noted from the Fisheries Division Annual Report 2016/2017 that the catch volume has been stable for than a decade. Overall the target is set to be achieved within the expected timeframe.	***  Achieve
7. By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring the conservation of biodiversity	There has been progress towards this target in the area of forestry however monitoring is an issue as there is limited information available on the level of land use for farming in suitable areas versus areas that are not suitable for this purpose, such as the expansion of plantations to elevations above 400 meters. Overall, there is limited information to substantiate the area coverage of reforestation programs; and the potential impact of aquaculture has not been assessed to provide sufficient information that can guarantee conservation of biodiversity.  According to WIBDI <sup>18</sup> around 600 subsistence farmers are organically certified from the 1000 farmers they are working with, shows a positive move towards organic farming in Samoa.	**  Progress
8. By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity	There is progress towards this target in areas of solid waste management. The WSS has supported the Ministry of Health to conduct on-going monitoring of <i>E.coli</i> in order to ensure access to safe drinking water supply, basic sanitation and improved food security for vulnerable families. However, there is no substantive information regarding the impact of biodiversity	**  Progress



NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
	from challenges relating to nitrogen and phosphorous pollution from anthropogenic activities on land.	
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	Samoa is progressing well towards meeting its obligations under Article 8 and 9 of the CBD that will contribute to achieving both Aichi Biodiversity Target 9 and NT 9; but the set-back has been the lack of funding investment to support monitoring, follow-up and collecting data to continuously assess the status of IAS in the country. Samoa is currently reviewing its NISAP after a long delay of seven years.	***  Progress
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.	<p>There are serious limitations in achieving this ABT 10 or NBSAP 10 target, due to the continuous poor condition of Samoa's coral reef ecosystems due to the increase in crown of thorns starfish (COTS) infestations together with increases in sea surface temperature which are both major contributing factors to coral bleaching. The adverse impacts of landbased pollution are seen in the poor condition of coastal ecosystems and some inshore marine areas. The poor condition of coral reef ecosystems especially on Upolu and the slow rate of coral reef recovery only serve to exacerbate other environmental stressors in Samoan waters even without additional natural disasters.</p> <p>There have been many climate change funded projects but most are focused on terrestrial and coastal communities. However, climate investment is needed to support activities that directly address climate and human related marine issues such as COTS, coral bleaching and enforcement of compliance to reduce anthropogenic impacts. Therefore, there has not been any significant progress towards achieving the 2020 target due to various gaps that must be addressed.</p>	**  Non-significant
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.	<p>Currently Samoa has: six National Parks including two designated RAMSAR Sites (Lake Lanotoo and O Le Pupu Pu'e); one privately owned park, the Malololelei Biodiversity Park; 10 community conservation areas with various characteristics including a wetland area (Satoleapai on Savaii), a mangrove conservation site (Saanapu and Sataoa Conservation Area), and the Fatatele and Muliolo water catchment area, the lava forest above Matavanu village in Savaii and a number of forest conservation sites.</p> <p>There are 8 Key Biodiversity Areas including 2 marine protected areas and 6 terrestrial KBAs. Some of the sites within the KBAs are not yet under community conservation areas. The latest estimated total protected area in Samoa stands at 78,248.04 ha with 8 per cent constituting marine sites. There are no actual figures in hectares for the Marine Sharks and Ray sanctuary. However, there is a lack of information to substantiate progress of this target such as the status of PA management effectiveness. Additionally, most PAs don't have fully legal status especially areas that are under government</p>	**  Progress

NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
	management and lastly there are no actual data on the area coverage and size for the 109 fisheries reserves in Samoa.	
<p>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.</p>	<p>There have been many BIORAP surveys undertaken both for marine and terrestrial however there have been no major improvements in the status of threatened species for Samoa on the IUCN Red List. In fact, there has been a slight increase in the number of threatened species on the RL to 20 per cent from 2009 a total of 76 RL and 2018 estimated total of 93 RL species. Most of the species that have been considered Critically Endangered are now extinct such as the swallowtail butterfly, and sheath-tailed bat and the Manumea or tooth-billed pigeon bird continues to be a cryptic bird as there have been few confirmed sightings of an adult. Marine species, especially corals, dominate on the IUCN Red List for Samoa and one turtle species (hawksbill that nests in Samoa waters) identified as Critically Endangered. Overall a major problem in the NT 12 or ABT 12 is the data constraint due to the fact that we don't have good information on the population and distribution of most threatened species to monitor change.</p>	<p>**</p>  <p>Non-significant</p>
<p>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.</p>	<p>The importance of safeguarding genetic diversity for Samoa is targeted towards agro-biodiversity mainly the food crops sector dominated by the production of root crops such as taro (<i>Alocasia macrorrhiza</i>, <i>Colocasia esculenta</i>, American <i>Xanthosoma</i> sp.), yams, manioc/cassava, etc., and bananas and plantains. However, there is limited information available on wild plants for food production and wild relatives since priority is focused on collecting plant genetic resources of the major crops for food security and income generation purposes. As well, the limited information on genetic erosion of plant genetic resources is not well surveyed or documented. Similarly, the numerous effects of genetic erosion are not well documented or inventoried and it is of concern that the replacement of certain varieties especially improved ones with higher resistance to pests and diseases may wipe out existing varieties.</p>	<p>**</p>  <p>Non-significant</p>
<p>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.</p>	<p>There is progress towards achieving this target based on the investment and commitment Samoa has done so far to protect critical ecosystems with important ecological services. For example, the government purchase of Catholic land for ecological restoration and protection of the upper catchment areas in Gasegase and Fuluasou area under the SMSMCL project is a milestone achievement. The completion of the revision of management plans for 3 national parks that are within KBAs and the current process of developing a management plan for two more KBA sites shows a significant support towards safeguarding ecosystem services. The needs of vulnerable groups are considered in all consultations to restore and safeguard ecosystem services.</p>	<p>***</p>  <p>Achieve</p>
<p>15. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been</p>	<p>Despite the many climate change related projects investing in ecosystem resilience some have been completed and others still active there are limited information on biodiversity contribution to carbon stocks. There is also limited data available to assess</p>	<p>**</p>

NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
<p>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.</p>	<p>the area of degraded ecosystems restored for adaptation or mitigation. There was only one study that had the calculation of carbon biomass for Samoa (National Forestry Inventory supported by JICA, 2014) but this is not enough to substantiate any information on carbon stock. There have been many restoration programs but the assessment of whether the 15% target has been restored in degraded areas has not been determined. Overall there has been no significant progress to achieve this target.</p>	 Non-significant
<p>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.</p>	<p>Samoa has achieved this target by becoming a party to the Nagoya Protocol in 2014 and the current project on Access to Benefit Sharing will see most of the outstanding activities completed. As such the progress of this target is on track.</p>	<p>***</p>  Achieve
<p>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</p>	<p>Samoa has completed the update of its NBSAP 2015-2020 and the majority of biodiversity related activities being implemented by MNRE and other partners (relevant government ministries, universities, civil society groups and communities) contribute to achieving the NBSAP 2015-2020. However, the status of implementation of actions is at various stages due to availability of funding and human resources to support the execution of activities.</p>	<p>***</p>  Achieve
<p>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.</p>	<p>Despite the EMC Bill still being in draft, Samoa has made progress in the protection of traditional knowledge through existing legislations such as the intellectual property laws in Samoa, especially the Copyright Act 1989 and the Intellectual Property Act 2011. The Copyright Act (Art 29), through the expressions of folklore, includes traditional knowledge. The Intellectual Property Act further makes it a requirement of an applicant for patents to provide evidence of showing proof of right to use traditional knowledge, evidence of source or origin of the traditional knowledge, and indicate whether the invention involved traditional knowledge and indigenous and local communities both within Samoa and beyond. The most comprehensive study on the subject matter is the 2015 study by the Samoan Law Reform Commission (<a href="https://www.sprep.org/attachments/VirLib/Samoa/traditional-knowledge-samoa-2015.pdf">https://www.sprep.org/attachments/VirLib/Samoa/traditional-knowledge-samoa-2015.pdf</a>) proposing for a sui generis protection mechanism for traditional knowledge. A current analysis of traditional knowledge and options for protection is being undertaken on wider protection mechanisms for traditional knowledge under the GEF UNDP Global Access and</p>	<p>***</p>  Achieve

NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
	Benefit Sharing project. Overall the target is on track for achievement.	
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	There has been tremendous work on the science base and technology relating to biodiversity and its values from BIORAP surveys, monitoring work and research. However, the biodiversity Clearing House Mechanism (CHM) is outdated and MNRE's biodiversity database is not currently operational. The new DKIF (Data Knowledge Information Forum) database of MNRE includes biodiversity information and it is the centralized database whereby all information on research work etc from MNRE divisions is deposited for knowledge sharing and dissemination. Most actions in the NBSAP indicator for this target are yet to be implemented although progress has been made based on the target description in terms of the work relating to biodiversity. As such the target is progressing although insufficient information hinders its achievement such as consideration of including other national environmental indicators.	**  Progress
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.	<p>Resource mobilization for biodiversity related work has improved over the years with different means of funding support available at the national and community levels. The Government of Samoa through the expansion of the Ministry of Natural Resources and Environment has increase its operational support for biodiversity conservation. However, investment in the actual implementation of environmental programmes, and projects is very much dependent on external funding from development and bilateral partners. Since 2015 sources of financial support directly for biodiversity conservation has not increased substantially especially when compared to climate change investment. There is a trend in the GoS to take a multi-sectoral approach in supporting all related environmental programmes be they biodiversity, land degradation, climate change, waste management and sanitation, water resources, forestry and marine programs or renewable energy. For example, most climate change projects support activities that directly benefit biodiversity such as forest restoration programs, BIORAPs, follow-up species surveys and invasive species programs as well as promoting sustainable agriculture and and the establishment of water catchment areas. GEF funded projects continue to be the lead biodiversity donor for programs that directly support biodiversity conservation.</p> <p>At the community level opportunities for financial support for civil society, academia, the private sector and village communities to implement environment programs that benefit biodiversity conservation are funded through the UNDP GEF Small Grants Programme and the Civil Society Support Programme (CSSP) under the management of the Ministry of Finance.</p> <p>There is still a need for sustainable financing and innovative ways to attract more investment for biodiversity and one consideration is for blended finance utilizing a mixture of</p>	***  Progress

NT / ABT	Notes	Progress <span style="float: right;">_***</span> Confidence level
	government, private sector and other donor funding sources. The NESP 2017-2021 has laid out the financial framework to ensure long term funding support for environment programmes including biodiversity. As such progress has been made but further improvement in consolidating a concrete framework of sustainable financial support directly for biodiversity investment.	

### 3.2. Additional information

As stated earlier the evidence used for the assessment of each national target is extracted from the review of relevant national documents as identified in the list of tables shown in this report from:

- ✓ Table 2 – Summary of Actions / Measures in the SDS 2016-2020 prioritizing Biodiversity;
- ✓ Table 3-Evaluate effectiveness of measures and tools used for the assessment of cross-cutting themes;
- ✓ Table 4- NESP 2013-2016 Achievements and Relevance to National Targets
- ✓ Table 5 - NESP LTO relevance to SDS 2016-2020 and the achievements of NTs
- ✓ Table 6 – Summary of the Agriculture Sector Plan 2015-2020 and the Water Sanitation Sector Plan 2016-2020 relevance to NTs
- ✓ Table 7 – Relevant National Environment Policies and Strategies to the NTs and ABTs
- ✓ Table 8 – Relevant Legislations and corresponding NTs
- ✓ Table 9 – Multilateral and Regional Agreements applicable to the NBSAP NTs
- ✓ Table 14 – Assessment of the effectiveness of measures, trends, tools and methodology identified in the cross-cutting themes and relevance towards achieving the NTs
- ✓ Table 16– List of Multi-sector projects that are relevant to the achievements of NTs

Other tools and methodology used were reports from monitoring surveys mainly marine coral reef surveys and BIORAP terrestrial surveys. In **Table 19** below is the List of NBSAP Indicators used to monitor the assessments and progress towards achieving the national targets. Included in Table 19 is the column on the sources of verification or tools used (reports, maps, website links etc) in the national target assessments.

#### 3.2.1. Indicators used in this assessment

The set of indicators used in this assessment came from Samoa’s NBSAP 2015-2020 document as referred to in Table 19 below and other indicators referred to were from the Biodiversity Indicators Partnership (BIP) as per website link <https://www.bipindicators.net/>

In Table 19 it provides all the indicators in the NBSAP which was used in the assessment of progress for all NTs and Aichi Targets and the evidence or sources of information to verify the assessment

**Table 19: List of NBSAP Indicators used to monitor the progress towards achieving NBSAP 2015-2020 NTs**

NT	NBSAP Indicators	Status & Monitoring rating	Source of Verification
1. Biodiversity Awareness	1.1.1 National survey on the state of knowledge completed	No national survey undertaken specifically for biodiversity. Except survey conducted on environment program under the NESP and the Manumea campaign  <i>Monitoring relating to target is partial</i>	NESP Review 2013-2016 (2017) MNRE; Manumea or Tooth-billed Pigeon Campaign 1990's. <a href="https://www.mnre.gov.ws/">https://www.mnre.gov.ws/</a>
	1.1.2 % of targeted groups that understands value of biodiversity and implement conservation actions	No information available <i>No monitoring system in place for this target indicator</i>	
	1.1.3 Report produced on current state of knowledge	No information available <i>No monitoring system in place for this target indicator</i>	
	1.2.1 No. of public meetings workshops targeting the general public regarding biodiversity conservation	Between 2014 to 2017 alone over 35 national biodiversity and conservation awareness and educational programs were implemented  <i>Monitoring related to this target is adequate</i>	MNRE Annual Report 2014-2015 MNRE Annual Report 2015 - 2016 MNRE Annual Report 2016 - 2017
	1.2.2 No. of different types of information products translated and distributed	There have been many types of information translated but no actual number confirmed  <i>No monitoring system in place for this target indicator</i>	
	1.2.3 Different types of media used to transfer information to the general public and schools and how frequently they are engaged	Recent review of the National Environment Sector Plan 2013-2016, highlighted one of the strengths of the sector plan is the increase awareness on environmental issues such as climate change, invasive alien species control programs and restoration and rehabilitation programs. <i>Monitoring related to this target is adequate</i>	
	1.3.1 Number of information sharing activities involving local communities, schools and relevant stakeholders to share their experiences and knowledge	Learning exchanges had increased to about 57 different learning activities were accounted for the same period 2014-2017 and this range from school programs and competitions, information sharing among relevant stakeholders and between line ministries through biodiversity knowledge products, trainings presentations, field visits and workshops. <i>Monitoring related to this target is adequate</i>	
	1.3.2 Number of community-based projects funded and/or implemented partners that support the sharing of experiences between local communities and groups	There are two known community grant-making programmes: UNDP GEF SGP and CSSP both support community-based projects. The UNDP-GEF SGP has supported over 200 small village projects.	List of biodiversity projects from UNDP-GEF SGP website link <a href="http://www.sgp.undp.org/samoa">http://www.sgp.undp.org/samoa</a>



		<b>Monitoring related to this target is adequate</b>	
	1.3.3 Number of information sharing activities involving local communities to share experiences and knowledge	Community awareness workshops on both Upolu and Savaii on the Marine Wildlife Protection and Amendment Regulation 2018. Although the workshops were mainly for the community awareness of the amended Regulation but more importantly the general awareness on the importance of marine indicator species and biodiversity values for community to understand threats and steps the government are taking to conserve, protect and sustainably use marine resources <b>Monitoring related to this target is adequate</b>	MNRE Annual Report 2014-2015 MNRE Annual Report 2015 - 2016 MNRE Annual Report 2016 – 2017 <a href="https://www.mnre.gov.ws/">https://www.mnre.gov.ws/</a>
	1.4.1 Number of public awareness raising activities for ABS & TK completed	Recent national and community awareness workshops around mid-2018 were embarked upon by DEC to promote people’s understanding especially local communities on Access and Benefit sharing and the safeguarding of traditional biological knowledge from interested parties who might take advantage of traditional knowledge in the use of natural resources for different purposes such as medicinal, food security and others.  <b>Monitoring relating to target is partial</b>	5 <sup>th</sup> National Report to the CBD for Samoa Biodiversity (2014) Case Study Falealupo (ABS); <a href="https://www.mnre.gov.ws/access-and-benefit-sharing-consultations-in-samoa/">https://www.mnre.gov.ws/access-and-benefit-sharing-consultations-in-samoa/</a> <a href="http://www.ws.undp.org/content/samoa/en/home/presscenter/pressreleases/2017/11/10/samoa-ready-to-implement-the-nagoya-protocol-on-access-and-benefit-sharing-.html">http://www.ws.undp.org/content/samoa/en/home/presscenter/pressreleases/2017/11/10/samoa-ready-to-implement-the-nagoya-protocol-on-access-and-benefit-sharing-.html</a>  <a href="http://nbsapforum.net/knowledge-base/bestpractice/samoa%E2%80%99s-access-and-benefit-sharing-success-story-local-communities">http://nbsapforum.net/knowledge-base/bestpractice/samoa%E2%80%99s-access-and-benefit-sharing-success-story-local-communities</a>  Global ABS Factsheet: Samoa <a href="http://www.mnre.gov.ws">http://www.mnre.gov.ws</a> <a href="http://www.undp.org/ws">http://www.undp.org/ws</a>  Consultancy for the Capacity Needs Assessment on Access & Benefit Sharing and the Protection of Traditional Knowledge, Practices & Innovations (2003) Urwin Consulting and KVA Consult
	1.4.2 Number of schools, communities and other local organizations etc that were involved and participated in ABS awareness raising activities		
2. Mainstreaming Biodiversity	2.1.1 Number of biodiversity indicator in the 2017-2021 SDS	Key habitats and at-risk species, conservation and sustainability of environmental and natural resources improved. And ensuring environmental compliance is strengthened and increase in the establishment of protected areas and conservation sites. <b>Monitoring relating to target is partial</b>	Strategy for the Development of Samoa 2016 – 2020, Ministry of Finance <a href="https://www.mof.gov.ws/Services/Economy/EconomicPlanning/tabid/.../Default.aspx">https://www.mof.gov.ws/Services/Economy/EconomicPlanning/tabid/.../Default.aspx</a>

	2.1.2 Number of relevant sectoral plans with environment conservation initiatives	NESP 2017-2021 Water Sector Plan 2016-2020 Agriculture Sector Plan 2016-2020 <b>Monitoring related to this target is adequate</b>	<a href="https://www.mnre.gov.ws/mnre-re-design/wp-content/uploads/.../NESP-2017-2021.pdf">https://www.mnre.gov.ws/mnre-re-design/wp-content/uploads/.../NESP-2017-2021.pdf</a>
	2.1.3 Ten percent annual increase in the local budget allocation for biodiversity conservation activities.	Difficult to quantify as MNRE biodiversity conservation activities are decentralised amongst DEC, Water, Forestry and Land Management divisions. <b>Monitoring is not needed to assess this target</b> Overall budget has not increased at all – government wants MNRE to do more with less	MNRE Annual Report 2014-2015 MNRE Annual Report 2015 - 2016 MNRE Annual Report 2016 – 2017 Lands Survey and Environment Act 1989 PUMA Act 2004 Water Resources Management Regulation 2013 2016-2020 National Forestry Plan National Strategy and Action Plan 2015-2020
	2.2.1 Study completed on the use of PES	The application of the Payment for Ecological Services (PES) approach is fairly new in Samoa and not much concrete work has been undertaken except for a few studies which focused on specific sectors.  <b>Monitoring relating to target is partial</b>	Exploring the practicability and applicability of PES in the protection of Samoa's selected watershed areas - Tuiloma Susana Taua'a (2015) PES Feasibility and Assessment Report (2017) has been completed under SMSMCL Project, yet to be made available.
	2.2.3 Number of economic valuation completed for areas of biodiversity importance	To date no research or study into economic valuation (CBA) of Samoa ecological and biodiversity services, although this has potential in future local budget planning for biodiversity values. The Samoa Bureau of Statistic is taking environmental economic consideration for future planning. The only study that was commissioned was back in 2001 and it is now long out-dated <b>No monitoring system in place for this target indicator</b>	An Economic Valuation of the Terrestrial and Marine Resources of Samoa ( 2001) Mohd-Shahwahid H.O and McNally Richard
3. Negative and Positive Incentives	3.1.1 All approved agrochemicals are compatible with requirement of relevant MEAs of which Samoa is a party to	Samoa under its obligations to these international convention the Rotterdam and Stockholm Convention, Basal and the Vienna/Montreal Protocol Makes it mandatory for all imported chemical entering the country to get registration and follow compliance procedures; Shipment of hazardous waste from Samoa to overseas (New Zealand) disposal and recycling has to undergo the Basel Convention requirements through notification procedures. <b>Monitoring relating to target is partial</b>	MNRE Annual Report 2012-2013 Samoa State of Environment Report 2013

	3.1.2 Number of biocontrol assessment report	There are only a few biocontrol measures that have been noted to conduct assessment and feasibility studies prior to their being use and these include: Managing mynas in Samoa (2015) by DEC which provides 10 years of lessons learned in the control and removing of myna birds using a control method of toxic bait; MAF Crops Division into the biological control agents for the rhinoceros beetle impacting on coconut plantations. <b>Monitoring relating to target is partial</b>	Managing mynas ( <i>Acridotheres fuscus</i> and <i>A. tristis</i> ) in the Independent State of Samoa,(2015) MNRE;  MAF Annual Report CROPS Division 2017-2018 <a href="http://www.maf.gov.ws/">http://www.maf.gov.ws/</a> MAF Annual Report (CROPS Division) 2010 / 2011 MAF Annual Report (CROPS Division) 2013 / 2014
	3.1.3 Number of joint ventures based on the protection of other biodiversity values	No information available  <b>No monitoring system in place for this target indicator</b>	
4. Sustainable production & consumption	4.1.1 Number of new village fisheries reserved and/or MPAs in operation	109 participating villages in the CBFMP and 76 Village Fisheries By-laws <b>Monitoring related to this target is adequate</b>	MAF Annual Report (CROPS Division) 2013 / 2014 Fisheries Division Annual Report FY 2016-2017 Updated List of Fisheries Approved By-Laws (2018) ( <a href="http://www.ipsnews.net/2014/09/organic-farmers-cultivate-rural-success-in-samoa/">http://www.ipsnews.net/2014/09/organic-farmers-cultivate-rural-success-in-samoa/</a> ) Agriculture Sector Plan 2016-2020
	4.1.2 Number of fisheries management plans in place	109 Fisheries Management Plans under the CBFMP <b>Monitoring related to this target is adequate</b>	
	4.1.3 Number of villages with by-laws in place	76 Villages with By-laws (Marine) <b>Monitoring related to this target is adequate</b>	
	4.1.4 Number of villages with reserves that impose bans on unsustainable farming and fishing practices.	No information available <b>No monitoring system in place for this target indicator</b>	
	4.2.1. Number of farmers practicing organic agriculture	600 certified farmers from 1000 farmers that WIBDI works with. <b>Monitoring related to this target is adequate</b>	
	4.2.2 Number of agricultural holdings practicing IPM & sustainable soil management practices	No information available <b>No monitoring system in place for this target indicator</b>	
	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	From 2012-2016 a total of 833 farmers have registered and an estimated 279.2 hectares of land covered in the program. The annual target of 200 farmers fluctuates annually as it takes time for some farmers to realize the benefits of this program. <b>Monitoring relating to target is partial</b>	
	4.3.1 Number of households engaged in agroforestry and or permaculture;		

	<p>or other social forestry or multiple cropping systems of agriculture</p> <p>4.3.2 Area of land under agroforestry or permaculture systems (question repeated again in Sustainable Agriculture)</p> <p>4.3.3 Number of registered farmers practicing CFP</p>	<p>No information available</p> <p><b><i>No monitoring system in place for this target indicator</i></b></p>	
5. Rate of Loss at least halved	<p>5.1.1 Number or proportion of natural habitats with baseline surveys of conditions completed</p>	<p>5 BIORAPs completed</p> <p>1 Forest audit completed 2014</p> <p><b><i>Monitoring related to this target is adequate</i></b></p>	<p>The Conservation of Biological Diversity in Upland Ecosystems of Samoa (1994), Butler, David and et.al, DEC Lands Survey and Environment</p> <p>The Conservation of Biological Diversity in the Coastal Lowlands of Western Samoa (1992)</p> <p>Ecological Survey of Upland Forest Area of Mauga Salafai National Park (Savaii), Lake Lanotoo National Park and Laulii-Falevao (Upolu) 2014, MNRE Forestry Division Rapid Biodiversity Assessment of Upland Savaii, Samoa (2012) CEPF-SPREP</p> <p>Samoa 2017 Rapid Biodiversity Assessment of Key Biodiversity Areas – SMSMCL project</p> <p>Baseline Ecological Survey of Vaipu Swamp Forest Upolu, Samoa (2017) MNRE-DEC</p>
	<p>5.1.2 Rate of loss of all natural habitats determined</p>	<p>No information available</p> <p><b><i>No monitoring system in place for this target indicator</i></b></p>	<p>Data Installation Work to finalize new SamFRIS (2014) Atherton James</p>
	<p>5.2.1 Updated Bio-prospecting guidelines adopted</p>	<p>Enforcement of existing legal instruments such as the Bioprospecting Regulations 1998/2000 and the Bioprospecting Policy 2001 and the enactment of the EMC Bill 2018 can support legal protection and halt further developments within critical habitats</p> <p><b><i>Monitoring relating to target is partial</i></b></p>	<p>Draft Environment Management and Conservation Bill 2018 with Part dedicated to ABS expected to be completed in December 2018.</p> <p>National Bio-prospecting Policy 2001;</p>
	<p>5.2.2 Logging code guidelines adopted</p>	<p>Forestry Management Act 2011</p> <p><b><i>Monitoring relating to target is partial</i></b></p>	<p>2016-2020 National Forestry Plan, MNRE</p> <p>Forestry Management Act 2011</p>
	<p>5.3.1 Number of PEAR/EIA conducted and approved</p>	<p>Application of Environmental Impact Assessment (EIA) in the case of big developments that may have adverse impact on the environment or Preliminary Environmental Assessment Report (PEAR) or an Environmental Management Plan</p>	<p>PUMA Act 2004</p> <p>PUMA EIA Regulation 2010</p> <p>MNRE Annual Report 2015 - 2016</p> <p>MNRE Annual Report 2016 – 2017</p>

		(EMP) all these measures help to ensure that minimal negative impacts of developments on natural habitats. <b>Monitoring related to this target is adequate</b>	
	5.3.2 Number of permits/licenses approved for developments	No information available <b>No monitoring system in place for this target indicator</b>	
	5.3.3 percent of all streams supporting water diversion and or abstraction schemes that have environmental flows calculated and effectively enforced	No confirmed environmental flow from Water Resources Division as it is still under review. <b>No monitoring system in place for this target indicator</b>	Samoa: Renewable Energy Development and Power Sector Rehabilitation project (2015) EPC Samoa Samoa: Alaoa HPP (2013) Atherton, James and Associates
	5.4.1 Number of community-based initiatives protecting wetlands and replanting mangroves	There are many communities implementing projects to protect mangrove ecosystems but no information available on the number of communities. <b>No monitoring system in place for this target indicator</b>	List of biodiversity projects from UNDP-GEF SGP website link <a href="http://www.sgp.undp.org/samoa">http://www.sgp.undp.org/samoa</a> <a href="https://www.mnre.gov.ws/wp-content/uploads/2017/08/MNRE-AR-English.pdf">https://www.mnre.gov.ws/wp-content/uploads/2017/08/MNRE-AR-English.pdf</a> Baseline Ecological Survey (BES) of Vaipu Swamp Forest, Upolu Samoa (2017), MNRE DEC and Forestry Division
6. Fisheries are sustainably managed	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	Complete <b>Monitoring related to this target is adequate</b>	Samoa Tuna Management and Development Plan 2017-2021; Coastal Fisheries Plan 2017 National Aquaculture Plan 2013-2018 Tuna Fisheries National Monitoring Control and Surveillance Strategy 2016-2020
	6.1.2 Number of turtle nesting sites with management plans developed and enforced	Two sites identified <b>Monitoring relating to target is partial</b>	MNRE Annual Report 2016-2017
	6.1.3 Marine Species Action Plan reviewed, endorsed and implemented	Not yet completed <b>Monitoring relating to target is partial</b>	
	6.2.1 Number of ecotourism operators participating in conservation activities	Only a few ecotourism operators about less than 10. <b>Monitoring relating to target is partial</b>	MNRE Annual Report 2016-2017
	6.2.2 Number of sites under ecotourism managed activities	Only a few. <b>Monitoring relating to target is partial</b>	
7. Sustainable Agriculture	7.1.1 National Forestry Policy and Plan approved by Cabinet and implemented	Complete <b>Monitoring related to this target is adequate</b>	2016-2020 National Forestry Plan
	7.1.2 Number of successful prosecution of violators for non-compliance with Forest Act and Regulation	Only a few – one prosecution noted <b>Monitoring relating to target is partial</b>	MNRE Annual Report 2014-2015 MNRE Annual Report 2015 - 2016
	7.2.1 Area under agroforestry and woodlots	Information not available	MNRE Annual Report 2016 – 2017

		<b>No monitoring system in place for this target indicator</b>	
	7.3.1 Number of trainings conducted and completed	Not sure what trainings ???? <b>Monitoring is not needed to assess this target</b>	
	7.3.2 Number of agroforestry projects / programs implemented	Capacity building of farmers and all relevant stakeholders are never in shortfall as many trainings and workshops are offered to support agricultural development in Samoa from agroforestry trainings, livestock and poultry trainings to cattle and sheep husbandry and livestock production and management. These are mainly offered by the relevant government ministry and some trainings are supported through projects such as the 15-community farmer training for sustainable land management funded by the SMSMCL project MNRE.  <b>Monitoring relating to target is partial</b>	MAF Annual Report 2013-2014 (CROPs Division and Livestock Division) MNRE Annual Report 2014-2015 MNRE Annual Report 2015 - 2016 MNRE Annual Report 2016 – 2017
	7.4.1 Number of aquaculture activities with management plans	Development of aquaculture requires an EIA in order for a Development Consent to be reviewed and screened to ensure that no accidental release of species into the natural environment and that the construction of tanks are air-tight to avoid any accidents that would harm the natural ecosystems. <b>Monitoring relating to target is partial</b>	Fisheries Annual Report FY: 2014-2015 Fisheries 3 <sup>rd</sup> Annual Environment Sector Review 2016 (presentation)
	7.5.1 Number of degraded areas rehabilitated	No information available <b>No monitoring system in place for this target indicator</b>	
	7.5.2 Number of degraded forested areas within upland, lowland and coastal habitats rehabilitated		
8. Pollution is not detrimental	8.1.1 Number of village by-laws enacted targeting pollution control and reduction	No information available <b>No monitoring system in place for this target indicator</b>	Community Development Plan 2016-2021 Samoa Tourism Plan 2014-2019 <a href="https://www.mnre.gov.ws/about-us/divisions/puma/">https://www.mnre.gov.ws/about-us/divisions/puma/</a>
	8.1.2 Number of village by-laws banning unsustainable agriculture practices and other land uses that are degrading coastal ecosystems	No information available <b>No monitoring system in place for this target indicator</b>	Fisheries Annual Environment Sector Review presentation, 2016 Community Development Plan 2016-2021 MNRE Annual Report 2016-2017 Land Management Division – SMSMCL brief update report
	8.2.1 Number of reported algae blooming and other eutrophication-related events	There were cases identified but no actual number of cases listed. <b>Monitoring relating to target is partial</b>	MAF Annual Report 2013-2014 Fisheries Division Annual Report 2016-2017
	8.2.2 Number of village by-laws banning unsustainable agriculture	No information available	MNRE Annual Report 2012-2013



	practices and other land uses that are degrading coastal ecosystems	<i>No monitoring system in place for this target indicator</i>	MNRE Annual Report 2014-2015 MNRE Annual Report 2016 – 2017
	8.2.3 Number of reported incidences of illegal waste disposal	There are many cases that are reported to DEC <i>Monitoring relating to target is partial</i>	Same as above
	8.3.1 Number of catchments with management plans implemented	18 out of 22 Watershed sites have management plans <i>Monitoring related to this target is adequate</i>	
9. Invasive species controlled	9.1.1 Updated NISAP approved and implemented	Draft complete <i>Monitoring related to this target is adequate</i>	Draft NISAP 2018-2022
	9.1.2 Invasive species list updated	Not yet <i>Monitoring relating to target is partial</i>	
	9.2.1 SISERP approved by cabinet	Not yet <i>Monitoring related to this target is adequate</i>	Draft SISERP 2015-2020
	9.2.2 Number of introduced species including LMOs and GMOs intercepted and thoroughly screened	No information available <i>No monitoring system in place for this target indicator</i>	MNRE Annual Report 2012-2013 MAF Annual Report 2013-2014
	9.3.1 Invasive Species database developed and maintained	Currently part of the DEC Invasive Project under GEF PAS <i>Monitoring relating to target is partial</i>	
	9.3.2 Number of NISAP targeted or priority species effectively controlled and or eradicated	Not yet confirmed <i>No monitoring system in place for this target indicator</i>	MNRE Annual Report 2012-2013 MAF Annual Report 2013-2014 (Quarantine Division brief update report)
	9.4.1 Number or proportion of all ships successfully complied with approved permits	There is no actual number or proportion of ships information available, however from MAF Quarantine Annual Report 2013-2014, ships coming into the country are compliance with approved permits. <i>No monitoring system in place for this target indicator</i>	
10. Pressures on vulnerable ecosystem minimized	10.1 Number of sand mining and/or coastal reclamation permits issued	Between, 2012-2017 a total of 313 sand-mining permits were issued and an estimated 52 permits for coastal reclamation. The number of sand-mining activities and land reclamation have fluctuated over the years however there is weakness in the system because the Landuse Policy and the existing Act which governs this practice is out-dated and much changes have occurred over time in terms of land-based resource use. <i>Monitoring related to this target is adequate</i>	MNRE Annual Report 2012-2013 MNRE Annual Report 2014-2015 MNRE Annual Report 2016 – 2017 (brief update report from Land Management Division)
	10.2.1 Assessment survey completed and report produced	The Vaitoloa Assessment by SROS (2009) which is part of the Vaiusu Bay clearly showed the poor status of the marine environment and highly toxic (lead, iron, arsenic and	The Effects of Chemical and Microbiological Contamination on Vaitoloa Mangrove and its Ecosystem (2009) Scientific Research

		mercury) and any marine species be it shellfish or fish are highly poisonous and not fit for human consumption. Consideration to ban fishing within this area should be enforced <b>Monitoring related to this target is adequate</b>	Organization of Samoa (SROS)
	10.3.1 Baseline studies of coastal processes completed and used to support sand mining & coastal reclamation permits systems	Outcome of the research by Tara Expedition Team (2017: Status of coral reefs of Upolu, Samoa in the South West Pacific and recommendations to promote resilience and recovery of coastal ecosystems) should provide a baseline into sustainable allocation of sand mining and coastal reclamation. <b>Monitoring related to this target is adequate</b>	Status of coral reefs of Upolu (Samoa) in the South West Pacific and recommendations to promote resilience and recovery of coastal ecosystems (2017), Tara Pacific Expedition Team
	10.4.1 Number of CIM Plans updated	41 CIM Plans have completed their review and update with over 100 small project for villages addressing immediate priority climate resilience needs such as: rainwater harvesting, marine reserves and safe havens to name a few. <b>Monitoring related to this target is adequate</b>	<a href="https://www.mnre.gov.ws/about-us/divisions/puma/">https://www.mnre.gov.ws/about-us/divisions/puma/</a>
	10.4.2 Number of actions targeting coastal ecosystems implemented	And at the district level projects implemented range from climate proofing escape road, to upgrading water network system to reach all families without access to clean water, watershed management, revival of large marine protected areas and conservation and protection of critical landscape and ecosystems. <b>Monitoring relating to target is partial</b>	
	10.5.1 Number of village by-laws banning unsustainable fishing methods	Enforcement of Fisheries Management Act 2016 and Lands Survey and Environment Act 1989, can impose penalties on anyone who conducts unsustainable fishing practices and destroys coral. Similarly, village by-laws can govern fishing practices and promote the conservation of coral reefs. <b>Monitoring relating to target is partial</b>	Fisheries Division Annual Report 2016-2017
11. Protected Areas (17% and 10%) effectively	11.1.1 Number of new terrestrial and marine PAs established	Increase number of PA established since the 5NR. <b>Monitoring related to this target is adequate</b>	Updated list of Protected Area from DEC (2018)
	11.2.1 Legal status acquired for at least 50% of existing and/or proposed Protected Areas	Not yet <b>No monitoring system in place for this target indicator</b>	5 <sup>th</sup> National Report Samoa CBD (2014), MNRE
	11.3.1 Proportion of new identified terrestrial and marine PAs with an	5 BIORAP completed Terrestrial 10 BIORAP completed Marine	Baseline Ecological Survey (BES) of Vaipu Swamp Forest, Upolu Samoa (2017),

	ecological/biodiversity survey completed and reports produced	<b>Monitoring relating to target is partial</b>	MNRE DEC and Forestry Division Rapid Biodiversity Assessment of KBA (2017), MNRE MNRE Annual Report 2014-2015 MNRE Annual Report 2015-2016
	11.3.2 Number of cadastral maps, spatial information and images for ecological data produced	Not yet <b>No monitoring system in place for this target indicator</b>	
12. Extinctions prevented and status improved	12.1.1 Biological surveys conducted and reports produced	5 BIORAP completed Terrestrial  <b>Monitoring relating to target is partial</b>	The Conservation of Biological Diversity in Upland Ecosystems of Samoa (1994), Butler, David and et.al, DEC Lands Survey and Environment The Conservation of Biological Diversity in the Coastal Lowlands of Western Samoa (1992) Ecological Survey of Upland Forest Area of Mauga Salafai National Park (Savaii), Lake Lanotoo National Park and Lailii-Falevao (Upolu) 2014, MNRE Forestry Division Rapid Biodiversity Assessment of Upland Savaii, Samoa (2012) CEPF-SPREP Samoa 2017 Rapid Biodiversity Assessment of Key Biodiversity Areas – SMSMCL project Ecological and Biological Assessment of Malololelei Reserve (2015), DEC MNRE Baseline Ecological Survey of Vaipu Swamp Forest Upolu, Samoa (2017) MNRE-DEC
	12.2.1 Threatened and vulnerable species list updated	Complete <b>Monitoring related to this target is adequate</b>	<a href="https://www.iucnredlist.org/about/regional">https://www.iucnredlist.org/about/regional</a> Samoa Species IUCN Red List 2018
	12.2.2 Population for tooth-billed pigeon documented	Not enough information collected <b>Monitoring related to this target is adequate</b>	Samoa 2017 Rapid Biodiversity Assessment of Key Biodiversity Areas – SMSMCL project Samoa's little Dodo – Saving the Tooth-billed pigeon (2014) Conservation Leadership Program Final Report <a href="https://www.birdlife.org/worldwide/projects/conservation-leadership-programme">https://www.birdlife.org/worldwide/projects/conservation-leadership-programme</a>
	12.2.3 Swallowtail butterfly and sheathed-tailed bat surveys completed	Not enough information collected <b>Monitoring related to this target is partial</b>	<a href="https://www.conservation.org/publications/Documents/lessonsLearned/CI_CEPF_Biodiversity_Conservation_Lessons-03-Samoa-Butterfly.pdf">https://www.conservation.org/publications/Documents/lessonsLearned/CI_CEPF_Biodiversity_Conservation_Lessons-03-Samoa-Butterfly.pdf</a>

			<a href="http://www.pireport.org/articles/2016/08/21/samoa-implementing-traditional-ecological-knowledge-study-and-protect-samoa%E2%80%99s">http://www.pireport.org/articles/2016/08/21/samoa-implementing-traditional-ecological-knowledge-study-and-protect-samoa%E2%80%99s</a> Biodiversity surveying of 4 KBA in Samoa based on Traditional Ecological Knowledge Uafato-Tiavea, Apia Catchment Basin and Upper Savaii and Falealupo (2016), SMSMCL project MNRE.
	12.2.4 Native land snails survey completed	Not enough information collected <i>Monitoring related to this target is partial</i>	
	12.2.5 Threatened native plants survey completed and list updated	Not enough information collected <i>Monitoring related to this target is adequate</i>	<a href="https://www.conservation.org/publications/Documents/lessonsLearned/CI%20CEPF%20Biodiversity%20Conservation%20Lessons-02-Samoa-Plants-Whistler.pdf">https://www.conservation.org/publications/Documents/lessonsLearned/CI CEPF Biodiversity Conservation Lessons-02-Samoa-Plants-Whistler.pdf</a>
	12.3.1 Manumea and Maomao recovery plans updated	Not yet <i>Monitoring related to this target is partial</i>	
13. Genetic diversity maintained	13.1.1 Number of different awareness raising initiatives of the risks to biodiversity and the economy associated with illegally introduced germplasm undertaken by different approaches and media types	MAF Quarantine Division takes lead in Biosecurity measures for Samoa and most awareness on TV are through QD programs raising awareness on the risk to biodiversity from potential harmful pest if they are introduced. <i>Monitoring related to this target is partial</i>	
	13.2.1 Published report listing all introduced agro-biodiversity and their current status	Not yet <i>No monitoring system in place for this target indicator</i>	
	13.2.2 Maps showing distribution of main introduced flora and fauna		
	13.3.1 Number of strategies for threatened native agrobiodiversity species developed and implemented		
	13.4.1 Number of ex-situ conservation site (s) for rare and threatened native agrobiodiversity	No ex-site conservation program has started for the protection of rare and threatened native agro-biodiversity for Samoa. Although such program would require large investment to set-up facilities etc. <i>Monitoring related to this target is partial</i>	
14 Essential ecosystem services restored	14.1.1 Number of management plans for terrestrial KBAs, including national parks and reserves, completed and implemented.	Two management plans completed for 2 KBA sites (Lake Lanutoo part of Vaisigano Catchment Area and Le Pupu Pue National Park) with a third management plan completed for Mauga Salafai (ICCRIFS project) which has part of the Central Upland Savaii KBA. <i>Monitoring related to this target is adequate</i>	MNRE Annual Report 2012-2013 MNRE Annual Report 2016-2017 SMSMCL Project 2015-2020

	14.2.1 Updated Management plans for the 2 Marine KBAs	No review or update of the existing management plans for the 2 marine KBAs which are also MPA (Aleipata and Safata). <i>Monitoring related to this target is adequate</i>	MNRE Project Document: Strengthening Monitoring of Marine and Coastal Ecosystems as an Adaptive Measure to Safeguard Biodiversity and Enhance the Resilience and Adaptive Capability of Communities against Climate Change Impacts (Aleipata Districts and Falealili District) September 2018 – November 2019
15 Resilience enhanced, ecosystems restored	15.1.1 Number of donor funded projects on-going and completed strengthening community and ecosystem resilience to climate change	About 5 donor funded projects supported community resilience <i>Monitoring related to this target is partial</i>	MNRE Annual Report 2016-2017 Annex 1 with Detailed List of Projects and Progress to Date
	15.2.1 % of total area of degraded ecosystems restored	Not yet <i>No monitoring system in place for this target indicator</i>	MNRE Annual Report 2013-2014 MNRE Annual Report 2016-2017
	15.3.1 Area of marine and terrestrial environment restored or enhanced using soft options	Not yet <i>No monitoring system in place for this target indicator</i>	
	15.4.1 Number of projects implemented involving multiple stakeholder and cross-sectoral objectives	10 projects refer to Table 18 <i>Monitoring related to this target is partial</i>	NESP 2017 – 2021 MNRE Annual Report 2016-2017 <a href="https://www.mnre.gov.ws/">https://www.mnre.gov.ws/</a>
	15.4.1 CIM Plans updated for at least 75% of all districts	Complete <i>Monitoring related to this target is adequate</i>	<a href="https://www.mnre.gov.ws/about-us/divisions/puma/">https://www.mnre.gov.ws/about-us/divisions/puma/</a>
16 Nagoya Protocol Operational	16.1.1 Samoa is a party to the Nagoya Protocol	Complete <i>Monitoring related to this target is adequate</i>	<a href="https://www.cbd.int/doc/world/ws/ws-nr-05-en.pdf">https://www.cbd.int/doc/world/ws/ws-nr-05-en.pdf</a>
	16.2.1 Environment Management Conservation Bill 2013 is endorsed	Not yet <i>Monitoring related to this target is partial</i>	
	16.2.2 Supportive regulations, policies and guidelines for ABS are enacted and in place	Currently being implemented <i>Monitoring related to this target is adequate</i>	
	16.3.1 Action Plan is developed and approved by the next COP (2016)	Complete <i>Monitoring related to this target is adequate</i>	Global ABS Project Factsheet: Samoa <a href="http://www.mnre.gov.ws/">http://www.mnre.gov.ws/</a>
	16.4.1 Number of schools, communities and other local organizations that were involved and participated in ABS awareness raising activities.	Currently being implemented <i>Monitoring related to this target is adequate</i>	<a href="http://www.undp.org.ws">http://www.undp.org.ws</a> <a href="https://www.mnre.gov.ws/access-and-benefit-sharing-consultations-in-samoa/">https://www.mnre.gov.ws/access-and-benefit-sharing-consultations-in-samoa/</a>
	16.5.1 National ABS Clearing House Mechanism Information system developed and updated	Not yet <i>No monitoring system in place for this target indicator</i>	
17. NBSAP adopted commenced	17.1.1 Updated NBSAP endorsed by Cabinet	Complete <i>Monitoring related to this target is adequate</i>	
	17.2.2 Mid-term (2018) Review report produced	Not yet <i>No monitoring system in place for this target indicator</i>	

	17.2.2 Funding secured for mid-term review	Not yet <i>No monitoring system in place for this target indicator</i>	
18. Traditional knowledge integrated	18.1.1 EMC Bill 2013 enacted	Not yet <i>No monitoring system in place for this target indicator</i>	<a href="https://www.mnre.gov.ws/publications">https://www.mnre.gov.ws/publications</a>
	18.2.1 Study report assessing potential mechanisms	Not sure what this means???	
	18.3.1 ABS regulation enacted and enforced	There have been surveys already conducted on TK in Samoa such as the TK survey funded by the SMSMCL project targeting the tooth-billed pigeon and understanding its behavior but to gauge local knowledge on their perspective of the bird especially the hunters. Information from the survey can confirm accidental shooting of the bird by pigeon hunters; <i>Monitoring related to this target is partial</i>	Consultancy for the Capacity Needs Assessment on Access & Benefit Sharing and the Protection of Traditional Knowledge, Practices & Innovations (2003) Urwin Consulting and KVA Consult
	18.4.1 TK Assessment report		
	18.5.1 A report of status of collaboration with US based AIDS Research Alliance with verifications	There has been a lapsed in the monitoring and follow-up by DEC on research work on bio-discovery as in the case of the US based AIDS Research Alliance (USA) and other research work that had collected specimens from Samoa's natural habitats (flora and fauna) for both marine and terrestrial. <i>Monitoring related to this target is partial</i>	
19. Knowledge improved, shared, transferred	19.1.1 Number of local communities & representatives participating in conservation education programs	Increase number of local communities involved in conservation programs <i>Monitoring related to this target is adequate</i>	
	19.1.2 Number of workshops for conservation education conducted	Increase number of workshops for conservation education <i>Monitoring related to this target is partial</i>	MNRE Annual Report 2016-2017
	19.2.1 An updated Samoa Ecology bibliography is produced and made widely available		
	19.3.1 Samoa CHM and Samoa Biodiversity Database enhanced, updated and linked to CBD central portal	Not yet <i>No monitoring system in place for this target indicator</i>	
	19.3.2 Increasing number of hits recorded on Samoa CHM node and Samoa Biodiversity Database		
	19.4.1 Updated and enhanced systems and protocols in place		
	19.5.1 Updated Biodiversity Database launched		
	19.6.1 A network of core users is set up and taking responsibility for CHM management		
	19.7.1 Communication Strategy is developed and adopted	Not yet <i>No monitoring system in place for this target indicator</i>	



	19.8.1 Number of workshops for promoting awareness of NBSAP completed	Increase workshops for NBSAP <i>Monitoring related to this target is partial</i>	
	19.9.1 draft National Biodiversity Framework reviewed and updated	Complete <i>Monitoring related to this target is adequate</i>	
20. Resource mobilization increase	20.1.1 Country Program Strategy for GEF SGP is updated and reflecting consistency with NBSAP targets and priorities	Complete <i>Monitoring related to this target is adequate</i>	
	20.2.1 Number of GEF concepts and proposals submitted	Ongoing <i>Monitoring related to this target is partial</i>	
	20.2.2 Number of GEF concepts and proposals approved		
	20.2.3 Amount of GEF project funding secured		
	20.3.1 Number of local institutions, NGOs and experts engaged in project implementation	There are some NGOs with potential skills and expertise to support MNRE-DEC in the implementation of biodiversity related projects <i>Monitoring related to this target is partial</i>	NESP 2017-2021, MNRE (2017) Figure-7 pg, 34. <a href="https://www.mnre.gov.ws/mnre-re-design/wp-content/uploads/2017/08/NESP-2017-2021.pdf">https://www.mnre.gov.ws/mnre-re-design/wp-content/uploads/2017/08/NESP-2017-2021.pdf</a>
	20.4.1 Number of integrated and coordinated awareness programs conducted	Ongoing <i>Monitoring related to this target is partial</i>	<a href="https://www.mnre.gov.ws/about-us/divisions/puma/">https://www.mnre.gov.ws/about-us/divisions/puma/</a>
	20.5.1 Report documenting local experiences with user pays schemes is published	Not yet <i>No monitoring system in place for this target indicator</i>	
	20.6.1 Study report is published		
20.7.1 Number of nature-based activities initiated			

### 3.3. Please describe any other tools or means used for assessing progress:

The tools used for assessing progress ranges from:

- 1) Review of existing national documents –strategies, policies, legislations and project documents and reports from field surveys and monitoring activities (refer Table 19 of this report)
- 2) Conduct 6 NR workshops with relevant stakeholders through an inception workshop and data validation workshop to the final workshop on presenting our report findings based on the assessments of the 20 NBSAP national targets and ABTs
- 3) The use of shapefiles and collection of information to produce spatial mapping for some of the NTs and ABTs such as Target 5, 9, 10, 11, 12, 14 and 20 which tells the story about the current biodiversity trends based on anthropogenic and climate change impacts.
- 4) As well, the application of tools from Table 15 below provided by UNDP Global to support the development of this report.

**Table 15 Other tools and methodology used for the assessment**

Webinar	Video Link	Language
CBD Online Reporting Tool	<a href="https://youtube/KpWR6Bx4T1w">https://youtube/KpWR6Bx4T1w</a>	English
Integrating Spatial Data into 6NR	<a href="https://youtube/89HM7MqqL94">https://youtube/89HM7MqqL94</a>	English
6NR Data Tracking Tool	<a href="https://youtube/EzVKx7wPk4Q">https://youtube/EzVKx7wPk4Q</a>	English

6NR Biodiversity Indicators: Tips and Information Sources	<a href="https://youtube/Hlba5CkHKZA">https://youtube/Hlba5CkHKZA</a>	English
UN Biodiversity Lab Oceania Pacific	<a href="https://youtube/oDXH89Xq10">https://youtube/oDXH89Xq10</a>	English
<b>Technical Guidance and Tools</b>		
<i>Tool / Guidance</i>	<i>Link</i>	
Technical Reporting Guidance	<a href="https://bit.ly/2GCdkUR">https://bit.ly/2GCdkUR</a>	
Technical Review Framework	<a href="https://bit.ly/2AfJWDK">https://bit.ly/2AfJWDK</a>	
Data Tracking Tool	<a href="https://bit.ly/2Pu0V9L">https://bit.ly/2Pu0V9L</a>	

### 3.4. Adequacy of monitoring information to support assessment

Apart from the list of NBSAP indicators provided in Table 19 there are no monitoring system in place for each of the NTs or ABT. This has been the major set-back for the Samoa NBSAP 2015-2020 is the lack of monitoring system in place to keep track on the progress towards achieving the national targets. From Table 19 it identifies the list of 126 indicators from the NBSAP which is used in this report as the key monitoring tool to assess the progress of implementation of NBSAP measures and actions that will lead to the achievement of the 20 national targets.

In Table 19 it also provides an analysis of the monitoring system for the NTs as shown in column 3, whereby a metric rating is presented as a measure for every indicator corresponding to each of the targets. Overall, from the 126 NBSAP indicators listed:

- ✓ about 38 percent is labelled ***no monitoring system in place for this target indicator*** because no actions have been implemented to date since the NBSAP 2015-2020 was endorsed in 2014. Therefore, progress towards achieving the target is very limited.
- ✓ about 31 percent is labelled ***monitoring related to this target is partial*** because there have been actions implemented but to some extent and it didn't complete the activities to achieve the NT;
- ✓ about 29 percent is labelled ***monitoring related to this target is adequate*** meaning that the actions implemented has satisfactorily contributed to the progress towards achieving the NT;
- ✓ about 2 percent is labelled ***monitoring is not needed to assess this target*** meaning that the indicator is irrelevant in monitoring the target because the indicator speaks one thing and the target is expecting another outcome.

*For example; indicator 2.1.3 Ten percent annual increase in the local budget allocation for biodiversity conservation activities. From the consultation it was noted from representatives of MNRE, that DEC is no longer the only division of the ministry that is responsible for biodiversity because conservation activities are decentralised amongst DEC, Water, Forestry and Land Management divisions. Overall budget has not increased at all – government wants MNRE to do more with less.*

In saying this, it reflects how the indicator is written to assume that budget allocation for biodiversity conservation work should increase by 10 percent but the interpretation from the representatives of MNRE at the 6NR workshop during the review of the NBSAP indicators relative to the NTs, it was confirmed that there is no expectation for a 10 percent of local budget increase but expected that more can be implemented with less. Other constraining aspects of the NBSAP indicators was that some of the actions and measures

identified in the NBSAP action plan do not correspond to the indicators and therefore makes it difficult the assessment and progress towards achieving the NTs.

### 3.5. Assessment of confidence level for each target

**Level of confidence:** \*\*\* based on comprehensive evidence; \*\* based on partial evidence and \* based on limited evidence. This is mainly attributed to the information available during the time of the assessment. In Table 18, the assessment of progress not only highlight Samoa's progress towards achieving the 20 NTs but it also presents the confidence level of the data used, such as 50 percent of the NTs have a high confidence of three stars (\*\*\*) meaning the evidence used is sufficient to provide justification for the target, and next 45 percent showed about 9 targets had partial evidence of confidence whilst only one target had limited evidence of confidence level.

This confidence level assessment is based on the sources of information and data sets used as well as spatial mapping which are all part of the analysis to determine the level of progress Samoa's has moved towards in achieving the NTs and at the same time the ABTs, which will further elaborate in section-4 of the report.

## Section IV - Description of the national contribution to the achievement of each global Aichi Biodiversity Target

### 4. Describe your country's contribution towards the achievement of each global Aichi Biodiversity Target (ABT).

Samoa as mentioned earlier adopted the ABTs as its National Targets, which most have been touched upon in the previous sections of this report. In this section a more detail description of Samoa's national contribution to the achievement of each global Aichi Biodiversity Target is presented. This is divided into the five goals of the global CBD Strategic Plan 2011-2020

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



Samoa like many Small Island Developing States (SIDS) is known for its fragile island ecosystems and vulnerability of its biodiversity to both anthropogenic impacts and natural disasters. The main drivers causing much of biodiversity loss in the country are attributed to: our isolated geographic location, population growth, complex land tenure system, and fast economic development, changes in the consumption and production patterns and lastly climate change variability and extreme events. The distance from major trading markets and isolation has afforded the country with high level of species endemism in biodiversity, however increase connectivity with the outside world through air and shipping transportation brings with its predators or introduced alien invasive species. The smallness of Samoa with over 70% of the population and almost all physical infrastructures are concentrated along the coast creating an active zone whereby natural habitats and species are constantly under pressure from land-based pollution, exploitation of marine resources, sea level rise and extreme climate events such as flooding, storm surges and tropical cyclones (Sesega: 2014).

This communal ownership of the vast majority of land resources has exposed natural resources to all kinds of exploitation. The traditional land clearances have severe consequences on environmental resources because it is the cause of loss for habitats, habitat fragmentation and reduction in vegetation cover in sensitive environments including catchments and erosion-prone areas. Furthermore, the rise in logging expedition from 1954-1990 which saw the decimation of almost 64 percent of indigenous Samoan forest by logging companies (SOE: 2013). This dramatic transformation of our native forest resources would have been the same time that many of our endemic species such as birds, mammals, insects, and snails started to disappear. Similarly, increase fishing in the inshore marine areas often unregulated lead to the inevitable result of overfishing and resource depletion in the inshore fisheries of many villages around the country (ibid).

Samoa has pride itself with steady economic growth and development over the years despite set-backs from regular occurrence of natural disasters (tropical cyclones, flooding and bushfire etc) and the most devastating 2009 tsunami natural hazard. The current SDS 2016-2020 promotes “accelerating sustainable development and broadening opportunities for all”. The current drive to reinvigorate the agricultural sector to boost productivity as it was once the backbone of Samoa's economy has seen the increase in the number of parcels under farming activities across all regions in Samoa with the biggest

recorded in north-west Upolu and Apia urban area. This is evident from the Agriculture Survey (2015) shows that 46,026 of land operated by major crops in 2015, compared with 33, 332 in 2009, a 27 per cent increase.

Climate change and variability is the biggest threat of all time to biodiversity now and the future, as impacts of anthropogenic activities are accelerated due to climatic change impacts. The adverse impacts of climate change from the common occurrence of tropical cyclones and drought temperature fluctuation and changes in precipitation patterns can lead to changes in natural habitats of endangered and endemic species, reduces the ecological functions and services of ecosystems and thus affecting Samoa's biodiversity.

However reversing the drivers of biodiversity loss in Samoa, the government has made transformational changes in its commitment to improve environmental sustainability and disaster resilience (MoF: 2016); shown in the strategic outcome on the protection, conservation and sustainability of environmental resources improved in key habitats and at risk species protection are increased and increase in protected areas for both marine and terrestrial. The expanded efforts in mainstreaming biodiversity are also seen in the successful coordinated joint work under the Environment Sector with all other relevant government sectors from: water and sanitation, tourism, health, education, agricultural, transportation and infrastructure and community sector. The expansion of divisions in the Ministry of Natural Resources and Environment taking responsibility to support concerted actions in the sustainable management of Samoa natural resources and increasing biodiversity value is testament to the government's recognition of the importance of biodiversity from the national to the community level.

#### 4.1. Describe how and to what extent Samoa has contributed to the achievement of this ABT and summarize evidence used to support description

##### 4.1.1. Aichi Biodiversity Target 1: Biodiversity Awareness

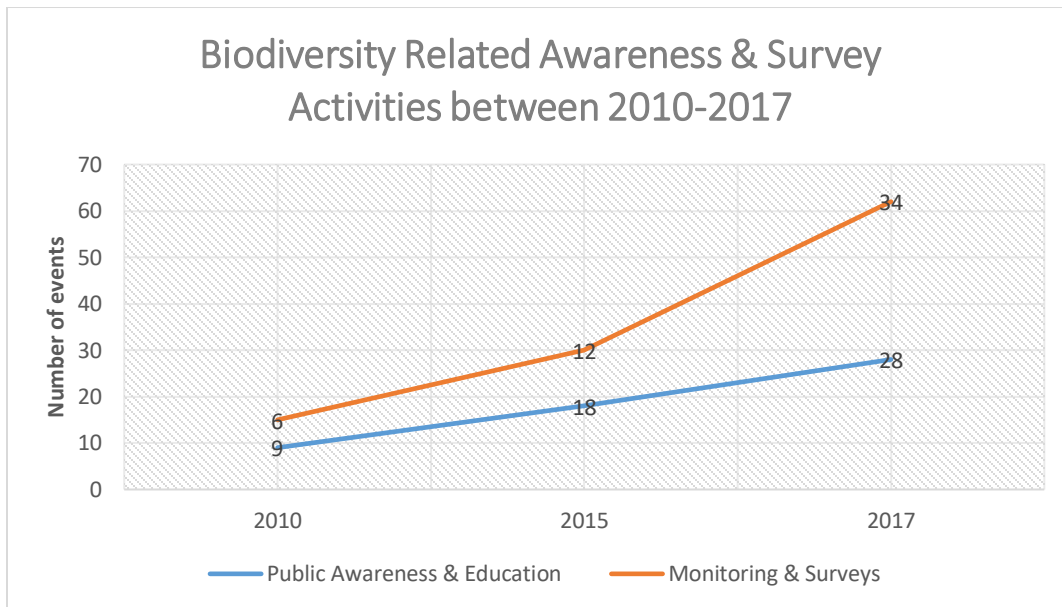
###### ***Describe how and to what extent Samoa has contributed to the achievement of the ABT?***

Samoa's commitment to *Article 13 of the CBD* "Public Education and Awareness (a) is shown in the country's annual events relating to biodiversity, such as; the National Environment Week dedicated to nationwide awareness of environmental issues and the commemoration of international days which includes, Biodiversity Day, Wetlands Day, Land Degradation Day and Water and Forest Resources Day. The MNRE also conducted various school educational programs raising awareness on the importance of protecting biodiversity because of its species diversity and biological resources as defined in *Article 2 of the CBD*. There were awareness campaigns on different areas of biodiversity – such as in the early 1990's a nationwide campaign was launched on the protection of the endemic Manumea bird or Tooth-billed pigeon (*Didunculus strigirostris*) which is the flagship species for Samoa during the South Pacific Games in 2007. After ten years, a second nationwide campaign was discussed with the support of relevant local and international partners which lead to the development of the "Save the Manumea campaign strategy" in 2017. The strategy was finalized and endorsed for implementation in May 2019 Some of the recent awareness campaigns include the; the 2 Million Tree Planting Campaign, Sa Moana Folauga, Guardians – Tausi Lou Fa'asinomaga were initiated in order to improve the environmental literacy and encourage environmental stewardship in schools within village communities. The latter campaigns focused around the marine habitats in order to raise awareness on the emerging issues around marine biodiversity. Apart from national campaigns, there were also a multitude of educational programmes carried out by not only Government but also non-government organizations and partners. There were wide dissemination of environmental awareness materials via public awareness events, directly to schools and communities, and

on-going environmental page on the local Samoa Observer newspaper.. The school children from Primary, Secondary and College level have an understanding of the value of biodiversity as this is now part of the formal school curriculum. There are school and youth competitions organized by Government for the national events do reflect this deeper understanding and values placed on the importance of natural resources and biodiversity.

In Graph 1, the information was extracted from the MNRE Annual Reports (2010, 2015 and 2017) DEC Annual Reports to confirm Samoa’s commitment to biodiversity awareness at the national level and to support its international obligations to the *CBD Article 13 and 2*. The graph shows the trend in biodiversity awareness in Samoa with a steady growth in environmental awareness and education, whilst monitoring survey activities has increased tremendously over the years mainly for some marine and terrestrial species through BIORAP surveys.


**Graph 1: Trend in biodiversity related awareness and survey activities between 2010 and 2017**



Investment in biodiversity awareness is never a shortfall for Samoa towards its obligation to *Article-13 of the CBD* however the fragmentation in how these national events, species and ecosystems campaigns are conducted makes it difficult to measure how people value biodiversity. They are aware of biodiversity but do they really know its value either culturally, economically, socially and biologically this gap needs to be addressed. The review of the National Environment Sector Plan 2013-2016, indicated a poor overall rating with regards to the outcome on “Knowledge of Samoa’s biodiversity and natural resources enhanced and kept up to date through science assessment and ongoing monitoring (2017)”.

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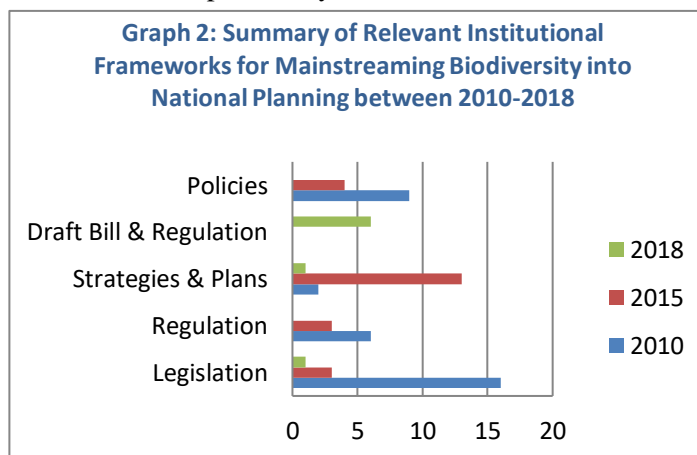


<b>Reference to NBSAP Indicator Table 19</b>	Indicators 1.1.1 to 1.4.2, is used to monitor the progress towards ABT-1 and overall much progress has been made in awareness level at the national and directly to schools and local communities. However, most are ad hoc because there are some key indicators 1.1.1-1.1.3 that has not been implemented such as formal survey on state of knowledge, understanding the percentage of targeted groups with improved knowledge as well as no report has been produced on state of knowledge. As well the lack of spatial data to substantiate progress towards achievement.
<b>Trend</b>	The trend towards awareness about biodiversity values continues to increase at an ad hoc level.
<b>Recommendation for future actions to improve data collection in the assessment of NT/ABT.</b>	For future monitoring for NT/ABT 1 consider integrating spatial data into every public awareness of biodiversity value and ecosystem services related variables for improvement in data collection and reporting.
<b>Overall Rating ABT 1</b>	 <p>Therefore, Samoa's contribution to achieving Aichi Biodiversity Target-1 has made a huge progress in biodiversity awareness, however people's value of biodiversity the threat it faces and the next step to conserve and use sustainably is very weak as there are limited information to substantiate this and thus hinders the full achievement of ABT 1.</p>

#### 4.1.2. Aichi Biodiversity Target 2: Biodiversity values integrated or mainstreaming

##### *Describe how and to what extent Samoa has contributed to the achievement of the ABT?*

Samoa's obligation to the *CBD under Article 6 General measures for conservation and sustainable use (a) and (b) and Article 10 Sustainable use of components of Biological Diversity (a)* has shown its commitment at the national level by integrating biodiversity as a priority area in the Strategy for the Development of Samoa (SDS) 2016-2020 emphasizing support for the protection, conservation and sustainability of environmental and natural resources improved. The expansion of the MNRE saw more divisions focusing on the sustainable management of natural resources apart from the Division of Environment and Conservation (DEC), and these include Forestry Division, Water Resource Division, Environment Sector Division, Environment Sector Division and Land Management Division all their functions contribute to the conservation of biodiversity. The updated National Environment Sector Plan 2017 and 2021 and the Community Integrated Management (CIM) Plan 2018 both have strong emphasis on biodiversity and these plans supports government international responsibility to the CBD.



In Graph 2: it shows the number of institutional frameworks developed over the years and this was compiled from the MNRE Annual Report (2017) and the 4<sup>th</sup> National Biodiversity Report (2009). The list of institutional framework takes into account those legal instruments developed before 2010 and up to 2018. Interestingly from Figure 4.2 it shows that most legal instruments (legislations and regulations) and policies were developed before or around 2010, whilst strategies, action plans and sector plans are predominantly established from 2015 onwards a five-year period usually up to 2020. There are a number of draft Legislations and regulations that are yet to be endorsed. This shows that despite biodiversity being integrated into national strategies, sector plans and action plans (NBSAP) there is a lack of updated legal instruments and policies to strengthen NBSAP implementation on the ground such as the long overdue Environmental Management and Conservation Bill awaiting endorsement.

Although a study (now outdated) commissioned by WWF-Fiji (2001) in collaboration with MNRE-DEC that looked at the economic value of Samoa’s natural resources and the outcome showed the total economic value (TEV) for goods and environmental services of the forest and marine resources for Samoa first estimated at ST\$21.0 million per annum (about 2.7 % of Samoa’s GDP) refers to the TEV from the perspective of Samoan citizen by excluding the value generated for the benefit of the rest of the world. However, given the wide awareness and improved knowledge on biodiversity over the years the TEV for Samoa biodiversity is probably 10 times more than the 2001 value.

<p><b>Reference to NBSAP Indicator Table 19</b></p>	<p>Indicators 2.1.1 to 2.1.3 some actions have been implemented in terms of biodiversity indicators identified in the SDS 2016-2020 such as protection of key habitats and at - risk species, conservation and sustainability as well as environmental compliance and a number of relevant sector plans. However, indicators 2.2.1 – 2.2.3, a recent PES feasibility study is completed but not yet available during the time of preparing this report. There is no recent economic valuation of biodiversity conducted except a study back in 2001 which is now outdated. Note most of the information collected were qualitative and not quantitative as per indicator reference.</p>
<p><b>Trend</b></p>	<p>There is an increase trend towards integrating biodiversity issues into national planning, such as the NESP 2017-2021, SDS 2016/17-2020/21, and ASP 2016-2020 to name a few, compared to maybe ten years before.</p>
<p><b>Recommendation for future actions to improve data collection in the assessment of NT/ABT.</b></p>	<p>Natural resource accounting is still at early stages in Samoa, as noted from the 6NR workshop the Samoa Bureau of Statistics are starting to look into environmental accounting. Therefore, it is recommended for consideration that Samoa should assess the applicability of the System of Environmental Economic Accounting (SEEA) and if feasible integrate natural resource accounting including energy.</p>
<p><b>Overall Rating ABT 2</b></p>	<div> </div> <p>The Aichi Biodiversity Target-2 is partially achieved with the first part of the target on mainstreaming and integrating biodiversity into national plans and strategies, although there is a need to update the relevant legal instruments as indicated in Figure 4.2. Furthermore, progress towards full achievement is constraint by the limited information relating to the connection between poverty reduction strategies and biodiversity. As well, there has not been any work conducted on planning processes and biodiversity being incorporated into national accounting and budgetary processes.</p>

### 4.1.3. Aichi Biodiversity Target 3: Incentives reformed

***Describe how and to what extent Samoa has contributed to the achievement of the ABT?***

Samoa has ratified the Rotterdam and Stockholm Convention in 2002, Basel Convention 2001 and the Vienna Convention / Montreal Protocol in 1990. The measures taken to achieve Aichi Biodiversity Target-3 are exhibited in Samoa’s obligation towards these international conventions and the CBD Article 11 on Incentive measures which include the development of a national legal instrument such as the Quarantine Biosecurity Act 2005 and biosecurity screening of all imported chemicals entering the country to ensure registration and follow compliance procedures (Ministry Agriculture and Fisheries Annual Report 2011-2015). Similarly, shipment of hazardous waste from Samoa to New Zealand (overseas) for recycling purposes undergoes the Basal Convention requirements (MNRE-DEC Annual Report, 2012). There are bio-control agents used in the work of MAF-CROPS Division such as research into Integrated Pest Management (IPM) targeting rhinoceros beetle research on bio-control (virus and fungus) to manage and control spread of rhinoceros beetle on coconut plantation and other research on insecticides pest control for Head Cabbage. These are a few actions undertaken which are relevant to the implementation of the NT 3 and ABT-3.

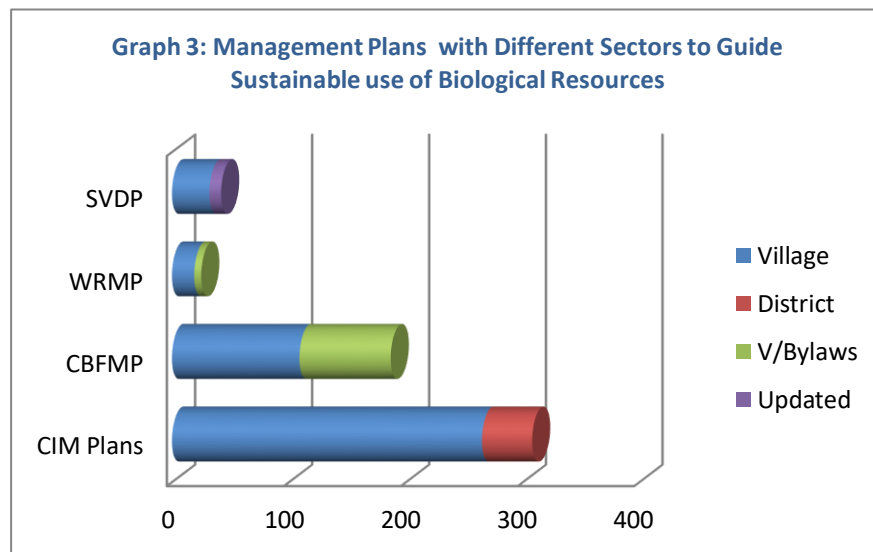
However, there is not much known information on any positive incentives developed for the conservation and sustainable use of biodiversity and it does not show whether it is consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions. In addition, incentives through Payment for Ecosystem Services (PES) are almost non-existent as this is still at early stages and government is looking at how PES can best be applied in Samoa. There is a lack of general understanding on the types of harmful subsidies that exist in Samoa and actions taken to confirm the elimination, phased-out of harmful subsidies to biodiversity or any reformed to minimize or avoid negative impacts is almost non-existence.

<b>Reference to NBSAP Indicator Table 19</b>	The indicator 3.1.1 to 3.1.2 do follow international requirements as mentioned above, however government’s drive to reinvigorate agricultural development will see the rise in use of pesticides. The CROPS division of MAF does implement some biocontrol for the management of pests. However, indicator 3.1.3 there is no evidence of a joint venture based on the protection of biodiversity values.
<b>Trend</b>	This is a business as usual, no major changes or trend towards developing incentives since the 2015 -2020 NBSAP. No data available on positive incentives during the time this report was developed.
<b>Recommendation for future actions to improve data collection in the assessment of NT/ABT.</b>	To improve reporting on ABT 3 in the next NR, and future consideration for the type of data and information collected. It is best to look at trends in the number and value of harmful incentives (including subsidies) to biodiversity that are removed. As well as trends in the development and applications of incentives that promote biodiversity conservation and sustainable use. Thus, having this information will add more value to incentives and subsidies identified in ABT 3 for Samoa.
<b>Overall Rating ABT 3</b>	<div> </div> <p>Overall, ABT-3 has no significant progress to date and this could be attributed to the lack of investment and local expertise to identify and develop incentives that would eliminate harmful substance and at the same time introduce innovative economic means of protecting biodiversity such as PES.</p>

#### 4.1.4. Aichi Biodiversity Target 4: Sustainable production and consumption

*Describe how and to what extent Samoa has contributed to the achievement of the ABT?*

Samoa's progress towards achieving Aichi Biodiversity Target -4, is seen in its commitment to the implementation of activities related to Article 10 of the CBD on, Sustainable use of components of Biological Diversity (b) (c) (d) and (e). The establishment of institutional frameworks from the national level to village communities in terms of government sector plans (eg. NESP 2017-2021, Tourism Sector Plan 2014-2019, Disaster Risk Reduction Management Plan 2016-2019 and the Agriculture Sector Plan 2016-2020) and management plans for forest, water and marine resources. At the district and village level strong commitments for the sustainable use and management of biological resources are seen in the development of management plans and village by-laws as referred to in Graph 3 which includes: 43 and 265 District/Village CIM Plans 2018; the 109 village Fisheries Management Plans and 78 Village By-laws; 32 Sustainable Village Development Plans (SVDP); and 19 villages with Water Resource Management plans etc. Graph 3 shows the majority of management plans are developed at the village level to support communities in taking the lead for the sustainable use and management of natural resources. This is best emphasized in the Samoa Coastal Fisheries Management and Development Plan 2013-2016 (Fisheries Division, 2013) whereby the overall goal of interventions in coastal fisheries (CBFMP) is to ensure sustainable food security and livelihoods through sustainable utilization, development and management of coastal fisheries in Samoa.



The Water Resource Division of MNRE is responsible for the regulation and protection, conservation and improvement in any water source on land and this includes the establishment of watershed or catchment area reserves, the issuing of water abstraction licensing schemes, issues of drilling permits and water license and monitoring of borehole. The comparative analysis in Table 4.1 below shows improvement in the management of water sources in Samoa overtime to ensure water resources are sustainably harvested and consumed as shown in the increase in watershed management plans and village by-laws indicates village communities taking responsibility in managing water sources. As well as the increase in areas rehabilitated and improved compliance from private sectors and government agencies who are major extractors of water sources for production and consumption services.

<sup>19</sup>*Table 4.1 Comparative Analysis of the Water Resource sustainable Consumption and Production 2010-2017*


<b>Water Resources Achievements 2010</b>	<b>Water Resources Achievements 2017</b>
<b>Watershed management:</b> 6 village Watershed Management Plans developed at various stages and 3 draft village by-laws	<b>Watershed management:</b> 19 village watershed management plans completed out of 23 watershed areas; 3 village by-laws approved and 2 are in draft
<b>Water Abstraction Licensing Scheme (WALS)</b> Compliance is slow – EPC submitted application for 5 hydro-electric schemes; 1 application Private Sector Le Vai Company Ltd Samoa Water Authority is yet to submit an initial application as they have more than 40 schemes nationwide	<b>Water Abstraction Licensing Scheme (WALS)</b> Total of 6 water abstraction licenses were issued to the Samoa Water Authority for ground water abstraction activities. Compliance with WALS has improved tremendously with government agencies and private sector
<b>Water Licensing Regulation:</b> Draft Water License Regulatory to regulate use of water sources and drilling permits	<b>Water Licensing Regulation:</b> Water Resources Management Regulations 2013
<b>Watershed Rehabilitated areas restored &amp; plant nurseries:</b> Rehabilitated watershed areas (5 sites) estimated area of 2.53ha replanted	<b>Watershed Rehabilitated areas restored &amp; plant nurseries:</b> Rehabilitated watershed areas (6 sites) an estimated 21.28 hectares replanted

Similarly, the participation of local NGOs, Academic Institutions and some private sector businesses actively leading environment initiatives on waste management, sustainable agriculture in organic farming, and forest carbon offset projects are examples of positive steps moving towards minimizing our ecological footprint. Samoa has made good progress towards achieving this target as seen in Figure 4.3 with the number of management plans developed to guide communities in sustainable management and uses of natural resources. Positive effort has also been made in the area of sustainable agriculture as seen in the number of families estimated around 600 certified organic farmers<sup>20</sup> and around 800 farmers registered with the Forestry Division of MNRE engaged in agroforestry and permaculture practices (MNRE Annual Report: 2014/15 and 2016/17). The current ban on the importation of plastic is a milestone achievement for the country acting responsibly to reduce waste from consumption and encourage other means of substituting plastic use.

<b>Reference to NBSAP Indicator Table 19</b>	Indicator 4.1.1 to 4.3.1 ask for quantitative data and most information that had number data were from MAF Fisheries (102 villages with reserves and management plans, 76 marine village by-laws). Refer to Case Study I Section V for detail information. Most land based agricultural activities have qualitative data, except for the number of organic farmers about 600 certified by WIBDI from 1000 farmers they work with, which shows an increase in organic farmers. As well 833 farmers registered for agroforestry and woodlot program of Forestry Division MNRE. However, data on the number of agricultural holdings under agro-biodiversity, practicing permaculture, villages posing unsustainable practices, there are no information available as shown in Table 19. During the time of this report Fisheries Division were very reluctant to give us the spatial data on their marine reserves hence the lack of maps showing areas of marine reserves in Samoa.
<b>Trend</b>	There is a trend in rural families interested in organic farming to improve soil fertility and many villages are establishing marine reserves to improve marine species diversity in the inshore area.
<b>Recommendation for future actions to improve</b>	To further improve future reporting for ABT 4, consideration should be given to adapting and collecting the following information and report on:

<sup>19</sup> Information in Table 4.1 extracted from the MNRE - Water Resource Division Annual Report 2010/2011 and 2016/2017

<sup>20</sup> <http://www.ipsnews.net/2014/09/organic-farmers-cultivate-rural-success-in-samoa/>

<p><b>data collection in the assessment of NT/ABT.</b></p>	<ul style="list-style-type: none"> <li>✓ Maps and description of the extent and spatial distribution of areas of extractive and economic sectors are engaged in sustainable production, waste management, energy, tourism, mining, transportation and manufacturing;</li> <li>✓ Trends in SPC and natural resource use: Ecological footprints;</li> <li>✓ Evidence of SPC being mainstreamed into national policies (SDG 12.1)</li> <li>✓ Inclusion of ecological limits assessment of SCP: human appropriation of fresh water (water footprint); change in water use efficiency overtime (SDG 6.4) and water stress level, freshwater withdrawal rates (SDG 6.4)</li> </ul>
<p><b>Overall Rating ABT 4</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Overall Samoa's ecological footprint is within the sustainable management level, although forest resources had been over exploited in the late 1970s and early 1990's but there has been great investment in reforestation programs together with the drastic decline in commercial logging is no longer a threat.</p> </div> </div>

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



The direct pressures on biodiversity are from years of unsustainable land-use practices, poor development planning and enforcement without any consideration of environmental consequences. Adding more stress on natural habitats seen in the rise of invasive species in all types of habitats and posing the greatest threat on remaining upland forest ecosystems that are still home to the few endemic species in Samoa. Apart from human induced activities, natural disasters can destroy years of forest recovery and pristine natural habitats either marine or terrestrial in an instant, and this can wipe out habitats for some species leaving them homeless, for example cyclone Ofa and Val in the 1990's destroyed much of the forest areas including bat roosting trees and colonies of bats were seen for the first time flying in coastal lowland areas to find home in some patches of remaining forest. Similarly, the 2009 tsunami it was said that some places found many fish and marine species left stranded on land.

Samoa has also invested in a series of programs to reduce or reverse known pressures on its biodiversity such as: forestry programs on reforestation and woodlots; fisheries, invertebrate stocks, and all edible marine organisms sustainably harvested to avoid overfishing; promoting sustainable agriculture, aquaculture, and forestry to ensure conservation of biodiversity, managing pollution from solid waste and land based pollutions from nutrient runoff at levels, increasing biosecurity activities and control and eradication programs to contain or remove invasive species. The pressures on coral reef and other vulnerable ecosystems impacted by climate change has been addressed through continued monitoring of the status of coral reef ecosystems and implement coral gardening programs to restore degraded reefs, and minimize coral bleaching and ocean acidification. The following analysis of Target 5 to 10 address potential responses to the pressures on biodiversity and biological resources

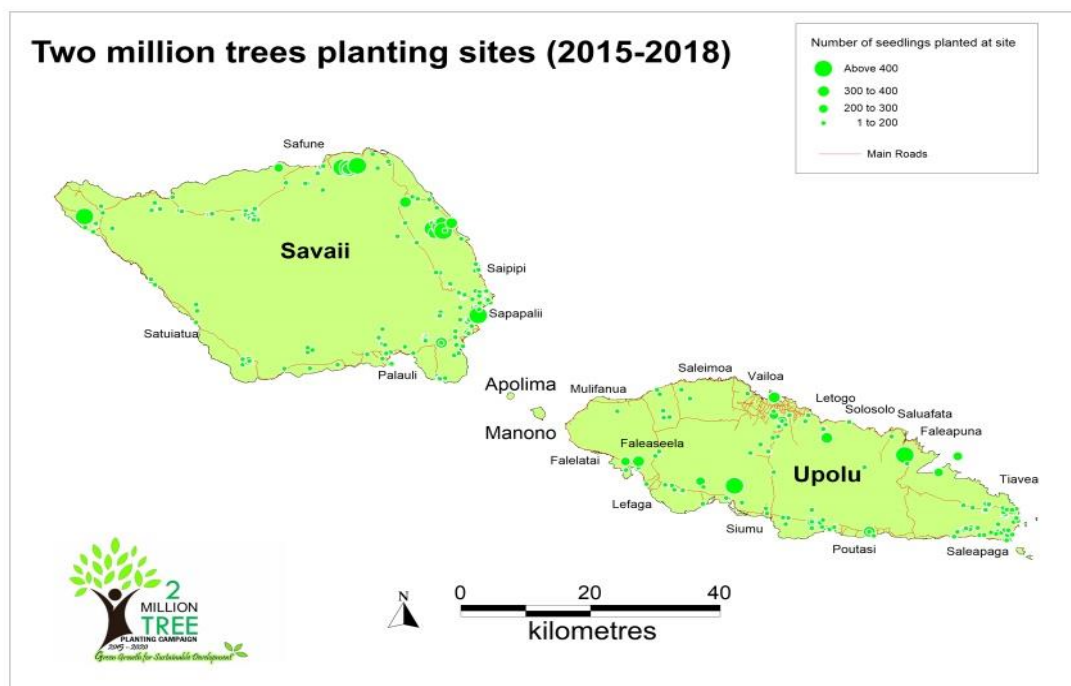
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4.1.5. **Aichi Biodiversity Target 5: Habitat loss halved or reduced**

**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is committed to its obligations to the three Rio Conventions (UNFCCC, CBD and UNCCD) and this is reflected in its first initial “One million tree planting campaign from 2009-2012”. As stated in the National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020 (MNRE, 2015) synergetic efforts point to the need for the three Conventions to broadly engaged in the frontline to combat land degradation and drought, reverse the loss of biodiversity and support mitigation efforts through carbon sequestration to reduce impact of climate change on forest ecosystems. This integrated approach among the three Rio Conventions strengthened the enhanced coordination of actions and opportunities for mutual benefits in combating land degradation, preserving ecosystems of biological diversity and combating climate change. The success of the One million tree planting campaign evolved into the “2 million tree planting campaign 2015-2020”, and this is evidence of Samoa’s commitment to restore its natural forest ecosystems which has over the years experienced depletion from anthropogenic activities and natural disasters, such as cyclone Ofa and Val in the early 1990’s wiped out most forest plantations and indigenous forest stand. Map 7 shows’ the current area coverage for Samoa under the 2 million tree campaign and it continues to grow with ongoing replanting activities. To date, about 22% (458,466 trees) progress in trees planted accounted for whilst there are still others who have not submitted data (MNRE Annual Report: 2017). The coverage as shown in Map 7 takes a nationwide approach with tree planting activities extending to all villages of Upolu Island and Savaii Island

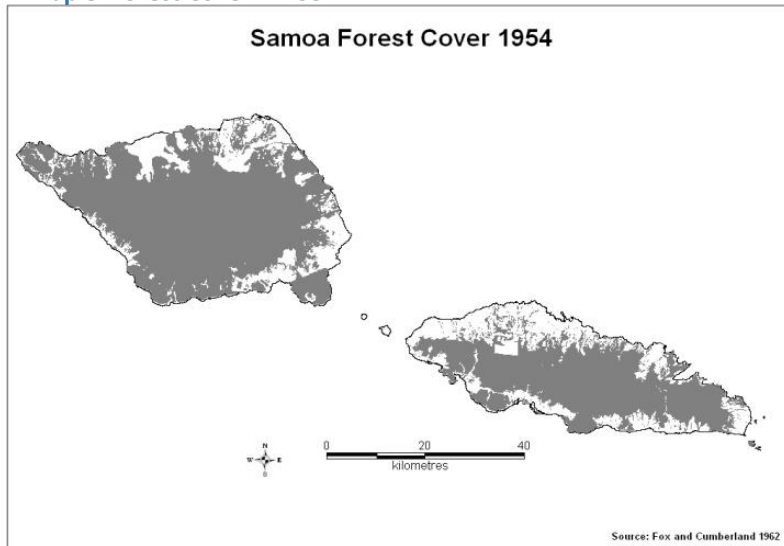


**Map 7: Two million tree planting sites (2015-2018)**

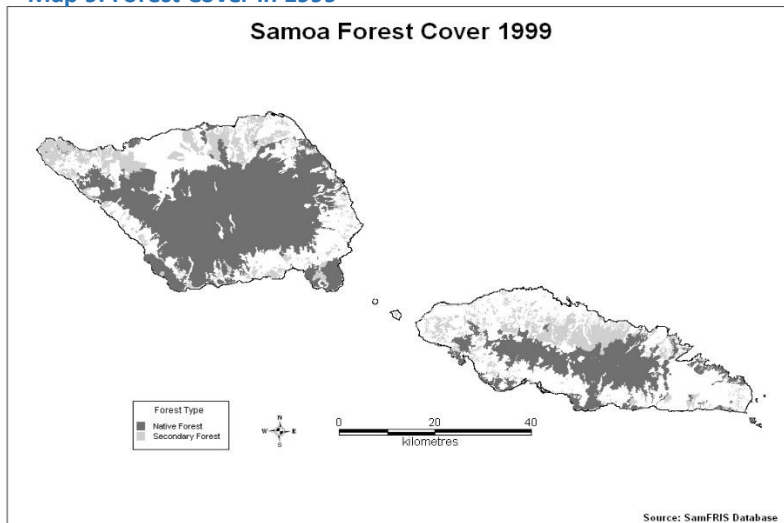
There is no update on the change in forest resources since 2013. Samoa’s forest is predominantly composed of secondary forest: about 99% of Upolu Island upland forest is non-native forest cover and 91% of Savaii upland forest is native forest cover (SOE<sup>21</sup>:2013). Overall forest cover for Samoa declined from 59.99 % of

land area in 1999 to 58.29% in 2013 with a deforestation rate of 1.7%, which reflects the decrease in logging activities and reduce impact from natural disasters (SamFRIS<sup>22</sup>: 2014). Maps 8 - 10 below shows the changes in forest cover between 1954 to 2013 and much forest clearance took place between the 1970s and the 1990s, which removed over 90% of native forest on the main island Upolu. Recent BIORAP surveys (SPREP, 2012 and Conservation International, 2017) emphasized the need to protect critical habitats such as the Central Savaii upland area above 800m elevation should be given some form of official protection for forest conservation priority to be managed sustainably. In addition, conservation of adjacent lowland forest areas is equally important because of birds and flying foxes frequent these areas following the flowering and fruiting of different trees

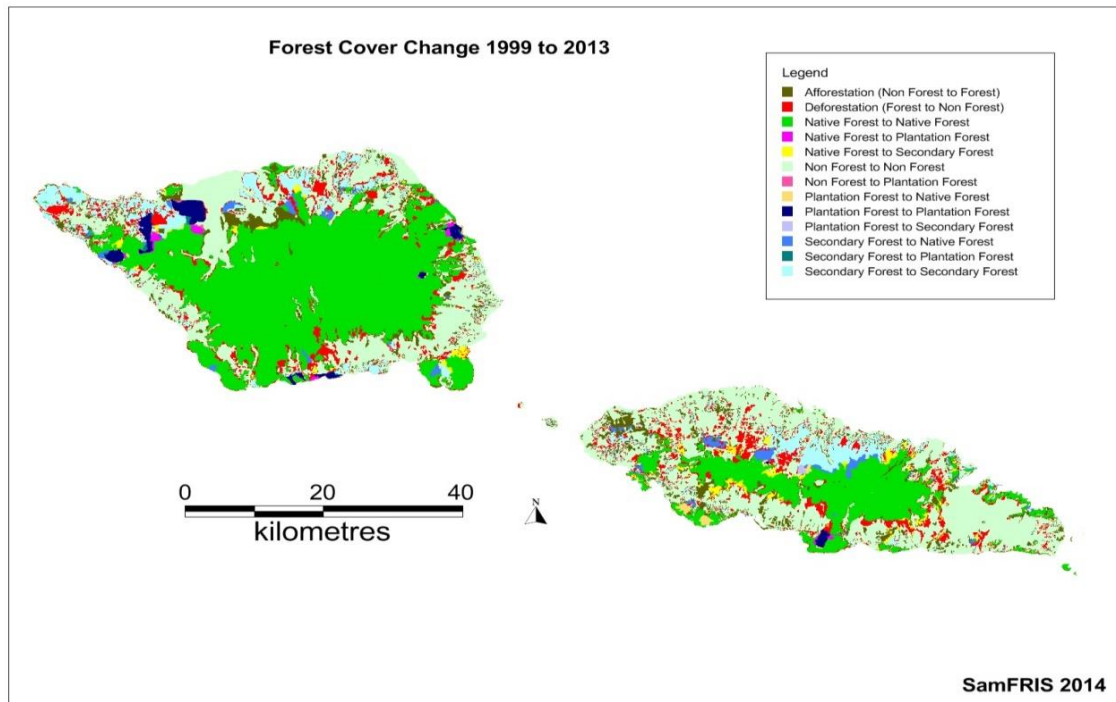
**Map 8: Forest Cover in 1954**



**Map 9: Forest Cover in 1999**



**Map 10: Forest Cover Change from 1999 to 2013**



The Map 7 and 8 shows the forest cover from 1954 to 1999 and Map 10 presents a trend in forest cover over the years and noticeably decrease in native forest cover between 1954 and, due to the rise in logging activities and also the two major cyclones in the early nineties Ofa and Val which had huge impacts on forests in Samoa. In 2013, some improvement in forest areas although very minimal due to slow rate of forest recovery which is time consuming.

Samoa became a party to the Ramsar Convention in 2005 and since then it has declared two Ramsar sites which are the: Lake Lanoto’o National Park (2013) and the O Le Pupū Pu’e National Park (2017). Both sites are part of the KBAs for Samoa and are under government management. Other wetland areas are under increasing human pressure such as the Grade-2 globally significant Apolima-fou coastal wetland, is severely degraded from coastal reclamation and human settlements. Similarly, the Vaipu wetland forest cover 150 hectares, located north westwards of Afulilo dam (DEC, 2017)<sup>23</sup> is under threat from cattle farms surrounding the wetland. The area has been identified as a critical KBA site (2010)<sup>24</sup> that needs to be established as a protected area and the 2016 baseline ecological survey supports this recommendation. Mangrove forests are constantly under threat from development expansion especially within urban areas and Figure 5 below shows a loss of mangrove habitat 2 hectares over 7 years one of the urban sites near the capital Apia, namely Fugalei.

The MESCAL<sup>25</sup> project (2013) estimated mangrove forest cover for Samoa around 752 ha and an additional sixty new mangrove sites were identified from the project mapping exercise (31 Savaii and 47 Upolu) around 26 new sites for Savaii and 34 for Upolu island taking the total number of mangrove sites up to 78, as shown in the Map 11 below.

<sup>23</sup> Division of Environment and Conservation (2017), Baseline Ecological Survey of Vaipu Swamp Forest, Upolu Samoa

<sup>24</sup> Conservation International-Pacific Islands Program, Ministry of Natural Resources and Environment, SPREP (2010) Priority Sites for Conservation in Samoa: Key Biodiversity Areas, Apia. Samoa

<sup>25</sup> MESCAL - Siamomua, Malama (2013)., Status Report on Samoa National Mangrove Mapping, Mangrove Ecosystem for Climate Change Adaptation and Livelihood project, MNRE-DEC.

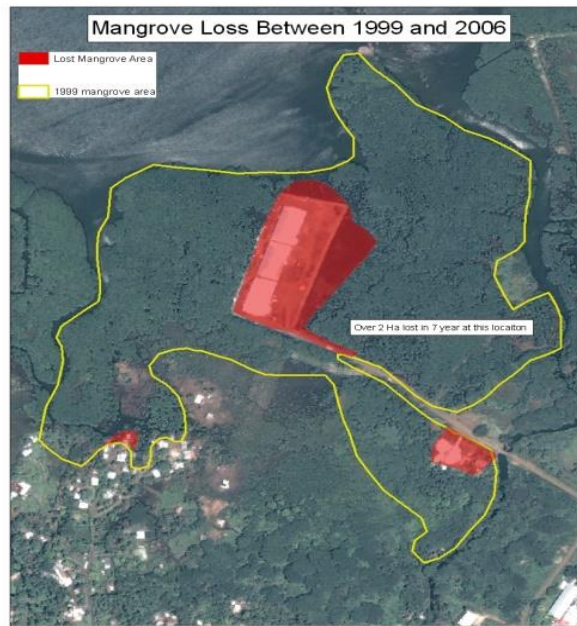
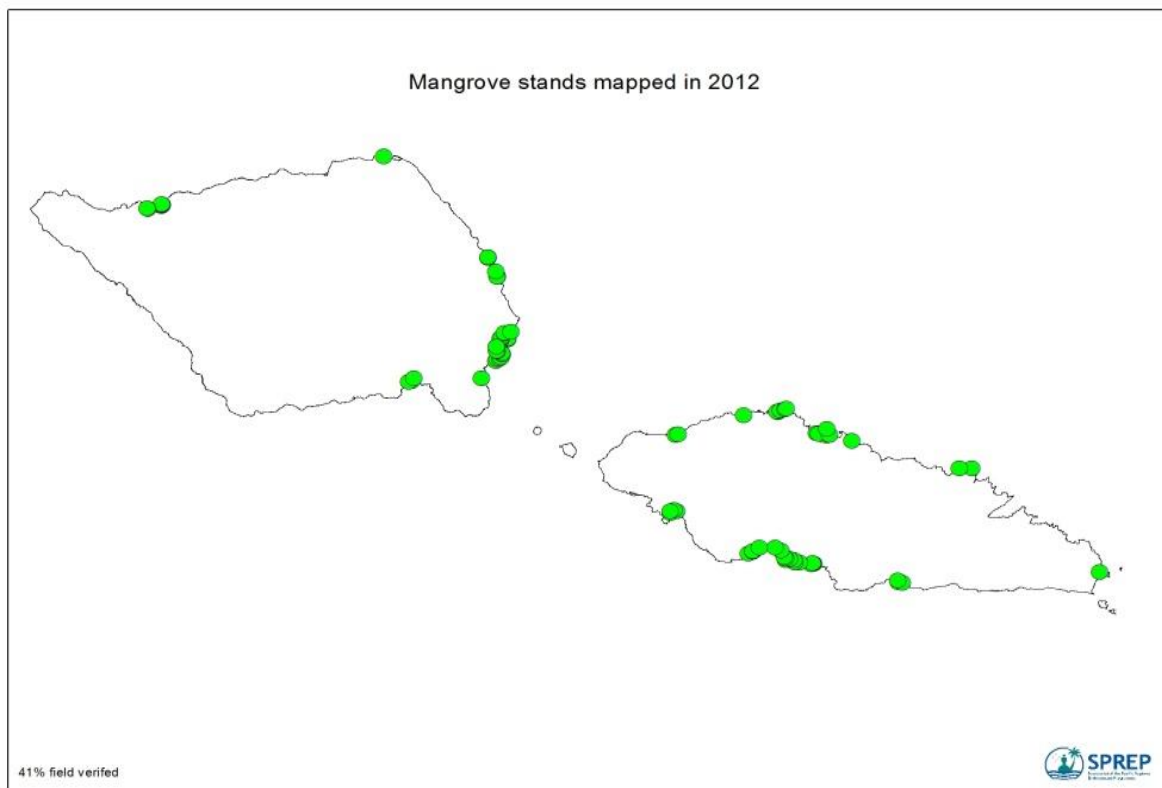



Figure 5: Loss of mangroves in Fugalei from urban development



Map 11: Updated Mangrove Sites for Samoa from MESCAL project mapping, 2012

Despite the tremendous efforts invested in reforestation programs through the tree planting campaigns, watershed area restoration activities and community agroforestry programs to name a few, data are still very fragmented and this makes it difficult to estimate the rate of forest cover change since 2013. This urgently needs attention for another SamFRIS survey to update information on forest cover for Samoa. Mangroves and

wetland ecosystems continue to be under threat and according to Siamomua (2012)<sup>26</sup> the review of the legislation relevant to mangroves revealed that in spite of the availability of some legal tools for their protection, mangroves in Samoa have not been well protected.

<p><b>Reference to NBSAP Indicator Table 19</b></p>	<p>Indicators 5.1.1 to 5.4.1, from the assessment it shows that 5 BIORAP had been completed, 1 Forest audit 2014; most legal instruments are in place and in draft, such as the Bioprospecting Legal Framework is in place and the EMC Bill 2018, with the exception of the Forestry Management Act 2011 approved by cabinet. PUMA deals with the review of safeguards for any major developments and PEAR and EIA's are ongoing. The only indicators that didn't have much information due to lack of implementation are 5.1.2, rate of habitat loss, 5.3.2 and 5.3.3.</p>
<p><b>Trend</b></p>	<p>There is a strong trend towards the restoration of degraded forest area and habitats through replanting programs as seen in the success in the 2 million tree planting campaign 2015-2020.</p>
<p><b>Recommendation for future actions to improve data collection in the assessment of NT/ABT.</b></p>	<p>Although much information are available for natural habitats mainly forest, there has not been an update since 2014 with the SAMFRIS. It is highly recommended that the following consideration should be integrated into the assessment of ABT 5 in the next NR such as: maps for other habitats including coastal flats, wetlands, and grasslands; maps and description of key threatened species and ecosystems, although there are a number of key threatened species identified during BIORAPs there has not been any in-depth study of their natural habitats, spatial distribution, and ecological integrity hence the reason why we could not map some of them. In future more information should be available and assessed that can cover the trends for forest extent, natural habitats and wetland. As well as trends in degradation of forest and other natural habitats like lakes etc.</p>
<p><b>Overall Rating ABT 5</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Overall, Samoa has made progress towards its international obligations to the three Rio Conventions and RAMSAR Convention relevant to the achievement of Aichi Biodiversity Target-5, but there has been limited updated data or information on the status of forest resource changes in the past five years and poor progress towards protection of mangrove and wetland forest ecosystems constrain its full achievement.</p> </div> </div>

#### 4.1.6. Aichi Biodiversity Target 6: Sustainable management of aquatic living resources

##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Sustainable fisheries management is important for Samoa's economy, food security and marine environment. Practicing sustainable harvest and continued monitoring of marine protected areas and fish reserves all ensure that there will be no significant adverse impact of fisheries on marine ecosystems. The measures in place to guide sustainable fisheries activities are: Samoa Tuna Management and Development Plan 2017-2021; Coastal Fisheries Plan 2017; the National Aquaculture Plan 2013-2018 reviewed endorsed and implemented and the Tuna Fisheries National Monitoring Control and Surveillance Strategy 2016-2020, and the review of the Community-based Fisheries Management Program, as well as the Fisheries Management Act 2016. The FAO (2018)<sup>27</sup> report shows that in 2014, fishing contribution to Samoa's GDP stands at 3 per cent although in 2015, Secretariat for Pacific Community (SPC) recalculate it at 3.4per cent. There are two major fisheries

<sup>26</sup> ibid (2012), Review of Policy and Legislation relating to the use and management of Mangrove Ecosystems in Samoa, Mangrove Ecosystem for Climate Change Adaptation and Livelihood project, MNRE-DEC.

<sup>27</sup> Gillet, R & Tauati, M.I. (2018)., Fisheries in the Pacific. Regional and national information, FAO Fisheries and Aquaculture Technical Paper No. 625, Apia FAO

production types: inshore coastal fishing (mainly subsistence based) and offshore large commercial fishing. The FAO (ibid) study indicated a drop in offshore volume and value of catch by Samoa-flagged offshore fleet between 2010 to 2014 referred to Table 4.2 below, although the Fisheries Division Annual Report (2016/2017) showed a rise in commercial tuna export estimated at 4 million tons value at ST\$29 million (estimated around USD\$ 10,357 million).

**Table 4.2 Volume and value of the catch by the Samoa-flagged offshore fleet**

	2010	2011	2012	2013	2014
Volume tuna catch (tonnes)	3,090	1 932	2 352	2 020	1 091
Delivered value tune catch (USD)	11, 247 838	8 780 682	9 982 534	7 158 455	4 574 813
Volume catch adjusted for by catch (tonnes)	3 553	2 221	2 702.8	2 323	1 254
Catch value adjusted for delivery costs & value of by catch (USD)	11 472 791	8 956 296	10 182 185	7 301 624	4 666309

(adopted from FAO Report 2018)

There is concern regarding the sustainable harvest of albacore tuna, while only a small harvest is taken from the Samoa EEZ, the catch taken relative to the size of the EEZ, is high. Samoa is a party to the Convention for the Conservation and Management of Highly Migratory Fish Stocks and a member of the Western and Central Pacific Fisheries Commission (WCPFC) conceived out of the convention to enact tuna management measures. From Samoa’s perspective the two most important measures to undertake (1) conservation and management measures for the South Pacific Albacore (2) the conservation and management measures for bigeye, yellowfin and skipjack tuna in the Western and Central Pacific Ocean. According to the FAO (ibid) the WCPFC’s Scientific Committee 2016 report, indicated that skipjack stock is moderately exploited and fishing mortality levels are sustainable; bigeye analysis shows overfishing is occurring and that there is a need to reduce fishing mortality to a maximum sustainable yield; yellowfin is not considered to be in overfished state and the South Pacific albacore shows no indication that current levels of catch are causing recruitment overfishing.

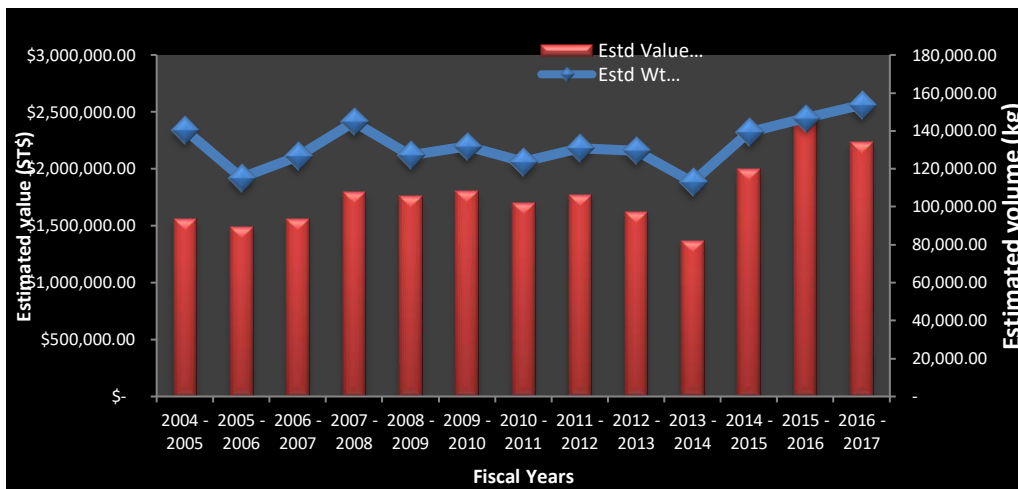
On the other hand, Samoa’s coastal fisheries are very diverse and subsistence fisheries make use of 500 species whereby the most important resources are: finfish (especially surgeonfish, grouper, mullet, carangids, and rabbit fish), octopus, giant clams, beche-de-mer, *Turbo spp.* and crab (Zann, 1992 and FAO 2018). It is important to note that the Ministry of Agriculture and Fisheries (MAF) strongly advocates for sustainable resources management especially marine resources as such the Samoa Agriculture Sector Plan 2016-2020 summarizes its official position on the status/potential of coastal fisheries resources:

*“Inshore fisheries, whilst important for food security in rural areas, have restricted potential for increased production due mainly to the limited areas within the reef and vulnerability to exploitive fishing practices. With some commodities already overfished, increasing fish supplies, particularly urban areas, is likely to rely more on landings of tuna and the further development of aquaculture (FAO, ibid)”*

As such coastal fisheries management in Samoa is largely the responsibility of the 230 Samoan coastal village communities and this is indicated in the successful implementation of the Community-based Fisheries Management Program (CBFMP) in 109 villages with 78 village by-laws established. According to the Samoa Coastal Fisheries Management and Development Plan 2013-2016 (Fisheries Division, 2013) the overall goal of interventions in coastal fisheries is to ensure sustainable food security and livelihoods through sustainable utilization, development and management of coastal fisheries in Samoa.



Graph 4: Estimated volumes and values of inshore fisheries market landings in the past 12 fiscal years




In Graph 4 it shows a comparison since the past 12 years, and the fiscal year 2017 had the highest volume of inshore market landings recorded an increase of 7mt compared to previous year’s catches. In terms of value, this fiscal year recorded less value compared to past years (Fisheries Division Annual Report 2016/2017). The value and estimated volume of coastal fisheries seafood landed at the local market has shown minimum fluctuation over the years and no alarming rate of overfishing causing coastal fisheries depletion.

Aquaculture farming has grown over the years with a total of 60 active tilapia farms<sup>28</sup> and the Toloa marine multispecies hatchery host to giant clam spawning for dissemination in the restocking of marine reserves. The Samoa Aquaculture Management and Development Plan (SPC, 2012 and FAO, 2018) identifies Samoa’s vision of long-term benefits of socio-economic growth as a result of aquaculture sector in sustainable and responsible way, as an income generating alternative to capture fisheries.

This plan also states that the overall goal is to secure food and nutritional security and improve rural and urban livelihoods through sustainable and responsible development and management of the aquaculture sector in Samoa.

<b>Reference to NBSAP Indicator Table 19</b>	Indicator 6.1.1 highlights the national fisheries plans which most have been developed and approved whilst some are in draft form awaiting endorsement. Most of the actions for each of the indicators in ABT 6 have been partially monitored due to inconsistency and limited actions being implemented for indicator 6.1.2 to 6.2.2.
<b>Trend</b>	There is a trend towards promoting fisheries marine reserves and other alternative fishing practices such as aquaculture to support sustainable and subsistence livelihoods for Samoan communities.
<b>Recommendation for future actions to improve data in achieving the NT/ABT 6.</b>	The biggest problem in soliciting data for spatial mapping was not being able to get this information from the Fisheries Division despite endless follow-up by our GIS specialist in the end we didn’t get any data to map out all the marine reserves and fisheries sites. However, in future, it is highly recommended for improved data collection and reporting in the next NR that the following information should be considered for the assessment:

<sup>28</sup> Fisheries Division Annual Report for Financial Year 2016/2017

	<ul style="list-style-type: none"> <li>✓ Maps and description of the extent and spatial distribution of areas under sustainable fisheries, including safe ecological limits;</li> <li>✓ Trends in population and extinctions risk of target and bycatch species</li> <li>✓ Trend in fishing practices</li> <li>✓ Trends in proportion of fish stocks within and outside safe biological limits</li> </ul>
<b>Overall Rating ABT 6</b>	 <p>Therefore, sustainable fisheries are the ultimate vision and goal at the national level for Samoa’s management of its marine resources as seen in the areas of investment, this aligns well with the NT-6 and the ABT 6 on Sustainable Fisheries which shows positive progress towards achievement.</p>

#### 4.1.7. Aichi Biodiversity Target 7: Sustainable agriculture, aquaculture and forestry

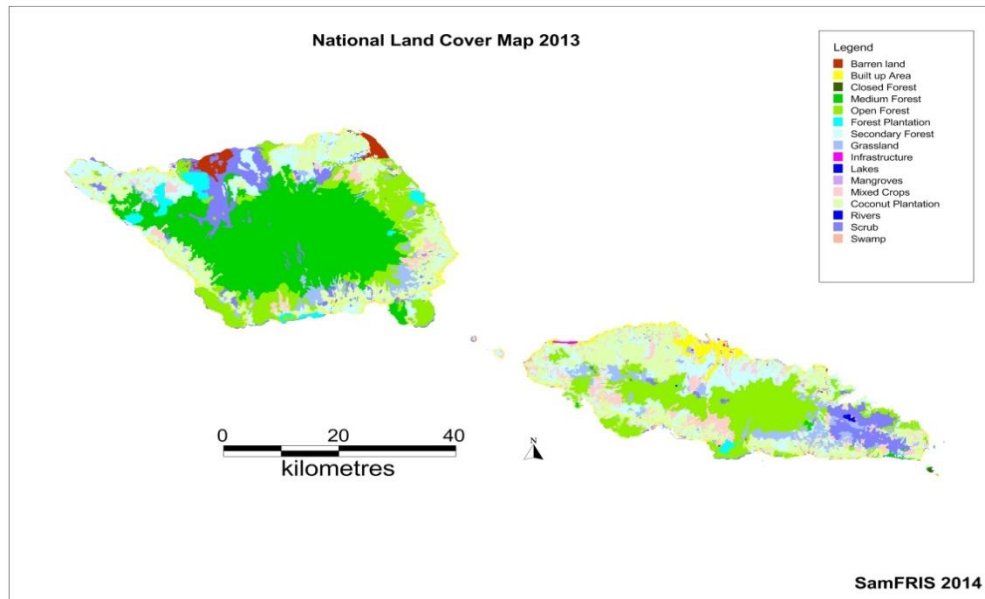
##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa in 1998 ratified the United Nation Convention to Combat Desertification (UNCCD) and it is obligated to promote sustainable land management in combating land degradation and contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change. In the forestry sector, Samoa has progressed well with many activities underway in the restoration of degraded open forest area and the promotion of sustainable agricultural practices through agroforestry and integrated pest management. Legal instruments are in place to guide forest conservation development and management such as the, National Forestry Plan 2016-2020, Forestry Management Act 2011 and the National Strategy and Action Plan 2015-2020 for the 2 million tree planting campaign. In Map 12, it shows the different landuse forest cover for Samoa 2013, and it highlights the expansion of land under cultivation moving inland and large areas of open forest land mainly for Upolu Island.

**Table 4.3 – List Donor Funded Projects related to Sustainable Agriculture**

Project Name/Year	Year	Amount USD	Donor	Status
Integrating Climate Change Risks in the Agriculture and Health Sectors in Samoa (ICCRAHSS)	2010-2015	?	GEF	Complete
Integration of Climate Change Risks and Resilience into Forestry Management in Samoa (ICCRIFS)	2011-2016	\$ 2.4 million	GEF/UNDP	Complete
Forest Protected Areas Management Project (FPAM)	2012-2017	\$1.4 million	GEF/FAO	Complete
Samoa Agroforestry and Tree Farming Program (SATFP)	2010-2014	?	DFAT	Complete
Samoa Agriculture Competitiveness Enhancement Project (SACEP- 1) expanded to include Cyclone Evan Recovery for affected farmers	2012-2017	\$ 13 million	World Bank	Complete
Strengthening Multi-Sector Management of Critical Landscapes (SMSMCL) Project	2014-2019	\$7 million	GEF/UNDP	Active

*Extracted from MNRE List of Projects (Environment Sector Division, 2018)*



**Map 12: National Land use/ cover map Samoa 2013**

Sustainable agriculture is hard to measure although there a number of donor funded projects investing in sustainable land management and agricultural practices as seen from Table 4.3 above. The Agriculture Sector Plan 2016-2020 emphasized the importance of sustainability and in its sector policy outcome (4) sustainable agricultural and fisheries resource management practices in place and climate resilience and disaster relief efforts strengthened. This is further supported in its promotion of farming system diversification, integrated pest management and organic farming. There are currently 1,200 families working with Women in Business Development Inc. (WIBDI) and 600 certified organic farmers across the country generating local income totaling 253,800 thousand per annum (Wilson: 2018)<sup>29</sup>. Aquaculture has also been promoted for food security to alleviate stress on inshore fishing.

<p><b>Reference to NBSAP Indicator Table 19</b></p>	<p>Indicator 7.1.2, 7.2.1, 7.3.1 and 7.4.1, actions for some indicators have been completed whilst others have been partially implemented such as indicator 7.3.1, 7.3.2, 7.5.1 and 7.5.2 from Table 19. The gap in the information available for this target is not having the quantitative data to confirm the numbers of degraded areas rehabilitated as well as the different forest areas from lowland, upland to coastal habitats.</p>
<p><b>Trend</b></p>	<p>There is a trend in promoting capacity building field trainings for farmers as seen in the MAF CROPS improved extension officer trainings for farmers and fishermen, as well as MNRE-DEC trainings for farmers in agro-forestry activities.</p>
<p><b>Recommendation for future actions to improve data in achieving the NT/ABT.</b></p>	<p>Although much information has been collected there is still limitation in other key resources to support the assessment. Therefore, to improve data collection it is highly recommended that consideration should be given to include the following information in future assessment of ABT 7;</p> <ul style="list-style-type: none"> <li>✓ Trends in extinction risk and population of agro-ecosystem;</li> <li>✓ Trends in proportion of aquaculture areas under sustainable practices;</li> <li>✓ Trends in proportion of forest production under sustainable practices</li> <li>✓ Trends in extinction risk and populations of forest specialist species in production forest.</li> </ul>
<p><b>Overall Rating</b></p>	<p>Although progress has been made in the areas of forestry, agriculture and aquaculture there are still limited information on the rate of land clearance for agricultural expansion and its impact upon biodiversity,</p>



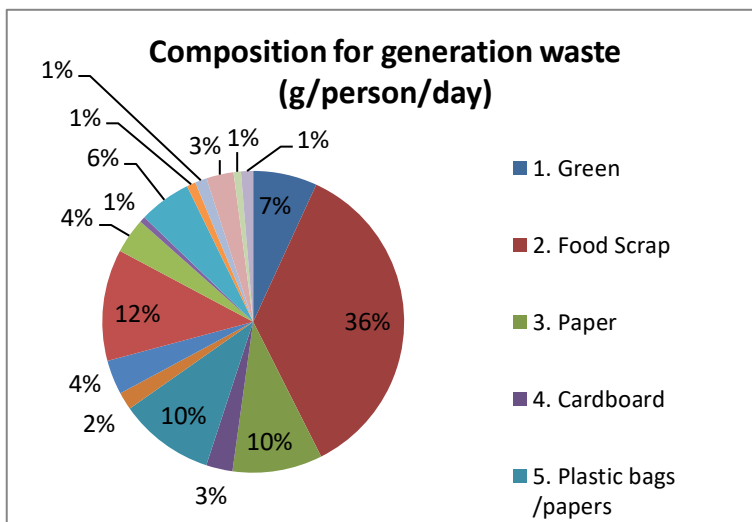
<sup>29</sup> Wilson. Catherine (2018) Organic Farmers Cultivate Rural Success in Samoa, Inter Press <http://www.ipsnews.net/2014/09/organic-farmers-cultivate-rural-success-in-Samoa/>

	<p>as well as potential impact of aquaculture from accidental leaking into natural habitat has not been assessed to provide sufficient information that can guarantee conservation of biodiversity. Therefore, achieving the global target for ABT-7 is limited by insufficient assessment data or information.</p>
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4.1.8. Aichi Biodiversity Target 8: Pollution reduced

**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

The impact from increased population and changes in lifestyle and improving living standards lead to the increase in consumption and the accumulation of solid waste and hazardous waste that can have adverse impact on the country’s biodiversity. Samoa has made significant progress in the management of solid waste when it adopted in 2003 the Fukuoka Method of semi-aerobic landfill system at the main waste disposal site at the Tafaigata landfill which covers 100 acres but only utilizes 10 percent for waste disposal.<sup>30</sup> Most waste generated at households accounts (2015), for 30.3 percent of green, food scraps and kitchen wastes categories and 19.4 per cent are recyclable materials referred to in Graph 5<sup>31</sup> on the composition of waste generation per person in the urban area. If appropriate waste management initiatives are applied on site through waste segregation, then only 50.3 per cent of the total generated wastes are liable for disposal at the landfill. This has been a major concern with solid waste although coverage of waste collection is almost 80 per cent around the country the volume of waste disposal continues to increase due to waste not being segregated at source. There is an urgent need to look at ways of minimizing waste disposal at the landfill and innovative initiatives for recycling, reuse and reduce the amount of solid waste accumulation to ensure that the life spans of the existing landfill is prolonged.




**Graph 5: Composition of Waste Generation per person urban area**

On the other hand, management of hazardous waste has not been a high priority, despite the fact that Samoa has signed up to a number of related international conventions such as the Rotterdam Convention, Stockholm

<sup>30</sup> Waste Management Section DEC, (2011) Waste Audit Report, MNRE  
<sup>31</sup> Ibid (2015) Waste Audit Report, MNRE (graph extracted from report)

Convention and Basel Convention. Progress has been made in education and awareness programs, as well as Green House Gas (GHG) and Persistent Organic Pollutants inventory in 2004, which included ban on importation of POPs as stipulated in the Vienna Convention. It was noted in the SOE (2013) that no information is available on any systematic monitoring or assessment of pollution due to the storage of hazardous chemicals or their effect on humans and biophysical environment and to date no major changes have occurred. The revival of the agricultural sector leads to a trend in the increase use of pesticides and insecticides to management crops and improve productivity, however this runs the risk of agricultural chemicals entering the soil contaminating and polluting underground water sources and coastal marine habitats.

There are good initiatives that are continuing such as the river ecosystem health monitoring program using trash booms to collect wastes for analysis and audits. In addition, the Water Resources Division of MNRE runs on-going monitoring of any illegal dumping of waste along riverbanks and imposes fines on transgressors and the Samoa Tourism Authority through its beautification programs support village clean-up activities and campaigns. The latest positive initiative by the Government of Samoa is declaring a ban on plastic importation in accordance with the Plastic Bag Prohibition on the Importation Amendment Regulation 2013.

<p><b>Reference to NBSAP Indicator Table 19</b></p>	<p>The indicators 8.1.1 to 8.3.1 asking for quantitative data especially the number of village by-laws that addresses the banning of unsustainable agricultural practices in various areas. However, most of the actions and indicators monitored have not been implemented, with the exception of indicator 8.2.1 and 8.3.1 that activities have been reported for algae bloom problem in coastal waters and incidence of illegal waste disposal. As well as consolidated information on the number of catchment area plans that have been completed.</p>
<p><b>Trend</b></p>	<p>There is a trend focusing more on addressing solid waste management to reduce the amount of solid waste that is disposed at the landfill as shown in Figure 4.5.</p>
<p><b>Recommendation for future actions to improve data in achieving the NT/ABT 8.</b></p>	<p>This ABT 8 has contrasting action vs the indicators for the target in the NBSAP. Anyways there are many limitations of the assessment and to improve future data collection and reporting on the target in the next NR, it is highly recommended to consider integrating the following information:</p> <ul style="list-style-type: none"> <li>✓ Maps and description of the source in terms of spatial distribution etc;</li> <li>✓ Trends in pollutants;</li> <li>✓ Trends in extinction risk and population driven by pollution;</li> <li>✓ Trends in ecosystems affected by pollution;</li> <li>✓ Trends in nutrient levels.</li> </ul>
<p><b>Overall Rating</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Although much efforts are seen in the management of solid waste there is no substantive information regarding the impact of biodiversity from challenges relating to nitrogen and phosphorous pollution from anthropogenic activities on land. Progress has been made but it is limited by insufficient assessment to support the target in terms of information confirming that the level of nutrient excess has been reduced and posed no detrimental threat on biodiversity.</p> </div> </div>

**4.1.9. Aichi Biodiversity Target 9: Invasive alien species prevented and controlled**


**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under the CBD Article 8 In-situ Conservation (g) and (h) with reference to the control and management of risk associated with introduced invasive alien species (IAS) and the prevention of the introduction of invasive species through control and eradication methods to avoid any detrimental impact on natural habitats and ecosystem, as well as on endemic species. The country’s commitment to the protection of natural habitats and its endemic threatened species are seen in the many activities that have been implemented in the past which includes: the establishment of the Samoa Nation Invasive Task Team (SNITT). The committee is made up of key stakeholders from relevant government agencies, NGOs, academia, private sector and civil societies lead by the MNRE. The Samoa National Invasive Species Action Plan (NISAP) 2008-2011 has guided many of the invasive species activities being implemented for the prevention, control and/or eradication programs at the borders, protected areas and site specific areas to name a few. Effective work carried out by the SNITT committee includes the interception and eradication of two invasive species that were accidentally introduced in the country through cargo shipments (mongoose and cane toad) and aggressive monitoring surveillance programs were undertaken afterwards.

There were activities identified in the NISAP 2008-2011, and the GEF-PAS project was the latest funding available (2014-2016) that had supported a number of invasive species work on the ground for: Mt Vaea Parks and Reserve, O le Pupu Pu’e National Park, Aleipata Islands within the Marine Protected Area, Myna Bird Control Operation, Monitoring Survey for two introduced seaweeds and the Crown of Thorns (COTs), Water Lettuce Consultation, and the COTs Control Operation and removal. Samoa has already put in place a readiness response for the likelihood of an extreme emergency event due to an accidental arrival of a deadly IAS in the form of the Samoa Invasive Species Emergency Response Plan (SISERP) 2019-2024 that was funded under the GEF-PAS. This readiness approach is in response to Article 9 (d) and (e) of the CBD which refers to immediate actions and emergency responses to activities which are either caused naturally or otherwise may present grave dangers to biological diversity.

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 9.1.1 to 9.4.1, some actions have been implemented for each indicator such as 9.1.1 draft NISAP 2018-2022 complete, and 9.4.1 is an ongoing activity by MAF Quarantine. However, the rest of the indicators’ actions have yet to be implemented for 9.1.2 to 9.3.2.
<b>Trend</b>	The trend in completing the actions under the IAS target is the availability of funds to implement the list of actions that will enable the monitoring of indicators. Recently funding has been made available to update the NISAP 2008-2011 as well as plan towards implementing other outstanding activities as identified in indicators 9.1.2-9.3.2.
<b>Recommendation for future actions to improve data in achieving the NT/ABT 9.</b>	Although much has been done for IAS there are still some gaps that needs to be addressed in future reporting. Therefore, it is highly recommended that the following consideration should be included in future tracking and reporting on this target such as: <ul style="list-style-type: none"> <li>✓ Maps and description of the source and extent, spatial distribution since this information was not available during the time of this report;</li> <li>✓ Trends in impacts of IAS on ecosystems</li> <li>✓ Trends in the number of IAS introduction and establishment events</li> </ul>
<b>Overall Rating</b>	Overall, Samoa is progressing well towards meeting its obligations under Article 8 and 9 of the CBD that will contribute



		<p>to achieving both Aichi Biodiversity Target 9 and NT 9; however the set-back has been the lack of funding investment to support monitoring, follow-up and collecting data to continuously assess the status of IAS in the country. Samoa is currently reviewing its NISAP after a delay of seven years.</p>
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#### 4.1.10. Aichi Biodiversity Target 10: Ecosystems vulnerable to climate change

##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated to implement actions that will adhere to Article 14 Impact Assessment and Minimizing Adverse Impacts section 1 (a) and (b) and section 2 of the CBD as well as its commitments to actions under the Small Island Developing States Accelerated Modalities of Action (S.A.M.O.A) PATHWAY addressing climate change, oceans and seas and biodiversity for Small Island Developing States. The country has put in place legal instruments to guide developments such as the Lands and Survey Act 1989, PUMA Act 2004, PUMA Environmental Impact Assessment Regulation 2007, Enforcement of the Fisheries Management Act 2016 and the National Land use Policy 2001 to ensure that there will be no adverse impact on the natural environment and biological resources. At the village level 78 approved Fisheries Village By-laws contributes to local governance system that provides the protection and conservation of inshore marine habitats. The recent updated Community Integrated Management (CIM) Plans 2018 identifies climate resilience interventions to reverse anthropogenic and climate change impacts on biological resources.

However, despite the efforts that have been made to date, recent surveys note poor conditions of Samoa’s coral reef habitats. The monitoring survey of the Aleipata Marine Protected Area (MPA) (2010)<sup>32</sup> identified devastating impacts from the tsunami 2009 on coral reefs for some villages within. Kwon and Lee (2015)<sup>33</sup> reported that the southern coast of Samoa (Upolu Island) had only a few live corals as a result of the combination of the outbreak of the crown of thorns starfish, coral bleaching (sea surface temperature SST) and tsunami 2009. Similarly,. Another survey reflected the same results (2017)<sup>34</sup> stating the coral reef ecosystems of Upolu have been subjected to repeated severe disturbances as mentioned above. There were surveys conducted by the Government to assess the extent of the mass coral bleaching event in 2015 and 2016. The 2015 mass coral bleaching event was considered the most severe for Samoa, as corals in deeper areas as well as more resilient species to bleaching, were also impacted. The surveys estimated at least 5% of corals died because of the mass coral bleaching event, however actually impact of coral bleaching could not be determined as the COTs were simultaneously affecting the corals.

Overall there are serious limitations in achieving this ABT 10 or NBSAP 10 target, due to the continuous natural disturbances potentially induced by humans, on Samoa’s coral reef ecosystem. As such it will take time and more vigorous interventions in order for coral reefs to begin to recover. There have been many climate change funded projects but most are focused on terrestrial and coastal communities.

<sup>32</sup> Marine Section and Conservation International (2010), An Assessment on the Tsunami Impacts on the Aleipata Community Based Marine Protected Area, Division of Environment and Conservation, Ministry of Natural Resources and Environment.

<sup>33</sup> Kwon, Sang Moon and Lee, M Charity (2015) Coastal Marine Environment Survey: Independent State of Samoa 2014 KIOST Tropical Pacific Project-V

<sup>34</sup> Ziegler, Maren *et al* (2017) Status of coral reefs on Upolu (Independent State of Samoa) in the South West Pacific and recommendations to promote resilience and recovery of coastal ecosystems

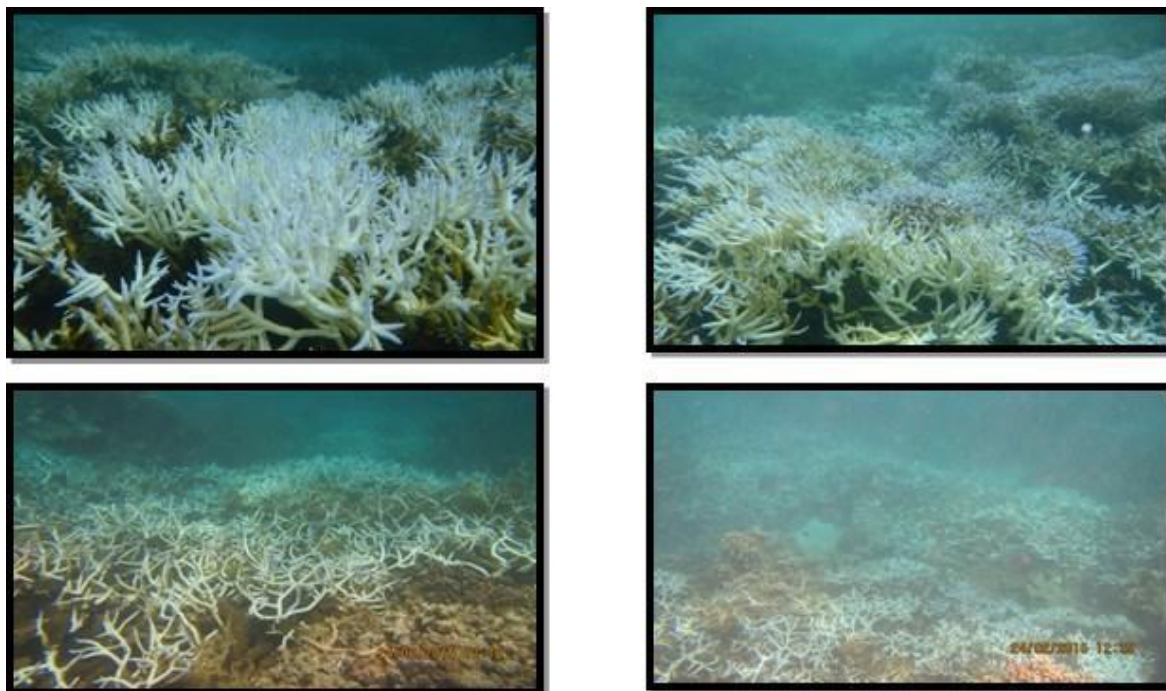



Figure 6 – 10: Mass coral bleaching observed in several sites around Samoa.

<p><b>Reference to NBSAP Indicator Table 19</b></p>	<p>Indicators 10.1.1 to 10.5.1, most actions have been implemented such as a total of 313 sand-mining permits and 52 permits for coastal reclamation were issued; completed survey assessment for Vaitoloa bay; updated information were source from coastal research undertaken by Tara Expedition and CIM Plans 2018 for 41 districts completed. As well as legal instruments in place to monitor progress of the target.</p>
<p><b>Trend</b></p>	<p>There is a trend in environmental stress in Samoan waters due to slow coral recovery.</p>
<p><b>Recommendation for future actions to improve data in achieving the NT/ABT 10.</b></p>	<p>Although much research and work has been done on Samoa coral reef and coastal habitats there are still relevant information that has not been included due to limited time of this assessment. However, it is highly recommended for improvement in future reporting and tracking on this target that the following information should be considered:</p> <ul style="list-style-type: none"> <li>✓ Maps and description of the source, extent in spatial distribution, ecological threats and pressure from climate change;</li> <li>✓ Trends in pressure on coral reef and responses to reduce pressures on coral reefs.</li> <li>✓ Trends in vulnerability for other ecosystems and species</li> </ul>
<p><b>Overall Rating ABT 10</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Climate investment is needed to support activities that directly address climate and human related marine issues such as COTS, coral bleaching and enforcement of compliance to reduce anthropogenic impacts. Therefore ABT 10 or NBSAP target 10 is not making any significant progress towards achieving the 2020 target.</p> </div> </div>

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



The increase in the number of protected areas (PAs) for Samoa and areas with crucial biodiversity, constitute 33% of the terrestrial area including Key Biodiversity Area (KBA) and 23% of coastal marine environment. (CI:2010). Most of the PAs are located within these KBA or priority sites for conservation in Samoa. To date we have a total of 54 terrestrial PA and 126 marine reserves/Pas (refer Annex 4 Protected Area dataset). These protected areas are home to Samoa's endemic and threatened species. Samoa has about 93 species listed on the IUCN RL, with four species now considered as critically endangered, 15 endangered and the rest are vulnerable. Marine species coral and fish makes up the majority of species on the RL.

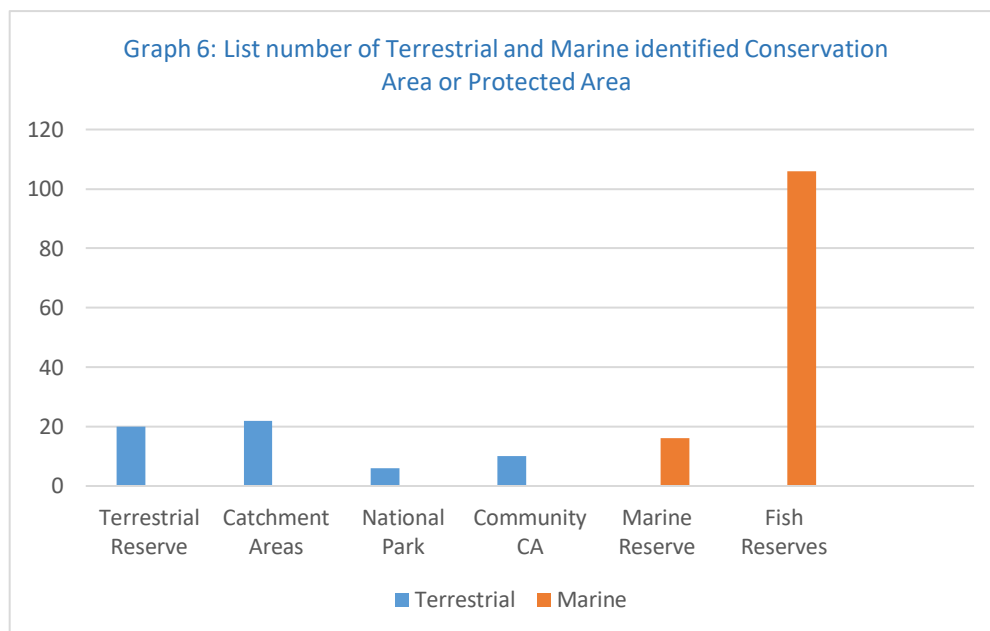
Samoa has invested in the recovery of two bird species the manumea and ma'o, to date the country has managed to identify the ma'o and understand its habitat as well as knowledge of potential remaining populations. On the other hand, our flagship bird the tooth-billed pigeon remains elusive despite the many attempts through BIORAPS and specific studies to locate the bird. According to Luca (2016), from the Traditional Ecological Knowledge (TEK) it was noted from the interviews with hunters that one of the possible reasons for the reduction in number is that this bird has been accidentally hunted during pigeon hunting activities. Other species such as the swallowtail butterfly and Samoan moorhen are considered extinct, whereby the sheath-tailed bat has also no recorded sighting (ibid). There is a strong drive in promoting agro-biodiversity and aquaculture for food security and economic reasons. The taro leaf blight (TLB) of the 90's had changed Samoa's biophysical outlook on its dependency on traditional crop which collapsed the export market at the time and wiped out the main traditional taro variety that many people preferred (taro niue). The recovery process we have seen the genetic diversification of many taro varieties to improve resilience against pests like the TLB, diseases and climate change. Many farmers are encouraged to take-up agroforestry practices in their plantations and to register for woodlot program.

#### 4.1.11. Aichi Biodiversity Target 11: Protected Areas

**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa has made a lot of progress in its commitment to the CBD under Article 8 In-situ Conservation (a), (b), and (c) of the CBD, with reference to protected area system and their importance to the conservation of biological resources, through a growing number of protected areas (PA) over the years in both marine and terrestrial. To date 33 per cent of terrestrial and inland waters and 23 per cent of marine areas of Samoa have

been designated important Key Biodiversity Areas (2010)<sup>35</sup> and 6 Important Bird Areas (IBA) have been identified and are within the KBA sites. The total percentage of land area identified as priority conservation sites for Samoa is more than double the national commitment of 15% (identified in the 2008 Samoa NBSAP) and even higher than the global target of 17% for terrestrial. There are six categories of areas listed as having conservation or protected area status in Samoa with different management governance as shown in Graph 6 and they are: terrestrial reserves and national parks under government management; marine reserves under joint management of government and communities, water catchment areas and community conservation areas and fisheries reserve are under community management Map 13 shows the number of listed conservation or protected areas of each type and shows that fish reserves are the biggest group with 109 villages having established marine fish reserves in partnership with MAF Fisheries Division.



Almost all conservation and protected area sites are within the KBA sites for both marine and terrestrial. The evaluation report for the GEF FPAM<sup>36</sup> (2017) highlighted one of its achievements is the contribution to strengthening in situ biodiversity and protected areas by increasing the total number of legally protected areas by 14 706 ha. Three sites established on the big island Savaii on the customary held lands of Taga and Gataivai in the south and six villages known as Matautu (Sato’alepai, Fagamalo, Lelepa, Avao, Sale’ia and Vaipouli) in the north. The village lands stretch from the coast towards the centre of the island (ridge to reef). Two small areas of lowland forest (estimated at 10 ha each) have been declared as community conservation areas in Taga and Gataivai. The latest estimated area coverage of all protected and conservation areas excluding Fish Reserves for Samoa stands at 78248.02 ha with KBAs totaling 104844 ha and about

<sup>35</sup> Conservation International, MNRE and SPREP (2010) Priority Sites for Conservation in Samoa: Key Biodiversity Area, Apia SAMOA <https://www.sprep.org/att/irc/ecopies/countries/samoa/191.pdf>

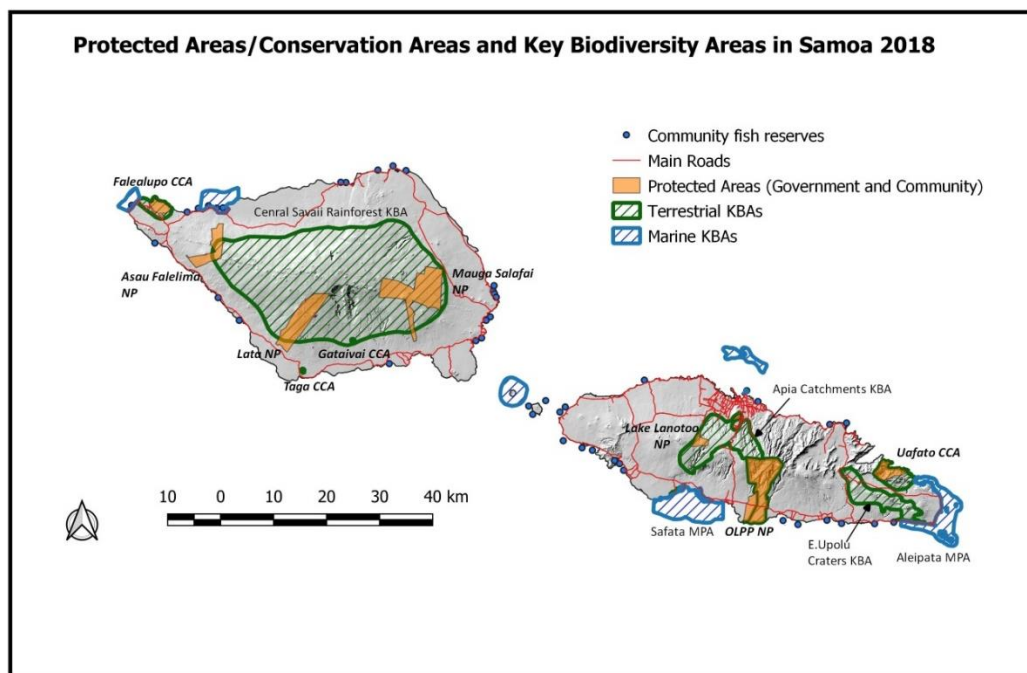
<sup>36</sup> FAO (2017) Final Evaluation of the Project “Forestry and Protected Area Management in Fiji, Samoa, and Vanuatu and Niue (GEFPAS-FPAM)” GCP/RAS/262/GFF GEF ID 3819 weblink <http://www.fao.org/evalutaion>

26% area within KBA have not been prioritized as conservation or protected area (2018)<sup>37</sup>. Most of the protected areas and conservation area either marine or terrestrial are under traditional governance system, and almost all sites have very strong support from local village communities due to strong cultural affiliation of people with nature and their own local environment.

Although, area coverage for PA have increased over the years there are still many gaps that needs to be addressed to ensure that these PAs or conservation areas, marine or terrestrial, are active and have effective management. Table 4.5 identifies the list of gaps and priority actions to move ABT-11 or NT-11 towards achievement by 2020.

**Table 4.5 List Gaps and Priority Actions for the Achievement of Aichi Biodiversity Target 11 or NT 11**


Gaps – limitation	Immediate Priority Actions to achieve the target
No legal status for some of the PA in both terrestrial and marine and IBAs	Formal gazettement of Government Protected Areas Endorsement of the Environment Management Conservation Bill
Limited national allocation of budget from government for conservation work	Conduct PA management effectiveness assessments; Establish Upland Central Savaii as an official Protected Area with full management
No monitoring of the effectiveness of PA and Conservation Area sites	
No economic valuation of PA	Strengthened community engagement in sustainable forest management
No formal designation of Central Upland Savaii to be a PA	Obtain legal status and framework for some KBAs
Fisheries reserves to be included in the marine PA network	Rehabilitate river banks/riparian zones
No clear boundaries of some KBAs	Continue and expand the current monitoring program for all perennial rivers and streams as well as groundwater resources as a priority activity
No social assessment of equity and effectiveness of governance	Undertake assessment of equity and effectiveness of governance
No legal framework to formally designate Samoa EEZ as a sanctuary	Initiate collaborative management arrangement for fisheries reserves between villages
	Formulate and implement management plans



**Map 13: Updated sites of Protected Areas, Community Conservation Areas and Key Biodiversity Areas in Samoa 2018**

<sup>37</sup> Division of Environment Conservation updated spreadsheet list of Protected Area Network under the management of Parks and Reserve Unit of DEC-MNRE (Annex 4 – Protected Area Updated Dataset)



<b>Reference to NBSAP Indicator Table 19</b>	Indicators 11.1.1 to 11.3.2 most have been completed such as increase in the number of new PAs established and BIORAP surveys conducted for marine and terrestrial. There were only two actions that has not been implemented as indicator 11.2.1 and 11.3.2.
<b>Trend</b>	There is a growing trend to established protected areas and conservation sites either in community lands, government and private sector.
<b>Recommendation for future actions to improve data in achieving the NT/ABT.</b>	Although much has been reported based on the existing national indicators, however there are still gaps that needs to be included in the next NR. To improve future reporting and tracking for the ABT 11 it is highly recommended that consideration should be made to include the following to further improve on future reporting. <ul style="list-style-type: none"> <li>✓ Maps and description of the extent, distribution of governance type</li> <li>✓ Assessment of PA Management Effectiveness for a range of PA</li> <li>✓ Trends in conservation of areas that are important for ecosystem services.</li> </ul>
<b>Overall Rating ABT 11</b>	 <p>Progress has been made but there is a need for more information to substantiate its commitment to Article 8 and achieving the global target. Refer Map 7for PA sites which covers Community Conservation Area, National Parks, Marine Protected Areas and KBAs for Samoa.</p>

#### 4.1.12. Aichi Biodiversity Target 12: Reducing risk of extinction

##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under Article 8 In-situ Conservation (d) and (f) and Article 9 Ex-situ Conservation (c) of the CBD to implement activities relating to the protection and reversing the threatened status of Samoan species identified in the IUCN Red List. The recently updated list of threatened species from Samoa on the IUCN Red List (Table 4.6) shows a 20 per cent increase of species (17) added to the 2009 list. There have been monitoring work conducted for the threatened species like the Manumea or Tooth-billed pigeon (*Didunculus strigirostris*) and Mao (*Gymnomyza samoensis*) through the implementation of the Manumea Recovery Plans (2006 – 2016) and Mao Recovery Plan (2006-2016). In addition, 108 plant species have been identified as rare and/or threatened Samoan plants. However efforts to survey few of the key species are currently underway to collect and propagate rare native and endemic plants of Samoa which includes the *Clinostigma samoense*, *Manilkara samoensis*, *Alectryon samoensis* and *Vavaea samoense*. Samoa’s declaration of its EEZ as a sanctuary for whales, dolphins, turtles and sharks has strengthened the efforts to support the protection of these marine species.

Taxonomic Group	CR	EN	VU	2009 RL	2018 RL	Trends 2009-2018 change
Fish		2	14	11	16	Increase
Corals		1	50	51	51	Stable
Birds	2	1	3	7	6	Slight Decrease
Gastropods		1		1	1	Stable
Holothurians		5	4	0	9	Increase
Jellyfish			1	1	1	Stable
Plants	1	1		2	2	Stable

<sup>38</sup> List compiled by James Atherton (2018) from 2009 IUCN Red List and 2018 IUCN Red List for Samoa




Mammals		1	1	2	2	Stable
Reptiles	1	3	1	1	5	Increase
<b>Grand Total</b>	4	15	74	76	93	Increase of 20%

Table 4.6 shows an increase in number of threatened fish holothurians and reptile species, with a slight decrease in the number of birds. There have been many efforts focused on the recovery of threatened terrestrial species such as the BIORAP assessments that goes back to 1992 and the latest was in 2016 targeting KBAs. The BIORAPs are valuable in providing recommendations for the management of threatened species and the identification of critical habitats that are home to these species should be prioritized to be converted into PAs/CAs to ensure their protection and recovery. These threatened species are also known as KBA trigger species because of their status and potential sites identified as their habitats it forms the basis of identifying a site as a protected area.

However despite the numerous terrestrial BIORAP surveys undertaken there has not been any major improvement in the status of threatened species in Samoa, in fact the trend is showing concern based on the 2012 to 2016 BIORAPs which confirm the extinction of some species such as the Pacific sheath-tailed bat and the swallowtail butterfly as there were no sightings or signs of possible habitats. Furthermore, the flagship bird (tooth-billed pigeon) of Samoa has proven to be cryptic bird given the tremendous efforts and the number of projects supporting its recovery has all fallen short of physically finding an adult bird and locating areas of habitats. The 2012 BIORAP had recommended the status of the bird to move from Endangered to Critically Endangered given the unknown status of remaining birds and potential habitats.

Samoa’s threatened marine species have the highest numbers identified compared to terrestrial but has the biggest gap in terms of knowledge on their status to date especially on corals.

<b>Reference to NBSAP Indicator Table 19</b>	Indicator 12.1.1 to 12.3.1 all about the threatened and vulnerable species for Samoa in monitoring any changes and as such most of the threatened species nothing much has changed but their status have decline some are now considered extinct like the swallowtail, sheath-tailed bats and there is still not enough information about some endemic plants and the remaining population for the tooth-billed pigeon.
<b>Trend</b>	The trend for ABT 12 shows the declining status of threatened Samoa species both marine and terrestrial.
<b>Recommendation for future actions to improve data in achieving the NT/ABT.</b>	Although much information has been collected and presented in ABT 12 assessment there are still some gaps that needs improvement. Therefore, it is recommended for improvement in the ABT 12 future reporting and tracking to consider including the following: <ul style="list-style-type: none"> <li>✓ Species richness / threatened species richness/ critically threatened species richness</li> <li>✓ Threatened species richness within effective protected area</li> <li>✓ Maps and description of KBA and key connectivity areas</li> </ul>
<b>Overall Rating ABT 12</b>	 <p>Non-significant</p> <p>Although there have been a number of investments in the recovery of some of the threatened species for Samoa identified in the IUCN Red List most of the effort has been fragmented and there has been limited follow-up due to the limited resources available both financial and staff. There is an urgent need for support to implement a direct program that focus mainly on the improvement of conservation status of species on island. Overall, there has been no significant progress in the achievement of this target.</p>

#### 4.1.13. Aichi Biodiversity Target 13: Safeguarding genetic diversity

##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under the CBD Article 9 Ex-situ Conservation (a) and (b) (with reference to ex-situ conservation and research into plant and animal genetic resources within country of origin), and Article 15 Access to Genetic Resources (1) and (2) (refer authority over genetic resources lies with national government and to create conditions to facilitate access to genetic resources for environmentally sound uses and not to impose restrictions that run counter to the objectives of the convention) to implement activities at the national level that will reflect its commitment. The importance of safeguarding genetic diversity for Samoa is more targeted towards agro-biodiversity mainly the food crops sector dominated by the production of root crops such as taro (giant *Alocasia macrorrhiza*, *Colocasia esculenta*, American *Xanthosoma* sp.), yams, manioc/cassava, etc., and bananas and plantains. Samoa established a national programme for plant genetic a resource targeting food security as its primary concern prompted by wake of the 1993 taro leaf blight (TLB) and MAF is solely responsible together with farmers and other relevant stakeholders for its implementation. However major problems have always limited financial support since its funded from local budget and the staff involved have limited ability to perform required tasks due to inexperience.

Since the TLB in the 1990's that had the most serious adverse impact on Samoa's economy and threat to the genetic vulnerability of the Samoan taro, the government has invested heavily on research work for taro genetic diversification. According to FAO (2018)<sup>39</sup> The TLB control by breeding for resistance has proven to be an extremely cost-effective and environmentally acceptable approach. Taro leaf blight control by breeding for resistance has proven TIP (Taro Improvement Programme) made good progress and farmers evaluated and selected clones derived from crosses between local (Samoan) cultivars and those from Palau and the Federated States of Micronesia. Later, to broaden the genetic diversity of the breeders' lines, the programme has made crosses using varieties from Asia to improve further TLB resistance whilst retaining the quality characteristics favoured by Samoans and the export market in New Zealand. To date seven cycles of breeding have been completed. This is one of the core functions of the MAF CROPS Division, focussing on tissue culture to improve varieties of taro and improving tissue culture methods for multiplying disease free planting materials. Samoa is part of the International Network for Edible Aroids (INEA) which aims to link all the major taro gene pools and promote the interchange of taro genetic resources worldwide ([www.ediblearoids.org](http://www.ediblearoids.org)).

According to Tuivavalagi (2010)<sup>40</sup> the status of crop improvement programmes in Samoa is basically in place with moderate germplasm identification and evaluation processes. These staple crops are: taro, banana, yam, cassava, taamu, taro palagi, sweet potato and breadfruit. Fruit trees are lemon, lime and Tahitian lime. Coconut is also included in these programmes. It has also produced numerous varieties that can tolerate the leaf blight. Demonstrations in rural farms on the eradication of rhinoceros beetles have greatly improved coconut yields in farms. Significant changes are projected in the future in the use of plant genetic resources for food and agriculture. This is due to efforts aimed at crop improvement programmes that have been emphasized for all farmers. Samoa is a member of the International Treaty for Plant Genetic Resources for Food and Agriculture and this is appropriate to the sustainable use, development and conservation of plant genetic resources. This access to outside plant genetic resources is adequate in supporting agriculture food security and development

<sup>39</sup> Woodfine. C. Anne (2018) Regional adaptation programme to climate change related transboundary plant and animal pests and diseases and invasive alien aquatic species for Pacific Island countries (PICTs) for enhanced food security, FAO

<sup>40</sup> Tuivavalagi, Philip (2010) Country Report on the State of Plant Genetic Resources for Food and Agriculture: Country Report Samoa; FAO

goals. The amended quarantine Biosecurity Act 2006 has emphasized sanitary and phytosanitary measures to be undertaken and Biosafety Framework 2004 are some legal instruments to guide genetic diversity, although the endorsement of the draft Environment Management and Conservation Bill also reflects upon in-situ and ex-situ genetic resources. Samoa has benefited from regional collaboration on plant genetic resources through SPC in Fiji and other crop-based system have had numerous benefits involved such as the transfer of technology, back-up safety duplication of germplasm, exchange of germplasm, access to financial resources through participation, sharing of responsibilities for network activities, exchange of technical expertise, training for nation programme scientists, exchange of information, access to advanced research results, increased awareness of PGRFA and avoid duplication of efforts.

However, there is limited information available upon wild plants for food production and wild relatives since priority is focused on collecting plant genetic resources of the major crops for food security and income generation purposes. As well, the limited information on genetic erosion of plant genetic resources is not well surveyed or documented. Similarly, numerous effects of genetic erosion are not well documented or inventoried and it is worrying that replacement of certain varieties especially with improved ones with higher resistance to pests and diseases can surely wiped out the existing variety.

**Table 4.7 Summarizes the constraints and immediate action for achieving the target ABT 13**

Limitations to maintaining and safeguarding plant genetic resources	Priority Actions
Major constraints for taro breeding programme – lack of knowledge of the genetic diversity in the cultivars	Need to implement high priorities for future inventories and surveys of plant genetic resources for food production especially staple food
Limitation in access to and knowledge of additional sources of disease resistance	Make available support for resources required to conduct surveys and inventories
Absence of information on the potential agronomic and processing value of genotypes	Training for staff involved in inventorying and surveying of plant genetic resources including wild plants for food production
High staff turnover and existing staff do not have sufficient skills	Need to implement activities in order to support in situ conservation of plant genetic resources
Constraints encountered in establishing effective plant genetic resources disaster response mechanism due to insufficient germplasm materials available for multiplication and restoration	Recruitment of qualified staff with experience in conducting research on plant genetic resources to expand Samoa in-situ and ex-situ collection for food and agriculture
The capacity for research to expand and improve <i>ex situ</i> plant genetic resources conservation is limited to the existing staff with little to no knowledge and experience	Strengthening capacities and improved training in plant breeding a priority in Samoa to increase more planting materials
Limited financial support, unqualified personnel and facilities are always common constraints.	Need to invest more on continuous public awareness through radio programmes, television advertisement, newspaper notices plus other means of media releases in order to share the benefits to the public regarding the use of plant genetic resources.
Lack of heavy machinery and high cost chemical in the tissue culture laboratory constraints full operation	Needs and priorities for future international collaboration is highly required in the areas relating to understanding the state of diversity, enhancing both <i>in situ</i> and <i>ex situ</i> management, enhancing training needs and legislation as well as information management and early warning system of plant genetic resources
Market location has affected the use of plant genetic resources in Samoa	A standardized system is needed to be in place at all MAF stations with internet for the ease of information exchange.
The level of awareness of the roles and values of plant genetic resources in Samoa is limited.	Urgent need to implement trainings on genetic resource conservation, PGRFA documentation, characterization, fingerprinting and molecular markers, monitoring genetic erosion and PGRFA conservation and utilization
The actual state of diversity of wild plants for food production is unknown. No proper inventories and surveys	


were conducted with the aim of identifying specific wild plants for food production.	
Poor documentation of plant genetic resources erosion especially for wild plants or traditional food crops.	



Figure 11: Management team tasting the cycle 9 varieties



Figure 12: Taro Leaf Vein Chlorosis (Little leaf disease)

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 13.1.1 to 13.4.1 shows that only two indicators have been implemented the actions, such as 13.1.1 is an ongoing action mandate for the Quarantine Division of MAF, however 13.2.1 to 13.3.1 no action has been implemented to date. There are no ex-situ conservation programs developed.
<b>Trend</b>	There is a trend to support more research on genetic diversity especially root crops like taro
<b>Recommendation for future actions to improve data in achieving the NT/ABT.</b>	<p>Although much information has been collected and used in the assessment for ABT 13, there are also gaps that needs to be factored into future assessment for this target. Therefore, it is highly recommended that the following information should be considered for future improvement in tracking ABT 13 such as:</p> <ul style="list-style-type: none"> <li>✓ Maps and description of the sustainable use of genetic diversity etc;</li> <li>✓ Trends in genetic diversity of cultivated plants</li> <li>✓ Trends in genetic diversity of farmed and domesticated animals</li> <li>✓ Trends in extinction risk and population of wild relatives</li> <li>✓ Trends in genetic diversity of socio-economic &amp; culturally valuable species</li> </ul>
<b>Overall Rating ABT 13</b>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Literature available and research noted from MAF on genetic diversity has centred mainly on plant genetic resources and there is not much sources or information about genetic diversity for farm and domesticated animals and this is one of the critical gaps in this target. As well, from Table 4.7 it identifies the list of limiting factors and priority actions for the target relating more to plant genetic resources. Therefore, this target had not shown any significant changes apart from taro research and more needs to be done to balance both genetic diversity of plants and animals.</p> </div> </div>

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



Samoa’s forest sector is slowly recovering and the excellent campaign currently being implemented for the 2 million tree-planting will have greater positive impact on the forest resources in the future. The phase-out of commercial logging and the ongoing promotion of communal and individual reforestation programs as well as natural regeneration of forest are helping with the recovery of forest resources. However, changes in temperature and prolonged drought coupled with extreme events of flooding from increase precipitation and natural disaster in the form of tropical cyclones are all factors that contributes to the slow recovery and set-backs. Improvement in the protection of water catchment areas supports the safeguarding of ecosystem services. As well increase investment in climate resilience projects that support restoration programs of replanting native trees along the watershed or catchment areas and also to promote carbon sequestration activities.

There has not been an assessment to identify degraded areas that have been ecologically restored through natural regeneration and replanting program. The classic example of a degraded quarry area that has been restored is the Vaitele reserve, whereby the quarry before it used to be a dumping site of solid waste but now the area is flourishing with native trees. Samoa signed on to the Nagoya Protocol in 2014 and prior to that we were already implementing access and benefit sharing (ABS) in the activities under the Bioprospecting Policy 2001, using the permit system to screen outside researchers coming into the country to study our flora and fauna and learn from traditional local users of our natural resources. The permit system is a way to protect our people’s TK and to ensure that researchers are responsible in reporting back to government on any bio discovery from any raw material specimens that they have taken. All these assists in enhancing benefits that we can derived from ecosystem services provided by healthy biodiversity.

**4.1.14. Aichi Biodiversity Target 14: Ecosystem Services**

**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under Article 8 In-situ conservation (c) and (e) (with reference to managing biological resources and ensuring their conservation and sustainable use, as well as sustainable development of areas adjacent to protected areas) and Article 7 Identification and Monitoring (a) and (b) (referring to biodiversity importance for its conservation and those that have greatest potential for sustainable use) to implement activities in pursuant to the aforementioned Articles. At the national level Samoa in accordance with NBSAP actions and indicators identified to measure this target has shown positive progress mainly towards development centered around Key Biodiversity Areas (KBAs) for instance: three terrestrial management plans have been revised and completed for the Lake Lanotoo National Park and Vaisigano Catchment Area part of the Apia Catchment Area KBA site; O Le Pupu Pue National Park (KBA site); and Mauga Salafai National Park part of the Central Savaii KBA

site; other two management plans covering two KBA sites currently being developed under the SMSMCL Project are the Falealupo Peninsula KBA and the Tiavea-Uafato Coastal Forest KBA site. However, the management plans for the existing Marine Protected Areas Aleipata and Safata districts have not been updated. The MPA in Aleipata District management plan is expected to be updated from DEC’s recently signed project under the World Bank funded Pilot Program for Climate Resilience (PPCR) – Enhancing Coastal Communities Resilience executed by the Ministry of Finance and implemented by MNRE.

There have been some milestone achievements reflecting the importance of ecosystem services for Samoa such as the purchasing of 12 hectares at Malololelei for ecological restoration and protection of the Gasegase and Fuluasou upper Catchment area under the SMSMCL project. The Water Sector and Sanitation Plan (2016-2020) support the reliable, clean, affordable water and improved sanitation within the framework of Integrated Water Resources Management for a resilient Samoa, sustaining health and alleviating poverty. The result of the water sector survey in 2015 showed that 97.3% of the population uses improved water sources and 91.3 % of the population having access to piped water. About 97% of the population of Samoa has improved sanitation facilities contributing to improve health, livelihood and wellbeing for all. The Map 14 provides locations for all water catchment or watershed areas in Samoa currently under the management of the Water Resource Division of MNRE and each village communities. The number of watershed areas has increased steadily and their protection is critical to ensure that clean drinking water are supplied to every household with access to clean water for consumption.

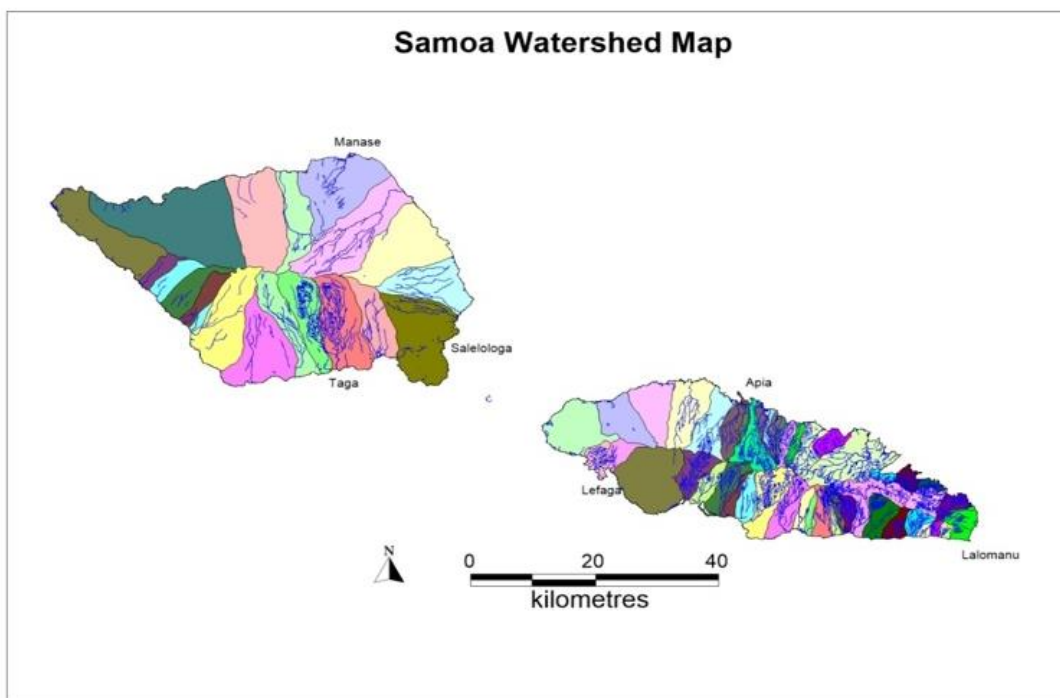
However, at the global scale there are limitations especially when there are other important ecosystems such as mangrove and wetlands providing critical ecosystem services, as well as adopting other key indicators to measure the progress of this target as referred to Table 4.8 below.

**Table 4.8 Identifies Limitations and Priority Actions**


<b>Limitations</b>	<b>Priority Actions</b>
Mangrove ecosystems are important habitats in Samoa because of the many ecological services they provide – firewood, edible food, medicinal purposes and natural protection from storm surges as well as breeding ground for marine species (fish) but is not identified in the NT	Urgent need to develop minimum natural ecological flow requirements for rivers and streams within Samoa, to ensure biological diversity of fish species in streams and rivers are retained.
Use of bird pollinator as an indicator to assess the level of forest restoration and improvement in forest ecosystem services seen in the improvement of bird species diversity and this is not factored into the list of NBSAP indicators	Enactment of the EMC Bill will support the implementation of Management Plans
Lack of financial support to implement existing management plans for the KBA sites	Identifying funding sources to support the implementation of activities within the management plans for the KBA sites and ensure management effectiveness

Overall this actions and national indicators have been are achievable within the 2020 timeframe.





Map 14: Samoa Watershed Map based on geological formation

<p><b>Reference to NBSAP Indicator Table 19</b></p>	<p>This target only had 2 indicators 14.1.1 to 14.2.1 based on the two actions in the NBSAP 2015-2020 which focus mainly on KBA sites. Most of the actions are currently being implemented.</p>
<p><b>Trend</b></p>	<p>There is a current trend towards targeting the establishment of large protected areas to include all areas identified as KBA sites.</p>
<p><b>Recommendation for future actions to improve data in achieving the NT/ABT.</b></p>	<p>Although much information has been collected and used in the assessment for ABT 14, there are also gaps that needs to be factored into future assessment for this target. Therefore, it is highly recommended that the following information should be considered for future improvement in tracking ABT 14 such as:</p> <ul style="list-style-type: none"> <li>✓ Maps and description of the ecosystem providing essential ecosystem services;</li> <li>✓ Trends in the extinction risk and population of species that provide essential services;</li> <li>✓ Trends in benefits from ecosystem services;</li> <li>✓ Trends in the restoration of essential services;</li> <li>✓ Trends in the degree to which ecosystem services provide for needs of vulnerable groups -women, youth, indigenous and mentally disadvantage people.</li> </ul>
<p><b>Overall Rating ABT 14</b></p>	<div style="display: flex; align-items: flex-start;">  <div> <p>At the national level Samoa in accordance with NBSAP actions and indicators identified to measure this target has shown positive progress mainly towards development centered around Key Biodiversity Areas (KBAs) for instance: three terrestrial management plans have been revised and completed for the Lake Lanotoo National Park and Vaisigano Catchment Are part of the Apia Catchment Area KBA site; O Le Pupu Pue National Park (KBA site); and Mauga Salafai National Park part of the Central Savaii KBA site; other two management plans covering two KBA sites currently being developed under the SMSMCL Project are the Falealupo Peninsula KBA and the Tiavea-Uafato Coastal Forest KBA site.</p> </div> </div>

4.1.15. **Aichi Biodiversity Target 15: Climate resilience, sequestration and restoration**

**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is committed to its obligations under these two conventions- the UNCCD convention (to combat desertification and land degradation) and the UNFCCC (to promote climate resilience programs through mitigation and adaptation to reduce impact of climate change). There is an increase in the number of climate change projects with a focus on enhancing resilience of communities, ecosystems and built environment. The implementation of these projects directly contributes to the conservation and protection of biodiversity and biological resources, and the emphasis on ecosystem-based adaptation approach shows a cost-effective solution to reducing climate change impact on natural resources, whereby restoration programs for forest ecosystems, mangroves, coral replanting and coastal rehabilitation although they are long process they do contribute to the ecological resilience of ecosystems in the long run. Table 4.9 below provides a list of climate change projects that directly supports the conservation and protection of biodiversity and the sustainable use of biological resources.

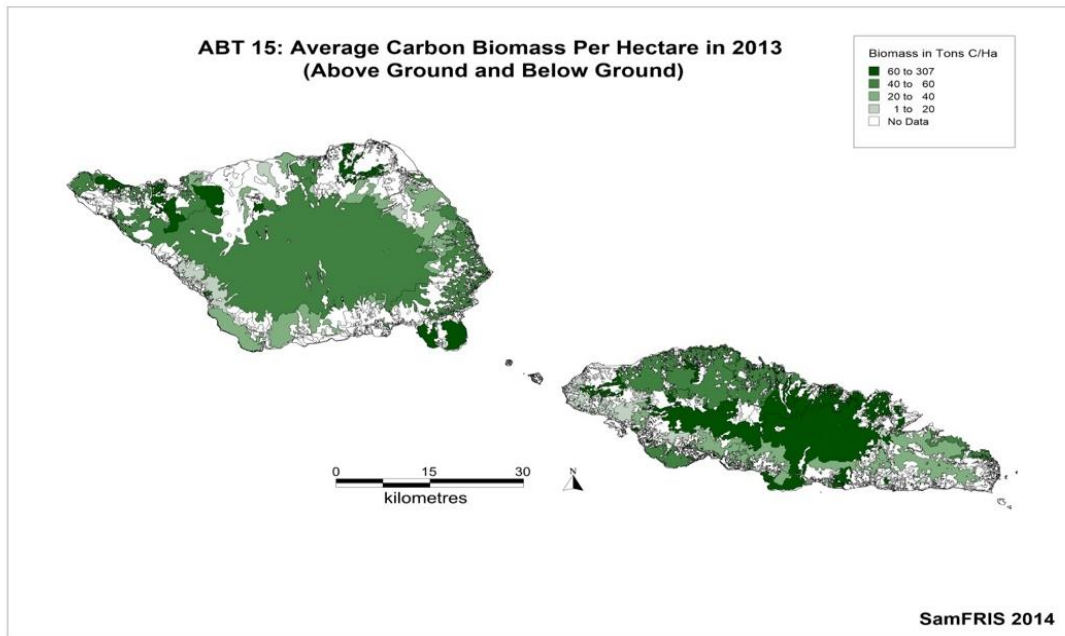
**Table 4.9 List of Climate Change Project directly link to Biodiversity**

Climate Change Project	Year	Donor	Contribution to supporting NBSAP Implementation
Integration of Climate Change Risks and Resilience into Forestry Management in Samoa (ICCRIFS)  <a href="http://www.ws.undp.org/content/samoa/en/home/operations/projects/environment_and_energy/ICCRIFS.html">http://www.ws.undp.org/content/samoa/en/home/operations/projects/environment_and_ene rgy/ICCRIFS.html</a>	2010-2015	GEF-LDCF	The aim of the project is to strengthen institutional capacities to systematically identify and address the climate change-driven risks for the management of native forests and agroforestry areas, in order to increase the resilience of rural communities and protect their livelihoods from dynamic climate-related damage. Support recovery of native forest ecosystem – improve species diversity.
Integrated Climate Change Risks into Health & Agriculture Projects (ICCRAHS)  <a href="https://www.adaptation-undp.org/projects/ldcf-samoa-iccrahs">https://www.adaptation-undp.org/projects/ldcf-samoa-iccrahs</a>	2009-2013	GEF -LDCF	The project aims to strengthen capabilities of Samoa’s public health workers and agricultural planners to make use of climate risk information and adopt measures that increase the resilience of communities to climate-induced food security and increase risks. Demonstration of adaptive crop management and climate-related disease prevention to assist resilient policy and investment decisions in Samoa and enable replication and up-scaling of project lessons learned. Sustainable farming and integrated pests management
Forestry and Protected Area Management (FPAM)	2012-2016	GEF -FAO	Regional project: its objective is to strengthen biodiversity conservation and reduce forest and land degradation – as well as enhancing the sustainable livelihoods of local communities living in and around protected areas
MESCAL	2011-2013	IUCN	Project objective: improved mangrove conservation and co-management for climate change adaptation and livelihood

Climate Change Project	Year	Donor	Contribution to supporting NBSAP Implementation
Enhancing Resilience of Coastal Communities to Climate Change	2012-2018	GEF-UNDP  Adaptation Fund	Project objective – reduce vulnerability (and variability) to adverse impacts of climate change at local/national levels. Update of 25 Community Integrated Management (CIM) Plans and 139 villages. Support – biodiversity conservation, food security and livelihood, governance and infrastructure.
Enhancing Climate Resilience of Coastal Resources & Communities (PPCR-Project)	2013-2019	World Bank	Project Objective: To support coastal communities to become more resilient to climate variability and change. Update 16 CIM Plans and 115 villages. Support – biodiversity conservation, food security and livelihood, governance and infrastructure.
Strengthening Multi Sector Management of Critical Landscapes (SMSMCL) Project	2014-2020	GEF-UNDP	Project outcome: Communities and farmers are able to undertake and benefit from integrated land and water management. Strengthening national enabling environment to promote integrated landscape management through local households and communities. Support – sustainable agriculture and farming, critical ecosystems within KBAs
Economy Wide Integration of Climate Change (EWACC) Project	2015-2020	GEF-UNDP	Project objective: Established an economy-wide approach to climate change adaptation and DRM in Samoa. This approach will support the integration and management of climate change adaptation and DRM within national development planning and programming frameworks, enhancing the resilience of Samoan communities to the expected effects of climate change such as climate-induced natural disasters. Support – riparian replanting along riverbanks and protection of Vaisigano Catchment Area (Apia KBA site)
Fagalii Ridge to Reef Project	2016-2019	GEF-SPC	Regional Project – design to guide the integration of water, land, forest and coastal management required to fashion sustainable future of island communities. Support – Fagalii watershed given the many issues facing water quality for drinking water and also the receiving coastal waters.
Strengthen monitoring of marine and coastal ecosystem as an adaptive measure to safeguard biodiversity and enhance the resilience and adaptive capability of communities against climate change	2018-2020	World Bank	Project objective: enhance ecological resilience of marine ecosystems include mangrove areas through monitoring of areas affected by coral bleaching and COTS and implement recovery programs as well as conducting mangrove audits and establishing mangrove conservation sites.
Application of long-term monitoring tools and methodology to assess climate change impact on upper catchment areas and montane/cloud forest ecosystems on upland Central Savaii.	2018-2020	World Bank	Project objective: enhance ecological resilience of critical ecosystem such as upland montane/cloud forest Central Savaii (KBA site) through monitoring changes in the cloud forest from increase temperature and implementation of on-going reforestation programs.

Table 4.9 shows that there are a lot of climate change projects focusing on strengthening community and ecosystem resilience between 2009 to the present date. All these projects support the key thematic areas: biodiversity conservation of critical habitats (BIORAP survey assessments, forest replanting or restoration, protected area network); sustainable agriculture and livelihood (sustainable land management practices for farmers – agro-forestry and integrated pest management); and monitoring surveys of marine protected areas and reserves (removal of COTS and monitoring areas affected by coral bleaching; monitoring of threatened marine species – turtles, sharks etc); and the importance of traditional governance system in managing natural resources. There are two projects recently approved for 2018-2019 that will directly look at having in place monitoring system to assess the status of critical ecosystems – montane/cloud forest, marine protected areas and mangroves. The outcome of the updated CIM Plan 2018 produced a list of climate resilience interventions identified during the CIM Plan consultations and technical site assessments to be implemented at the village and district level. The CIM Plan can be noted as each district’s climate change adaptation plan.

The 2014 national forestry inventory supported under the Forest Preservation Project funded by Japan grant was the first project to measure biomass and carbon storage for Samoa based on forest ecosystem and soil. The outcome of the survey showed that, the total forest carbon stock for Samoa was estimated to be 45,736,227 ton whereby Upolu estimated to have 8,814,724 ton while Savaii was estimated to 36,921,502 ton<sup>41</sup>. Savaii Island had the largest area of medium dense forest with higher soil carbon content than Upolu Island; refer to Map 15 that shows the average carbon biomass per hectare in 2013. In comparing carbon stock in forest category from 1999 to 2013, the total carbon stock in Samoa decreased by 1,567,595 c-ton from 1999 to 2013 this is because the area of most forest categories decreased from 1999 to 2013. Interestingly Samoa has many mangrove ecosystems and it is known that mangrove forest has high carbon storage because of peat from mangrove origins, sadly mangroves were not covered in the forest carbon survey.




**Map 15 – Average Carbon Biomass Per Hectare in 2013**

<sup>41</sup> Asia Air Survey (2014) National Forest Inventory Report – Component 1: Part 2 for Japan Grant Aid, Forest Preservation Programme Samoa, MNRE.

**Table 4.10 Identifies Limitations and Priority Actions**

Limitations	Priority Actions
No information on the amount of carbon stocks that can derive from mangrove ecosystem in Samoa	Consider a survey focusing on the assessment of carbon stocks in mangrove ecosystem in Samoa
No information on the rate of forest recovery for degraded areas (reversing land degradation)	Enactment of the EMC Bill will support the implementation of ecosystem resilience programs
Limited information on documented impact of climate resilience projects on local communities and natural habitats with regards to whether it has improved adaptive capacity of communities and ecosystems	More resources should be made available to support the 2million tree planting to increase forest areas as well as preserving current forest area for increase in carbon stock
Limited information on how much hectares of land that has been reforested	Increase community awareness of local communities about the importance of forest plantations and reporting illegal harvesting
	Funding support for climate resilience investment in forest restoration, reversing land degradation and REDD+ activities
	Continue monitoring /surveying not only for REDD+ but also improving forest recovery in Samoa
	Survey to assess the total area in hectare of degraded areas that have been recovered through restoration and reforestation program.

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 15.1.1, 15.4.1, 15.4.2 shows the actions to be monitored and most have been implemented such as the many donor funded projects under climate change that directly support biodiversity, whilst indicators 15.2.1 and 15.3.1 no actions have been implemented.
<b>Trend</b>	Most climate change projects are cross-cutting especially forestry related projects which have components directly related to biodiversity
<b>Recommendation for future actions to improve data in achieving the NT/ABT 15.</b>	<p>Although the information provided covers most of the ABT 15 assessment there are still areas that need improvement for future reporting and tracking to consider the following:</p> <ul style="list-style-type: none"> <li>✓ Carbon stores in the Environment</li> <li>✓ Carbon stores in the Protected Area Network</li> <li>✓ Carbon sequestration</li> </ul>
<b>Overall Rating ABT 15</b>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>As shown from Table 4.10 the number of climate change projects contributing to ecosystem resilience and community resilience and thus supporting biodiversity conservation and the sustainable use of biological diversity. It shows the estimated forest carbon storage for Samoa from 1999 to 2013 per hectare for above and below ground biomass. It is important for Samoa to increase carbon stock in forest to contribute to mitigate global warming and to gain credits through REDD+ activities in the future as a potential opportunity to support forest restoration programs. However, this information is insufficient to substantiate the full achievement of the target and Table 4.10 provides limiting factor to this target and priority actions to move the target forward.</p> </div> </div>

#### 4.1.16. Aichi Biodiversity Target 16: Nagoya Protocol on Access and Benefit Sharing


##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is committed to its obligations under Article 15 Access to Genetic Resources (3) (4) (5) (6) and (7) of the CBD referring to the use of genetic resources and that interest of parties involved should be treated on Mutually Agreed Terms (MAT) and that access to genetic resources should be subject to Prior Informed Consent (PIC) of the contracting party providing the resource. In 2014 Samoa ratified the Nagoya Protocol

and demonstrates its commitment to Article 15 of the CBD, and milestone achievement of this target. Prior to Samoa’s becoming a party to the Nagoya Protocol, there were already work underway on bio-prospecting mainly focusing on traditional knowledge and use of plants for medicinal purposes (such as the covenant Falealupo had with Seacology Foundation in 1989 and 2001 the Government of Samoa agreement with Aids Research Alliance). The work on bio-prospecting has continued through a research permit system that require researchers to apply for permit, however this is also dependent on community support to inform the government if a researcher goes directly to the village, which sometimes villages never report to MNRE, until a paper is published. The bio-discovery work is very difficult to monitor and manage because it is dependent on the researchers to inform the owners of the natural resource about the progress of their work etc. As noted in Target-13 on genetic resources agriculture continues to support genetic diversification in crops such as the improvement in taro varieties using genetically modified tissues/organism to reduce impact from pest disease but also to resist the taro leaf blight (TLB).

The UNDP-GEF Project “Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol specifically aim at assisting countries including Samoa in the development and strengthening of their national Access and Benefit Sharing (ABS) framework, human resources and administrative capabilities to implement the Nagoya Protocol. This project for Samoa is expected to gain national benefits by<sup>42</sup>:

- I. Strengthening national capacities on addressing ABS issues and the effective implementation of the Nagoya Protocol;
- II. Initiating a long-term process for discussion and cooperation among the users and providers of genetic resources leading to the identification and creation of opportunities for biodiscovery projects, including strengthened capacities and funding for research and development activities using genetic resources;
- III. Enhancing the participation of indigenous local communities (ILC) in the implementation of the Nagoya Protocol through their involvement in decision making process related to ABS, the development of Bio-Cultural Protocol (BCP) and increase awareness about ABS issues, including links between Traditional Knowledge associated with the use of genetic resources.

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 16.1.1 to 16.5.1 are all at different stages of implementing the actions and monitoring, as shown in Table 19.
<b>Trend</b>	The current trend for ABT 16 is that implementation of the global project ABS will also see most of the actions under this ABT complete.
<b>Recommendation for future actions to improve data in achieving the NT/ABT 16.</b>	Recommended that an ABS and TK database is established for data storage and monitoring the progress of ABS implementation in Samoa.
<b>Overall Rating ABT 16</b>	 <p>There are also challenges encountered with the implementation of ABS, for example from 2011-2015 about 29 permit requests received and only six permits were approved. However, it has been challenging the lack of monitoring and compliance of these permits and the delay in receiving permits. The current project is supporting the drafting of the National Legal Policy Framework for the Nagoya Protocol and its finalization will further strengthen NBSAP activities relating to the Nagoya Protocol in the national NT 16. The enactment of the Nagoya</p>

<sup>42</sup> [Http://www.mnre.gov.ws](http://www.mnre.gov.ws) Ministry of Natural Resources and Environment



	<p>Protocol legal policy framework will address a long outstanding issue on making available provisions for benefit sharing in Samoa.</p> <hr/>
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**Strategic Goal E:** Enhance implementation through participatory planning, knowledge management and capacity building



The NBSAP is the document that guides all activities regarding the protection and conservation of biodiversity in any country, (it is the action plan for biodiversity) and the key document that gives birth to other strategies such as the national invasive species action plan (NISAP) and species recover plans, and protected area management plans to name a few. Samoa has updated and endorsed its NBSAP 2015-2020 and the guiding principle for related biodiversity work undertaken by MNRE. Implementation of the NBSAP has progress well with some activities completed and others at various stages. TK is an important aspect of the NBSAP because of the need to protect and safeguard TK and the work under the ABS strong supports this initiative. Although we are doing well in progressing with the NBSAP we have limitation in our knowledge in science base and technologies relating to biodiversity and also monitoring and storing information gathered from the field survey in a centralized database or the biodiversity clearing house mechanism (CHM). The current biodiversity database has been inactive and its challenging because we need to have facility to store and share knowledge on the work that Samoa is doing to protect and conserve its biodiversity. We have the DKIF information database for MNRE but its complex and current accessibility is difficult, plus it is a repository of information but not sure about accessing and sharing.


The progress in the implementation of the biodiversity NBSAP 2015-2020 and all related biodiversity work is possible because of the support from external development partners through projects that have financed many of the activities. Even now some of the national targets that have been dormant for a while there status will change soon due to the availability of funds that have come through such as Target 16 Nagoya Protocol and Target 9. Although MNRE has more than one division supporting biodiversity related work, there is still insufficiency of local budget to cover core activities that are key in ensuring that we have up to date reliable data through consistent monitoring programs and updating biodiversity database.

#### 4.1.17. Aichi Biodiversity Target 17: Biodiversity Strategies and Action Plans

**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under Article 6 General Measures for the Conservation and Sustainable Use (a) and (b) and Article 26 Reports whereby countries report on measures taken to implement provision of the convention. The NBSAP 2015-2020 was launched in 2014 and to date activities that directly contribute to the implementation of the NBSAP include: establishment of national policies, strategies, management plans and

legislation to support the execution of activities; field surveys from terrestrial and marine BIORAP surveys, to specific threatened species monitoring surveys to the management, control and eradication of invasive species. The amount of work undertaken to address the 20 NTs shows commitment and the level of investment from Government and partners to support the conservation and protection of biodiversity and biological resources. The development of the 6NR has included the review of the NBSAP 2015-2020 national indicators which was part of the national validation report workshop held on the 16<sup>th</sup> November 2018. T

<b>Reference to NBSAP Indicator Table 19</b>	Indicator 17.1.1 the update has been endorsed by Cabinet in 2014 and mid-term review and others (17.2.2 and 17.2.3) are yet to start.
<b>Trend</b>	Trend in updating the NBSAP and progress of implementing targets
<b>Recommendation for future actions to improve data in achieving the NT/ABT 17.</b>	Recommend that the next NBSAP should develop a monitoring tracking framework.
<b>Overall Rating ABT 17</b>	 <p>Although much work has been implemented under the NBSAP Action Plan there are also some activities that are yet to be completed, hence the target is in progress.</p>


#### 4.1.18. Aichi Biodiversity Target 18: Traditional Knowledge

##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated to Article 8 In-situ Conservation (j) of the CBD with reference to: “*subject to its national legislation , respect, preserve and maintain knowledge, innovation and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices*”. The EMC Bill provides for benefit sharing for the traditional knowledge of local communities. In addition to the EMC Bill, other national legislation, especially the intellectual property laws in Samoa, the Copyright Act 1989 and the Intellectual Property Act 2011 do provide protection for traditional knowledge. The Copyright Act, (Article 29) through the expressions of folklore which include traditional knowledge. Breach of Article 29 can result in penalties (Article 30) including damages, injunction and others. The Intellectual Property Act further makes it a requirement of an applicant for patents to provide evidence of showing proof of right to use traditional knowledge, evidence of source or origin of the traditional knowledge, and indicate whether the invention involved traditional knowledge and indigenous and local communities both within Samoa and beyond.

There are numerous studies undertaken on assessing potential mechanisms for protection of traditional knowledge. The most comprehensive study on the subject matter is the 2015 study by the Samoan Law Reform Commission (<https://www.sprep.org/attachments/VirLib/Samoa/traditional-knowledge-samoa-2015.pdf>) proposing for a sui generis protection mechanism for traditional knowledge. An analysis of traditional knowledge (TK) and options for protection is being undertaken on wider protection mechanisms under the UNDP-GEF Project “Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol”. It specifically aims to assist countries including Samoa in the development and strengthening of their national Access and Benefit Sharing (ABS) framework, human

resources and administrative capabilities to implement the Nagoya Protocol. TK is an important aspect of lives for local communities and Samoa does not have a specific group of indigenous people and does not qualify under the UN definition of indigenous people, although the understanding is that anyone born in Samoa considered themselves a native of that place or indigenous.

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 18.1.1 is pending submission for endorsement other indicators are currently being implemented under the global project for ABS.
<b>Trend</b>	There is a trend in putting copyrights to any new publication and development
<b>Recommendation for future actions to improve data in achieving the NT/ABT 18.</b>	Although the information provided covers most of the ABT 18 assessment there are still areas that need improvement and for future reporting and tracking to consider the following: (2011)Trends in which TK and practices are respected through their full integration, safeguards and the full participation of local people.
<b>Overall Rating ABT 18</b>	 <p>However there are gaps that needs improvement in safeguarding TK and these include: a needs assessment of TK related to genetic resources in Samoa; need to develop a TK database to ensure that TK will be properly registered and with proper legal mechanism, and it can generate some benefits for all involved including the indigenous people and local communities (IPLC) who are the right owners of resources; and strong emphasizes on continuing awareness program both community and national levels on ABS and its processes.</p>

**4.1.19. Aichi Biodiversity Target 19: Science and Research or Knowledge improved, shared and transferred**


**Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under Article 16 Access to and Transfer of Technology; Article 17 Exchange of Information and Article 18 Technical and Scientific Cooperation of the CBD to implement activities that will address its commitment to the convention. There are ongoing technical trainings that locals attend abroad or in-country on specific areas of biodiversity either: invasive species, threatened species, protected area network, forestry trainings, sustainable agriculture trainings and water resource management. There are many scientific field surveys conducted and knowledge transfer from scientists working with different agencies to conduct BIORAP surveys, scoping studies on the potential of payment for ecosystem services, forestry field work on measuring carbon stock, and field trainings on sustainable land management practices for farmers to name a few.

However, despite the many BIORAPs conducted and the technical capacity trainings and knowledge transfer from working with scientists in the field or attending workshops or trainings overseas, there is still a gap in terms of sharing the information such as results of field surveys among divisions as well as the poor effort in biodiversity information management. The DKIF is the latest centralized information database established under the 3 RIO convention project, which can be utilized as the clearing house mechanism for biodiversity information and the repository of knowledge management and sharing within the ministry.

There are also numerous outstanding actions from the NBSAP 2015-2020 under this national target that have not been implemented which include: no review or update of the Samoa ecology bibliography; no review or update for the existing Biosafety Clearing House Mechanism (CHM) and Samoa Biodiversity database; limited systems in place for biodiversity data management; no network of formal users for the CHM established; no communication strategy for the NBSAP developed and the steering committee for the National

Biodiversity Framework and Biosafety had recently been activated under the 6NR to review the document and provide inputs.

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 19.1.1 to 19.9.1 only a few actions were implemented and the rest no activities were undertaken. There were only 3 indicators that had evidenced of work 19.1.1, 19.1.2, 19.8.1, and 19.9.1
<b>Trend</b>	There is no particular trend in this target
<b>Recommendation for future actions to improve data in achieving the NT/ABT 19.</b>	Although the information provided covers most of the ABT 19 assessment there are still areas that need improvement and for future reporting and tracking to consider the following: (2012)Number of maintained species inventories being used to implement the convention
<b>Overall Rating ABT 19</b>	 <p>Progress</p> <p>Although much work is yet to be completed for this target under the NBSAP Action Plan there have been numerous activities that have been implemented which reflects scientific based transfer of knowledge and information. As such this target is in progress but insufficient to meet the target.</p>

#### 4.1.20. Aichi Biodiversity Target 20: Resource Mobilization

##### **Describe how and to what extent Samoa has contributed to the achievement of this ABT?**

Samoa is obligated under Article 20 Financial Resources and Article 21 Financial Mechanism of the CBD to implement activities that support its commitment to the aforementioned articles of the convention. Since 2010 there has been an increase in the number of projects that directly support the implementation of the NBSAP 2015-2020 action plan as presented in Table 4.3 and Table 4.9. There are also other funding sources that directly support civil society and community efforts in the conservation and protection of biodiversity and biological resources both marine and terrestrial such as the UNDP GEF Small Grants Programme and the Civil Society Support Program (CSSP), the latter is managed by the Ministry of Finance.

*The Samoa country program strategy for the UNDP GEF-SGP goals aligns with some of the NTs such as:*

- ✓ Community empowerment to engage the community champions as mentors to others, relates to Target -1 and Target-18
- ✓ The strengthening of village management plans by integration of project findings such as mangrove audits, MPAs, EIA reports, relates to Target – 14 and the SGP focus on seascape and landscape type projects correlates with NT 11 on protected area;
- ✓ UNDP GEF SGP funds the largest number of community biodiversity projects with a total of 47 projects from 2005-2017. The Maps 16 and 17 of Samoa shows the coverage of GEF-SGP investment throughout the country based on each of the GEF focal areas. Map-16 shows the distribution of GEF SGP and NESP projects whereas Map 17 shows the distribution of SGP projects in Samoa by GEF Focal areas from 2015-2018.

CSSP on the other hand has four strategic outcome and one targets support to Samoa civil society to take effective and innovative approaches to meet the needs of vulnerable groups. The CSSP small grants funding entity also delivered on two climate change investment projects to communities:

- ✓ CSSP delivered the small grants to all 265 villages in Samoa supporting environment related projects funded by two different donors – World Bank and the UNDP GEF Adaptation Fun

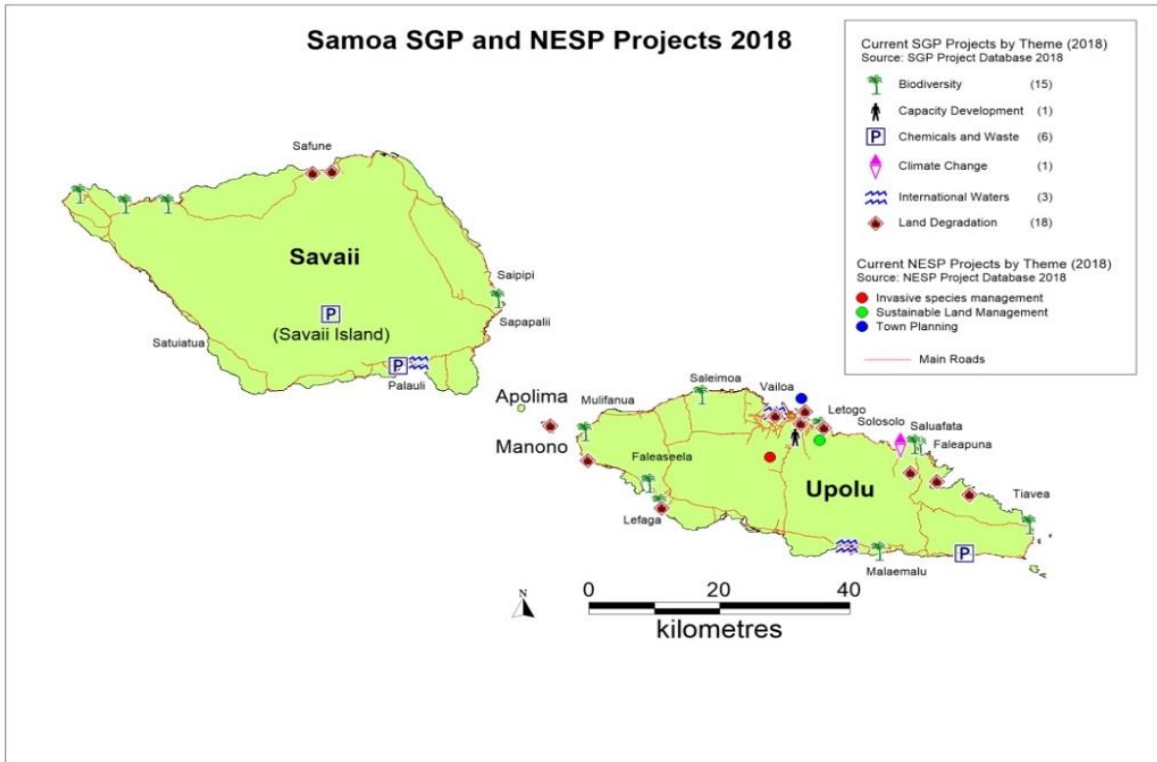
**Table 4.11 Local Budget Allocation for Environment Related Programmes ( Source: MNRE 2015 and MNRE Annual Report 2016/2017)**

	2008	2009	2010	2011	2012	2013	2017
<b>Total MNRE</b>	18,530,421	22,115,704	21,143,709	25,131,733	19,734,217	24,904,528	13,080,153.00
<b>DEC</b>	212,000	117,000	148,771	145,742	118,663	151,668	204,790
<b>Forestry</b>	421,997	144,027	173,434	164,566	181,066	191,599	380,384
<b>Water Resources</b>	Not yet an output	94,232	60,044	532,442	56,848	331,954	72,691
<b>Land Management</b>			159,081				142,450

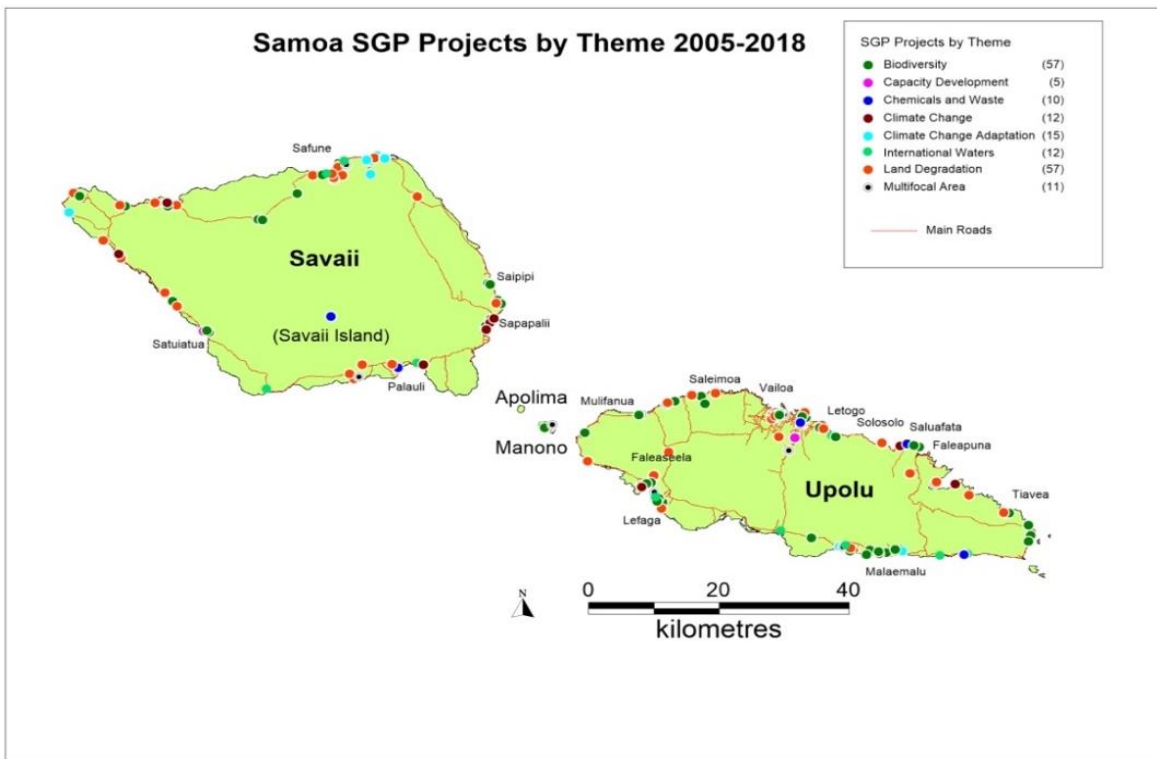
There are some NGOs with potential skills and expertise to support Government in the implementation of biodiversity related projects, such as the Samoa Conservation Society (SCS). The rise in multi-sectoral projects also noted innovative approaches towards cost saving and sharing resources amongst Government agencies and partners. The Table 4.11 above shows a fluctuation in the annual budget for MNRE over the years, however what is noticeable is the increase in local operational budget for the Division of Environment and Conservation (DEC) with a 26 per cent increase compared to 2013. There is also an increase in the Forestry operational budget compared to 2013. The increase in local budget for DEC is most likely the cost for the waste management services whilst forestry increase very much coincides with the current 2 million tree planting campaign. The improvement in the local operational budget for DEC together with the prioritizing environment mainly biodiversity in the Strategy for the Development of Samoa 2016-2020 is testimony to Samoa’s commitment and support to the sustainable management of the country’s biological resources.

However biological diversity resources continues to be under threat and pressured from many competing anthropogenic demands which are exacerbated by impacts of climate change, and therefore local budget allocation may not be sufficient to accommodate ongoing environment programmes to sustainably manage biological diversity resources such as: monitoring protected areas, phase out invasive species threats and support forest restoration and recovery of threatened species, as well as improving conditions of coral reef ecosystems. As such Samoa continues to rely on external funding assistance to support its implementation of actions with the NBSAP 2015-2020.






Map 16 distribution of GEF SGP and NESP projects



Map 17 Samoa GEF-SGP projects by theme 2005-2018

<b>Reference to NBSAP Indicator Table 19</b>	Indicators 20.1.1 to 20.7.1 most actions have been implemented except for 20.5.1 to 20.7.1
<b>Trend</b>	There is a trend in the increase in small grants projects supported through funding from GEF.
<b>Recommendation for future actions to improve data in achieving the NT/ABT 20.</b>	It is recommended that a database on all biodiversity related projects should be maintained and a post-monitoring of biodiversity projects to assess the sustainability and continuity of funding from other sources apart from the original donor.
<b>Overall Rating ABT 20</b>	 <p>Progress</p> <p>Resource Mobilization is an important NT to ensure opportunities are explored for resources available to support the implementation of all the 20 national targets.</p>

#### 4.2. Other relevant information

Samoa became a leading pioneer in reintroducing of the P3D Model design as part of project awareness for the project site and for communities to have hands on understanding of their natural environment and are able to demonstrate areas to be protected and identify different types of land use in their villages. For example, staff from MNRE were invited to Tonga, Cook Islands and Niue to assist project communities in these countries develop P3D Models for their project sites and share their understanding of the natural resource base that they managed.

Samoa developed the Data Knowledge Information Facility (DKIF) the first environment information database that has enabled the coordination of the three RIO conventions and sharing of information that is managed by MNRE.

#### 4.3. Based on the description of your country’s contributions to the achievement of the Aichi Biodiversity Targets. Describe how and to what extent these contributions support the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

**Table 4.12 ABTs or NT link to SDG and Other MEAs**

<b>Aichi Biodiversity Targets</b>	<b>Sustainable Development Goals</b>	<b>SDG Target</b>	<b>Other MEAs</b>
<b>Target1:</b> By 2020 at the latest people are aware of the values of biodiversity and the steps they can take to conserve and use it	<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all  <b>Goal 12:</b> Ensure sustainable consumption and production patterns	Target 4.7  Target 12.8	CITES  CMS
<b>Target2:</b> By 2020 at the latest biodiversity values have been integrated into national and local development and poverty	<b>Goal 1:</b> End poverty in all its forms everywhere  <b>Goal 3:</b> Ensure healthy lives and promote well- being for all at all ages.	Target 1.4 Target 1.b	CITES CMS

reduction strategies and planning processes and are being incorporated into national accounting as appropriate and reporting system			
<b>Target 3:</b> 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 Convention and other relevant international obligations, taking into account national socio economic conditions	<b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Target: 15.a	Rotterdam Convention Stockholm Convention Basel Convention
<b>Target 4:</b> By 2020, at the latest, Governments, business 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.	<b>Goal 8:</b> Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.  <b>Goal 12:</b> Ensure sustainable consumption and production patterns.	Target 8.4:  Target 12.2	CMS
<b>Target 5:</b> 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.	<b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Target 15.1  Target 15.2	CITES  CMS
<b>Target 6:</b> 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	<b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 12:</b> Ensure sustainable consumption and production patterns  <b>Goal 14:</b> Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Target 2.4  Target 12.2 Target 12.8  Target 14.4	CITES CMS RAMSAR

<p>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.</p>			
<p><b>Target 7:</b> By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.</p>	<p><b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>Target 15.1 Target 15.2 Target 15.5</p>	<p>UNCCD</p>
<p><b>Target 8:</b> By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.</p>	<p><b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p> <p><b>Goal 14:</b> Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p> <p><b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>Target 2.4  Target 14.1  Target 15.1</p>	<p>CBD CMS Basel Convention Rotterdam Convention Stockholm Convention UNCCD RAMSAR</p>
<p><b>Target 9:</b> 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.</p>	<p><b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>Target 15.8</p>	<p>CMS CBD CITES RAMSAR</p>
<p><b>Target 10:</b> By 2015, 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.</p>	<p><b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p> <p><b>Goal 8:</b> Promote sustained, inclusive and sustainable economic growth full and productive employment and decent work for all</p> <p><b>Goal 12:</b> Ensure sustainable consumption and production patterns</p> <p><b>Goal 14:</b> Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p> <p><b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and</p>	<p>Target 2.4  Target 8.4  Target 12.2 Target 12.8 Target 14.2 Target 14.3 Target 14.4 Target 14.6 Target 14.7</p>	<p>RAMSAR CBD  UNFCCC UNCCD</p>

	halt and reverse land degradation and halt biodiversity loss	Target 14.c Target 15.5	
<b>Target 11:</b> 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.	<p><b>Goal 11</b> – Make cities and human settlements inclusive, safe, resilient and sustainable</p> <p><b>Goal 4</b> - Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p> <p><b>GOAL 15</b> - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.</p>	Target 11.4  Target 14.5  Target 15.1 Target 15.2 Target 15.4 Target 15.5 Target 15.7	CMS IPBES Global Assessment  UNCCD RAMSAR
<b>Target 12:</b> 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.	<p><b>Goal 2</b> – End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p> <p><b>Goal 11-</b> Make cities and human settlements inclusive, safe, resilient and sustainable</p> <p><b>Goal 12-</b> Ensure sustainable consumption and production patterns</p> <p><b>Goal 14</b> Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p> <p><b>Goal 15</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.</p>	Target 2.4  Target 11.4  Target 12.2 Target 14.1 Target 14.4 Target 14.5 Target 14.7 Target 14.c  Target 15.5 Target 15.4 Target 15.2 Target 15.7 Target 15.8 Target 15b Target 15c	RAMSAR CMS CITES IPBES UNCCD
<b>Target 13:</b> By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as	<b>Goal 2</b> – End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Target 2.5	UNCCD

culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.			
<b>Target 14:</b> By 2020 ecosystems that provide essential 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.	<b>Goal 2</b> – End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 15</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Target 2.4  Target 15.4	CITES CMS IPBES Global Assessment IPBES Regional Assessment RAMSAR UNCCD
<b>Target 15:</b> 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	<b>GOAL 2</b> - End hunger, achieve food security and improved nutrition and promote sustainable agriculture.  <b>GOAL 8</b> - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.  <b>GOAL 12</b> - Ensure sustainable consumption and production patterns.  <b>GOAL 14</b> - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.  <b>GOAL 15</b> - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Target 2.4  Target 8.4  Target 12.2 Target 12.8 Target 14.2 Target 14.3 Target 14.4 Target 14.6 Target 14.7 Target 14c Target 15.5	RAMSAR UNFCCC Kyoto Protocol RAMSAR IPBES Global Assessment IPBES Regional Assessment
<b>Target 16:</b> By 2015, the Nagoya Protocol on Access to Benefit Sharing Arising from the Utilization is in force and operational consistent with national legislation.	<b>Goal 2</b> – End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 15</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Target 2.5  Target 15.6	CMS IPBES Global Assessment IPBES Regional Assessment Nagoya Protocol
<b>Target 17:</b> By 2015 each Party has developed adopted as a policy instrument and has commenced implementing an effective participatory and updated	<b>GOAL 1</b> - End poverty in all its forms everywhere.  <b>GOAL 15</b> - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat	Target 1.b  Target 15.9	CMS  IPBES Global Assessment



national biodiversity strategy and action plan.	desertification, and halt and reverse land degradation and halt biodiversity loss. <b>GOAL 17</b> - Strengthen the means of implementation and revitalize the global partnership for sustainable development.	Target 17.4	IPBES Regional Assessment
<b>Target 18:</b> By 2020, the traditional knowledge innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biological resources, are respected, subject to national legislation and relevant international obligations and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities at all relevant levels.	<b>GOAL 1</b> - End poverty in all its forms everywhere.  <b>GOAL 16</b> - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	Target 1.4  Target 16.7	RAMSAR IPBES Global Assessment IPBES Regional Assessment
<b>Target 19:</b> 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.	<b>GOAL 11</b> - Make cities and human settlements inclusive, safe, resilient and sustainable.  <b>GOAL 14</b> - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.  <b>GOAL 17</b> - Strengthen the means of implementation and revitalize the global partnership for sustainable development.	Target 11.4  Target 14a  Target 17.6	CITES CMS IPBES Global Assessment IPBES Regional Assessment RAMSAR UNCCD
<b>Target 20:</b> By 2020, at the latest the mobilization of financial resources for effectively implementing the Strategic Plan 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.	GOAL 10 - Reduce inequality within and among countries.  GOAL 11 - Make cities and human settlements inclusive, safe, resilient and sustainable.  GOAL 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Target 10b Target 11.4  Target 15.1 Target 15.2 Target 15.3 Target 15.4 Target 15.5 Target 15.6 Target 15.8 Target 15.9	CITES CMS RAMSAR

		Target 15a	
		Target 15b	

Table 4.12 clearly highlights the links between the NTs or Aichi Biodiversity Targets and the Sustainable Development Goals, whereby Goal 15, 2, 11 and 14 are the most common goals that directly response to biodiversity and biological resources issues. The relevance of the ABTs/NTs to the SDGs and its targets as well as to other MEA’s reflect Samoa’s commitment in honouring its obligations to international conventions and agreements through the implementation of biodiversity activities within the NBSAP Action Plan at the national and community level.

**5. Section V. Additional information on the contribution of indigenous peoples and local communities (IPLC)**

Samoa does not have indigenous people based on the UN definition of IPLC, however Samoan people that were born in the country see themselves as indigenous people of the land despite the fact there are no tribal clans except extended families. In this section it provides a Case Study 1 on the application of traditional governing system into modern management planning of marine reserves provides a success story of a programme that has lasted over 10 years in Samoa and it is still attracting more villages and community groups to join.

**5.1. Case Study 1: Community Based Fisheries Management Program (CBFMP) and Traditional Governance**

**5.1.1 Background**

The Community Based Fisheries Management Program (CBFMP) emerged from the growing concern to promote sustainable subsistence fishing due to the realization of the many benefits to subsistence fisheries however it needed strong management through the use of local traditional governance system. It was known that subsistence fishing provided daily protein dietary for many fisher families and coastal communities of Samoa. According to King and Faasili (2001)<sup>43</sup>, the total weight of seafood caught in subsistence, or village, fisheries is greater than that from commercial fisheries. Subsistence fisheries on the other hand, are intensive in labor but generally low in other fishing costs. Productive and well-managed subsistence fisheries also decrease a country’s reliance on cheap and low-quality protein imported from overseas, and therefore result in a corresponding increase in public health and savings in foreign exchange. The many benefits of subsistence fisheries beg the need to ensure sustainable resource management for the present and future users of marine resources. The government has limited resources to actively managed and monitor subsistence fisheries as most resources are invested in commercial fishing.

The realization of the value in customary ownership of resources and management that is decentralized with community involvement, and existing village council or *fono* to take the lead in managing the utilization by village communities of inshore fishing area this would ease the burden on designated fisheries government agency if managing subsistence fisheries are integrated into traditional system. As identified by King and Faasili (2001), community involvement results in the ownership of fisheries management actions and regulations. If communities make their own conservation laws, as they have historically done in the past, they

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<sup>43</sup> King, Michael and Faasili Ueta (2001) Working Paper 8 : Community-based fisheries management, AusAID supported Samoa Fisheries Project, SPC Heads of Fisheries Meeting, Secretariat of the Pacific Community

are more likely to respect them. Under community ownership, fisheries management measures are enforced by communities themselves.

However, in order to establish community-based fisheries management, there are two key considerations:

- ✓ Is the government willing to commit to giving communities' control over their fisheries resources? Some governments and fisheries agencies may have concerns (unjustified, we believe) regarding a programme which encourages village communities to take actions for which they see themselves responsible;
- ✓ Do communities have Customary Marine Tenure (CMT) or control over their adjacent fishing areas? Such control, either legal, assumed or *de facto*, is necessary before communities can be expected to manage their marine resources.

These key tasks are therefore related to securing government commitment for empowering communities, and a secondary one is to develop a suitable culturally acceptable process for community-based fisheries management. Community-based fisheries management programme has the potential to create communities that have set their own fishing regulations and conservation rules and are abiding by them. If communities make their own conservation laws, as they have historically done so in the past, they are more likely to respect them. Because communities are regulating fisheries for which they see themselves responsible there is a considerable saving on enforcement costs which may otherwise fall on government agencies.

In addition, it is believed that the management and conservation activities of communities, particularly if they include the establishment of community-owned marine protected areas, there is a likely chance of eventually resulting in the increased catches in fishable areas. However, caution should be considered because it is unrealistic to expect all communities to do equally well in managing their marine resources and some assessment of individual villages in the programme must be made (Kallie et al. 1999). Some villages will do poorly for a variety of reasons including intra-village disputes and unrealistic expectations. Communities taking stringent management actions will almost certainly suffer a short-term decrease in catches of seafood. The hope of better catches lie some way off in the future, and some communities may become impatient.

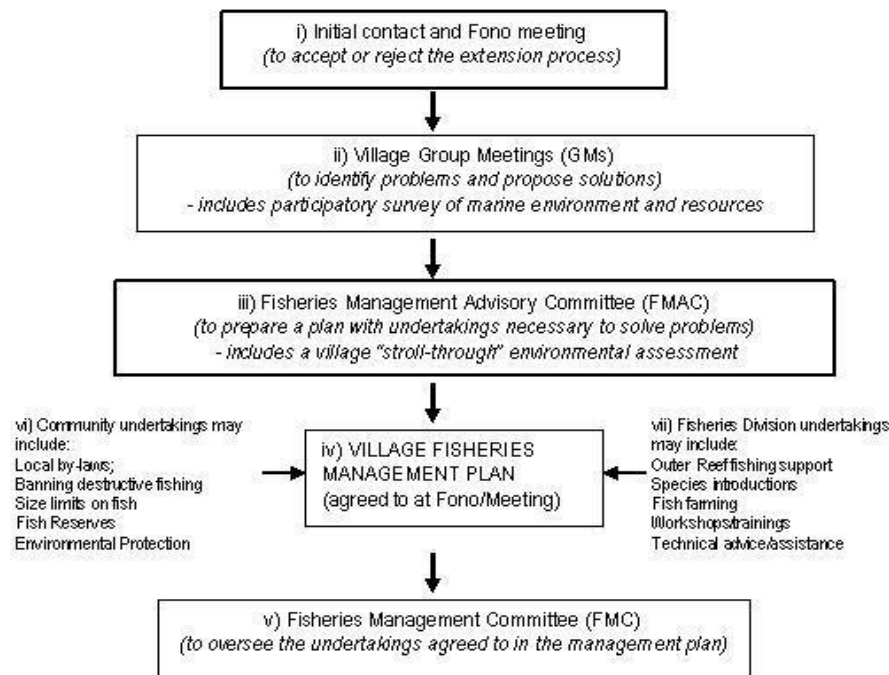
### **5.1.2 Establishment of the CBFMP (Community-Based Fisheries Management Plan)**

Therefore, the CBFMP was conceived in 1995 with assistance from the Australian Agency for International Development (AusAID) and it is one of the longest surviving successful programmes within the Fisheries Extension Program of the Fisheries Division, MAF. The process used a “bottom-up” approach to management in that each participating village develops its own strategy to manage its marine resources and its environment, rather than being told what to do by a government authority (Gillett and Tauati, 2018). The program according to Samuelu and Tuaopepe (2011) integrates well with traditional systems in village communities in Samoa. In-fact it is known that the success of this program is driven by the traditional governing system that manages and monitor marine fish reserve in every village that is a member of the program. The overuse and degradation of inshore fishery resources were problems this programme identified and aimed to provide effective conservation and management measures to protect Samoa’s coastal resources and marine environment.

The design of CBFMP recognizes the social norms and customs of Samoan people. The village council is the decision-making body in the community, but the programme’s process allows ample opportunity for all sectors to participate, the chiefs, untitled men/youth and women. CBFMP is a bottom up approach in which

decisions for the management of the marine resources are initiated by the communities themselves whilst the Fisheries Division provides the technical support to the decisions made. The approach promotes community ownership, so the village communities, who are the resource users, take charge and be more responsible with their actions towards the marine environment and its resources. It provides the platform for the fishing communities to develop village fisheries management plans and village bylaws and fisheries reserves and empowers communities through their involvement in management, monitoring, enforcement and ownership. Figure 5.1 illustrates the process involved in establishing the programme and fisheries management plans in Samoan communities.

**Figure 5.1: CBFMP Model**



The programme is demand-based, so the process starts after a village approaches the Fisheries Division with their request to be involved in CBFMP. They then schedule a date on which the village council and the Fisheries Division will hold a formal meeting (*fono*) and commence collaboration as explained below<sup>44</sup>:

<sup>44</sup> The CBFMP process is taken from; Ah-Leong Samuelu, Joyce and Tuaopepe, Olofa (2011) Samoa Ecosystem Model Report, Fisheries Division, Ministry of Agriculture and Fisheries, Samoa.

### 5.1.3 Process in the formalization of villages into the CBFMP

#### ***Step 1: Initial contact and first meeting (fono)***

At the first *fono* (Figures 2a and 2b), the Fisheries Division staff describe the programme and its importance and explain how it establishes a village's management plan. If the village council agrees, a date is scheduled for separate meetings for each of the three social groups in the village: chiefs (*matai*), women (*tamaitai/aualuma*) and untitled/young men (*aumaga*).



Figure 13 and 14: Kava ceremony during the first village meetings in Safua (Savaii) and Afega (Upolu)

#### ***Step 2: Group Meetings***

As scheduled in the first *fono*, the Fisheries Division facilitates meetings in separate groups of chiefs (*matai*), women (*tamaitai/aualuma*) and untitled/young men (*aumaga*). These consultations follow a problem-solving process, in which the groups identify problems and causes, and also propose solutions and remedial actions. In addition, they provide information regarding the present condition of their marine environment, their fish stocks and also changes that have taken place over time.

The chiefs' group discusses rules and penalties for breach to further strengthen the protection of their fisheries resources and environment. Each of the three groups nominates at least three representatives who will form their village Fisheries Management Advisory Committee (FMAC).



Figure 15 and 16: Meeting with the untitled men in the village of Salesatele and the women of Matautu-uta-Lefaga

***Step 3: Village Fisheries Management Advisory Committee (FMAC):*** The FMAC is responsible for drafting the village fisheries management plan with assistance from the Fisheries Division. After the

group consultations, the FMAC will hold meetings to discuss and draw up their management plan, using the information gathered. The overseeing of the fish reserve and the implementation of the village's undertakings in the management plan will be coordinated by the FMAC.

**Step 4: Village Fisheries Management Plan and Implementation:** A village's fisheries management plan is presented to their village council for approval at the final *fono*. This plan contains the responsibilities of both the community and the Fisheries Division. Examples of these responsibilities are shown below.

- Ban the use of chemicals and dynamite for fishing.
- Ban the use of traditional plant-derived fish poisons.
- Establish fish reserve areas in which fishing is banned.
- Ban traditional destructive fishing methods (e.g. smashing corals/tu'iga).
- Organise the collection and destroying of crown-of-thorns starfish.
- Enforce (national) mesh size limits on fishing nets.
- Ban the dumping of rubbish in lagoon waters.
- Ban the commercial harvesting of sea cucumbers (Holothuroidea) for export.
- Ban the capture of fish less than the minimum size.
- Ban the removal of mangroves (in villages with mangroves).
- Minimise the use of underwater torches for spear fishing at night.
- Ban the commercial removal/mining of beach sand.
- Place controls or limits on the number of fish fences or traps.
- Prohibit the collection of live corals for exportation to the overseas aquarium trade.
- Ban the coral-damaging collection of edible anemones (Actinaria).
- Restore and replant corals in fish reserves.

The Fisheries Division undertakings are mainly to provide technical support and advice to communities, for example, aquaculture development (e.g. conserving giant clams, restocking trochus, farming of fresh water tilapia). Also, regular demand-based technical training and workshops are provided to enhance community skills and to build the capacity of local villagers in sustainable utilization, development, conservation and management of fishery resources.

**Step 5: By-laws**

Another significant part of CBFMP is the formulation of a village's fishery by-laws. Consultations with villages during group meetings produce rules for their management plans which also assist in the preparation of their by-laws. These by-laws are prepared in accordance with relevant provisions of the national Fisheries legislation and are accorded legal recognition in a court of law. The by-laws apply to all residents and fishers within villages as well as to non-residents and the public. In most cases, local offenders in villages are fined by village councils, whilst outsiders who break the law are dealt with by the Fisheries Division.

The by-laws are established through the process below:

- i) Consultation between the village community and the Fisheries Division
- ii) Compilation of information and drafting
  - Compiling of information collected and consultation with the village community by the Fisheries Division and the village fisheries management and advisory committee (FMAC)
  - Submitted to the MAF legal advisor for input and forward to the Attorney General's Office for drafting and checking
- iii) Endorsement
  - Checking and endorsement by the Attorney General



- Forward to the legislative assembly for translation into Samoan
- iv) Signing
- Approval and signing by the Chief Executive Officer of MAF
- v) Publication and Distribution
- Publication / gazette through the Savali Newspaper
  - Distribute to the village and adjacent villages for awareness
  - Monitoring and Enforcement
- vi) Monitoring and enforcement by the village and the Fisheries Division

The above process explains the formulation and approval of by-laws, which can be enforced 14 days after being published /gazetted. A village can penalize an offender for violation of a village by-law (e.g. fishing in the fish reserve) through their traditional system or the matter can be reported to the Fisheries Division to investigate and register the case in court on their behalf. The Fisheries Management Act 2016, Part-8 makes specific reference to Village Fisheries By-Laws and the programme to date is working in 109 villages (62 Upolu and 47 Savaii)<sup>45</sup> with approved village fisheries management plans and 78 villages completed Village-ByLaws refer to Table 5.1 below.

**Table 5.1: Villages with approved bylaws**

UPOLU		Approved Date		UPOLU	Approved Date
1	Eva Anoama'a	04 Jun 1999	20	Lepuiai Manono-tai	2 Mar 1998
2	Fagalii Vaimauga	4 Jun 1999	21	Matafa'a Lefaga	29 Apr 1999
3	Faleula	4 Jun 1999	22	Matautu Falelatai	19 Nov 2007
4	Fasito'o-tai	17 Dec 1998	23	Safaatoa Lefaga	29 Apr 1999
5	Leusoalii Anoama'a	19 Nov 2007	24	Salua Manono-tai	26 May 1998
6	Faleapuna	17 Dec 1998	25	Salua Manono-uta	21 Nov 1997
7	Moamoa Faleasiu	28 Oct 1997	26	Samatau Falelatai	4 Jun 1999
8	Nofoalii Aana	29 Apr 1999	27	Siufaga Falelatai	19 Nov 2007
9	Satapuala Aana	29 Apr 1999	28	Savaia Lefaga	19 Nov 2007
10	Solosolo Anoama'a	29 Apr 1999	29	Tafagamanu Lefaga	19 Nov 2007
11	Tauao'o Faleasiu	21 Nov 1997	30	Aufaga Lepa	19 Nov 2007
12	Tuanai Tuamasaga	28 Oct 1997	31	Lepa	19 Nov 2007
13	Vailuutai Aana	17 Dec 1998	32	Matatufu	19 Nov 2007
14	Vaiusu Faleatai	19 Nov 2007	33	Poutasi Falealili	30 Sep 1998
15	Apai Manono-tai	30 Sep 1998	34	Saleilua Falealili	27 Mar 2000
16	Apolima-uta	19 Nov 2007	35	Saleapaga Lepa	19 Nov 2007
17	Faleu Manono-uta	17 Dec 1998	36	Tafatafa Falealili	19 Nov 2007
18	Gagaifo Lefaga	29 Apr 1999	37	Vavau Lepa	19 Nov 2007
19	Itumalo o Safata	19 Nov 2007	38	Itumalo o Aleipata (Vailoa)	19 Nov 2007
39	Afega	20 Mar 2013	40	Samatau (reviewed)	20 Mar 2013
41	Matautu uta Lefaga	20 Mar 2013	42	Salua	20 Mar 2013
43	Fasitootai (reviewed)	20 Mar 2013	44	Malaemalu	20 Mar 2013
45	Safaatoa (reviewed)	20 Mar 2013			
SAVAII		Approved Date		SAVAII	Approved Date
1	Asau	29 Apr 1999	16	Lu'ua Faga	19 Nov 2007
2	Auala	30 Sep 1998	17	Manase	27 Mar 2000
3	Fagae'e	27 Mar 2000	18	Papa Palauli	17 Dec 1998
4	Fagasa	18 Jan 1999	19	Pu'apu'a	30 Sep 1998
5	Falealupo	30 Sep 1998	20	Safa'i	19 Nov 2007
6	Fatuvalu	19 Nov 2007	21	Saleaula	30 Sep 1998
7	Foailalo	19 Nov 2007	22	Salimu Faga	19 Nov 2007

<sup>45</sup> Fisheries Division Annual Report FY2016-2017

8	Fogatuli	19 Nov 2007	23	Sapapalii	17 Dec 1998
9	Papa Sataua	19 Nov 2007	24	Sapini Faga	19 Nov 2007
10	Neiafu	19 Nov 2007	25	Sato'alepai	30 Sep 1998
11	Sataua	19 Nov 2007	26	Siufaga Faga	19 Nov 2007
12	Vaisala	19 Nov 2007	27	Tafua	30 Sep 1998
13	Asaga	17 Dec 1998	28	Vaisaulu Iva	17 Dec 1998
14	Faala Palauli	17 Dec 1998	29	Vaitoomuli	17 Dec 1998
15	Lelepa	4 Jun 1999	30	Malae	20 Mar 2013
31	Lefagaoolii	20 Mar 2013	32	Satafao	20 Mar 2013
33	Safua	20 Mar 2013			

#### 5.1.4 Monitoring

Significant village responsibilities include the daily monitoring and overseeing of their marine environment and their fish reserves. Ongoing technical support by the Fisheries Division is provided by various sections:

- Advisory/Extension Section: Liaise and work with villages under the CBFMP, conduct six-monthly reviews of village management plans, provide awareness and training, produce and disseminate information, and review the status of CBFMP;
- Aquaculture Section: Monitor aquaculture activities, such as giant clams nursery in fish reserves and trochus at stocking sites; monitor fresh-water tilapia fish farms;
- Enforcement Section: Enforce fisheries regulations, and investigate and process villagers' reported by-law infringement cases;
- Inshore Section: Carry out initial and ongoing resource assessments within fish reserves research coastal fishery resources.

The Fisheries Division is mandated to develop sustainable conservation and fisheries management measures under the Fisheries Act 1988; therefore, the Fisheries Division works with communities to pursue fisheries development and marine conservation, and to provide technical assistance. As mentioned earlier 106 villages work collaboratively with the Fisheries Division under the CBFMP with 78 active fish reserves, 1 with protected mangroves only. Two other districts, Safata and Aleipata are under a marine protected area program overseen by the Ministry of Natural Resources and Environment; the rest were inactive due to some localized and unforeseen issues within their communities. The Fisheries Division is working on reactivating all of these fish reserves as well as involving new communities in the CBFMP. One of the conservations and resource management procedures adopted by the communities participating in the program is the establishment of village owned fish reserves in lagoon waters. It is a practical management strategy to protect the biodiversity of the marine and fish species and to enhance depleted coastal fisheries resources. The fish reserve area varies among communities, depending on the lagoon area and also take into consideration that most communities reserve a portion of the marine environment and leave the rest for fishing activities for family consumption. The CBFMP identifies various communal issues as listed in each village's Fisheries Management Plan, incorporates by-laws into the Fisheries Act (which legalizes communal management initiatives) and assists communities with managing their own marine environment, especially controlling fishing activities from outside villages. (Tiitii 2014; and FAO 2018).

#### 5.1.5 Problems:

The success of CBFMP, like any other community development, depends on the commitment and governance of a village council. Lack of commitment in some communities in the monitoring and implementing of their undertakings is the main problem that the CBFMP is facing. A few communities practise and enforce only some of their village plan undertakings, and others become less active due to their own internal disputes that lead to weak management and monitoring.

The closure of the Fisheries Division's hatchery in 2005 was a major setback in the restocking programme. Many villages requesting giant clams and other marine species to conserve within their

fish reserves have been put on hold, as there is no facility for spawning marine species. However, some villages that received funding assistance from donors were able to purchase giant clams from Tonga Fisheries hatchery, whilst others bought local clams from fishermen within their own villages.

The Fisheries Division's local budget is limited, which leads to a reduction in the proposed activities or new initiatives. Non-fisheries issues (e.g. sand mining, sedimentation) raised by communities are difficult to follow up, as there are different responsible agencies. Although there is a growing trend by coastal communities to submit application to the UNDP GEF-Small Grants Program and Civil Society Support Programme requesting for funding assistance to set-up marine reserves and procure giant clams and other marine organisms for marine restocking and Fisheries Division usually assist these communities in developing their project proposals. This at times alleviates pressure on local budget.

#### **5.1.6 Summary:**

Overall, the strength of this program which was initiated 20 years ago through the recognition by the Government of Samoa the importance of the Samoan cultural village leadership *pulega a matai* (village fonofono) to spearhead the management of the coastal fisheries resources as it is the main source of livelihood for our villages. The success lies with the strong partnership between government through MAF Fisheries Division and all member village communities whereby the people's stewardship on coastal fisheries management through the science and technical support (Fisheries Division) and the strengthening of village traditional taboos tapu through legal recognition such as the development of village by-laws.

The Fisheries Division continues to provide the technical supports for the strengthening of the management by the villages. Such support includes the ecological assessments of the coastal area to provide up to date status of the coastal resources, workshops and trainings with village members on the management strategies and undertakings by both villages and Government, the support through stock enhancement programs, trainings on alternative livelihood such as eco-tourisms and others. There is also support from the regional fisheries management organization (SPC and FFA) and promotes this initiative for external funding support. There are numerous hands on trainings and workshops for the empowerment of these communities.

The Community Based Fisheries Management Program supports the implementation of Samoa's NBSAP and through its activities it addresses the following NTs: Target 11 – Protected Area related to marine reserves and marine protected areas; Target 12 – Threatened Species it supports and monitor the protection of marine threatened species; Target 1 it provides educational and awareness programs on the value of marine biodiversity; Target 4 on sustainable consumption and production to strives to ensure food security in the inshore marine ecosystems; Target 10 supports the protection of coral reef ecosystems; Target 19 on scientific information and sharing of resources etc. Most importantly the CBMFP is able to demonstrate the value of traditional knowledge and systems in the sustainable management of marine ecosystems and as such it addresses NT 18 and the ABT 18 on Traditional Knowledge.

## 6. Section VI. Updated biodiversity country profiles

### 6.1. Biodiversity facts based on the 6NR review and update 2018

#### **Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:**

The Independent State of Samoa forms the larger and western part of the Samoa Archipelago, which lies in the south west Pacific between 13°25 and 14°05 south of the equator and between 171°23 and 172°48 west longitudes. The total land area is about 2,820km<sup>2</sup> with the two main islands of Upolu and Savaii, and eight other inhabited and uninhabited islands and islets. The capital Apia is located midway on the northern coast of Upolu and lies about 130km north-west of Pagopago, American Samoa, 3,000km north of Auckland, New Zealand and 4,500km north-east of Sydney, Australia. Samoa has the smallest Exclusive Economic Zone in the Pacific. The recent census in 2016 recorded the population at around 196, 000 and almost 80% of the population reside along the coastal areas. More than 80% of Samoan lands are customary owned and the remaining lands are either owned by the state or are freehold land. Samoa's economy relies heavily on agriculture, fishery and tourism which generates most of the country's GDP.

Samoa's vegetation is divided into five plant communities (littoral vegetation, wetland vegetation, rainforest, volcanic scrub, disturbed vegetation). The country's flora consists of about 550 species of native flowering plants and about 225 species of ferns, in 95 families and about 300 genera, making it one of the most diverse flora in Polynesia<sup>46</sup>. Overall, about 25% of the native plant species are endemic to Samoa and 32% are endemic to the Samoan archipelago. In agro-biodiversity ecosystem, the main cultivated crops are taro, bananas, breadfruits, yams, cocoa and coconuts. In terms of faunal diversity, there are 3 species of flying mammals, 51 species of land and sea birds, 16 terrestrial reptiles 64 species of land snails and at least 2,500<sup>47</sup> species of insects. Samoan coastal and marine ecosystems are characterized by large and vulnerable reefs cover (490 km<sup>3</sup>). Samoa's fish fauna is regarded as among the richest in the world, with up to 991 species recorded. A recent survey recorded six (6) new species of fish, where some were recorded for the first time in Samoa and others are new to science<sup>48</sup>. Twelve (12) species of marine mammals have been recorded from Samoa though it is likely other species known in the region and neighboring islands could also be present. Three (3) species of marine turtles are recorded in Samoa, though it is also likely other species known to occur in the region could also be present. In terms of freshwater biodiversity, 44 freshwater fish species are known to occur in Samoan waters, 38 of which are native with 6 introduced (Jenkins et al., 2008).

The status of terrestrial faunal and floral species follows an overall declining trend. The IUCN Red List update in 2018 shows an increase in the number of threatened species in Samoa listed from 76 in 2009 to 93 threatened species. Of the 93 threatened species, 4 are listed as critically endangered and this includes the recently updated status for the manumea or tooth-billed pigeon bird in 2014. Marine species constitute most of the species in decline.

The status of coral reefs continues to decline mainly around Upolu and Manono Islands. Some reefs which were previously reported to have 40% live coral coverage, are now depleted to less than 10%. The decline was mainly due to the outbreak of the crown of thorns starfish since 2010 and the mass

<sup>46</sup> Whistler, A., (2004) *Rainforest Trees of Samoa*, Isle Botanica

<sup>47</sup> Conservation International *et al* (2010) Priority Sites for Conservation in Samoa: Key Biodiversity Areas, Apia Samoa

<sup>48</sup> Mark Erdmann, Dwarf Goby Survey 2015

coral bleaching events in 2015 and 2016, which occurred simultaneously, on top of other existing pressures such as overfishing and destructive fishing. In terms of forest cover, it has decreased by 1.7% from 60% in 1999 to 58.3% in 2013. The recent trend in promoting reforestation through the 2 Million Tree Planting Campaign 2015 – 2020 and other ecosystem restoration programmes, will determine the recovery of native forest ecosystems and reversing land degradation.

Since the development of the NBSAP, notable progress has been made with protected areas. In the past 20 years; 22 terrestrial reserves, 6 national parks, 3 marine protected areas, 10 community conservation areas, 22 water catchment areas and 106 fish reserves have been established.

There is a growing number of certified organic farms, community native forest plantation, community fish reserves, installation of household rubbish stands for waste collection, availability of alternative products to plastic and voluntary participation in environment related programmes such as native tree planting and coastal and river clean ups. There is also a growing number of community based and non-government organizations with overall objectives on improving the environment.

**Main pressures on and drivers of change to biodiversity (direct and indirect):**

Samoa’s biophysical environment is continually changing as a result of a complex combination of drivers and pressures from natural and man-made sources. Underlying drivers include wide range of economic development activities (such as development in infrastructure, agriculture, tourism, fisheries), population growth, changing consumption patterns and lifestyles, traditional institutional arrangements governing access to and use of resources, and climate change and climate variability as a result of global warming. These underlying influences give rise to more direct pressure sources such as invasive species, overharvesting of resources, unsustainable and poorly designed development activities, proliferation of non-biodegradable wastes, natural hazards, poor sanitation systems and other factors. These pressures and drivers can occur separately and/or collectively, often times triggering other impacts.

**6.2. Measures to enhance implementation of the Convention: Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020:**

**Implementation of the NBSAP:**

Samoa’s first NBSAP was officially launched on the International Day for Biological Diversity in May 2001. The objectives, goals and actions of the NBSAP 2001 was organized under 8 themes which were: mainstreaming biodiversity, ecosystem management, species management community, access and benefit-sharing from the use of genetic resources, biosecurity, agro-biodiversity, financial resources and mechanisms. Based on the information available, 70% -80% of actions contained in the NBSAP 2001 that directly address various articles of the Convention was implemented, or were in the process of implementation. Very good progress was made in regard to implementation of 6 thematic areas and the only themes with minimal progress were the 2 themes of access and benefit-sharing and financial resources and mechanisms.

The updated NBSAP 2015-2020 adopted the Global Strategic Plan for Biodiversity 2011-2020 by translating the 20 Global Aichi Biodiversity Targets (ABT) with minor modifications to reflect the local context, as its own NBSAP national targets.

The current progress on implementation of the NBSAP 2015-2020 is summarized as follows;

- Six (6) targets are on track to be achieved (National Targets, 4, 6, 14, 16, 17 and 18)
- Nine (9) targets are on good progress but more needs to be improved to achieve the targets by 2020 (National Targets, 1, 2, 5, 7, 8, 9, 11, 19 and 20)
- Five (5) targets are making minimal progress (National Targets, 3, 10, 12, 13, 15)

### **Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020**

To enhance the implementation of the Convention, biodiversity was mainstreamed and integrated into the development of other major sector plans such as the Agriculture Sector Plan 2016 – 2020 and Tourism Sector Plan 2014 – 2019 to name a few. The multi-sectoral approach gauged the support and participation from the community level, towards the national level including all key stakeholders that facilitated the implementation of actions that links to the NBSAP. The implementation of the NBSAP also contributed in achieving the overall strategic outcomes for the environment under the Sustainable Development Strategy (SDS) 2016 – 2020.

A number of species and site led conservation programs and projects were developed and implemented using national and external; funding sources, personnel, technical support and other resources available and needed to achieve actions on biodiversity. The conservation programmes and projects includes; threatened species recovery, management of invasive species, ecosystem restoration and rehabilitation, establishment of protected areas, and educational and public awareness programmes. Other relevant supporting programmes contributing to the enhancement of biodiversity values includes solid, chemical and hazardous waste management, water and sanitation, climate resilience, sustainable agriculture practices, renewable energy to name a few.

Since 2011, some of the achievements for protected areas include the designation of the first national park in Samoa as a Ramsar Site in 2013. The O Le Pupu Pu'e National Park was established in 1978 and has a total of 5019 hectares. In addition, 12 hectares of privately owned land was established as a recreation reserve in 2015 and is the first reserve of its kind in Samoa. In 2018, Samoa's waters was officially declared as a Marine Wildlife Sanctuary for the protection of whales, dolphins, sharks and turtles. The number of Community Conservation Areas (CCA) and the Fish Reserves, have continued to increase over the years especially with direct access of communities to grant such as the United Nations Development Programme, Global Environment Facility – Small Grants Programme (UNDP/GEF-SGP) and the Civil Society Support Programme (CSSP) drive their own programmes.

National environment events and campaigns were important in instigating positive attitudes and environmentally responsible citizens. The annual events include, the Biodiversity Day, Wetland Day, Water and Forest Day, National Toilet Day, Water and Sanitation Day, National Renewable Energy Day, Land and Soil Week, Environment Week, National Ozone Day and the Agriculture Show. National educational and awareness campaigns include, the – Manumea Awareness campaign, Two Million Tree Planting Campaign, Sa Moana Folauga Campaign, Guardians Va'a Based Environmental Awareness Campaign, Samoa Agroforestry and Tree Farming program and the Samoa National Invasive Species school challenge to name a few.



### 6.3. Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.)

The mainstreaming of environment was recognized in the development of the Samoa's Development Strategy (SDS) 2008 – 2012 as a cross cutting issue across all sectors. The environment was prioritized in the SDS 2012 – 2016, as one of the main pillars for sustainable development, pursuing environment sustainability, climate and disaster resilience as key outcomes. The National Environment Sector Plan (NESP) 2017-2021 was developed to implement the SDS 2016 – 2020 Priority Area 4 on Environment. Other sector strategies such as the Agriculture Sector Plan (ASP) 2015 – 2020, Water and Sanitation Sector Plan (WSSP) 2015 – 2020, and the Tourism Sector Plan 2014-2019 to name a few, are also key mechanisms which also support the cross-sectoral coordination of actions for national implementation. Following these sector strategies are a range of management plans, recovery plans and action plans, which also guide the implementation of the NBSAP.

Some of the legislation enforced since 2011 to assist with the sustainable development and management of natural resources include:

- Plastic Bag Prohibition on Importation Amendment Regulation 2018
- Marine and Wildlife Protection Amendment Regulations 2018;
- Fisheries Management Act 2016;
- Forestry Management Regulations 2015;
- Water Resource Licensing Regulation 2013;
- Forestry Management Act 2011;

Some of the other important bills pending enactment includes the: Environment Management and Conservation Bill, Trade in Endangered Species Bill, Climate Change Bill, Soil Resources Management Bill and the Draft National Access and Benefit Sharing Legal Framework.

### 6.4. Mechanisms for monitoring and reviewing implementation

The Environment Sector Coordination Division of the Ministry of Natural Resources and Environment, oversees the implementation of the NESP which is the overarching framework which coordinates action and responsibility at the national level, to achieve environmental sustainability and climate and disaster resilience. There are fifty (50) high level indicators identified for the NESP in addition to key performance indicators linked to costed action plans. The National Environment Sector Steering Committee (NESSC) meets on a quarterly basis to update partners on the progress of activities in every work plan which is derived from the NESP, NBSAP or any relevant plan which aligns with the NESP.

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## 8. Annexes:

## 8.1. Annex 1: List of Participants consulted during the 6NR meetings and workshop consultations September to December 2018

<b>Name</b>	<b>Ministry / Organization</b>	<b>Gender</b>	<b>Position</b>
Christine Tuioti	Samoa Conservation Society NGO	Female	Manager SCS
Yvette Kerslake	UNDP-Samoa	Female	Head Environment Unit
Prudence Raine	UNDP-Samoa	Female	UN Environment
Emma Funk	UNDP - Samoa	Female	UN Environment
Grace Laulala	MNRE – Land Management	Female	Principal Officer
Lemoa Leatiogie	MNRE – Water Resources Division	Male	Principal Officer
Elizabeth Kerstin	MNRE – Forestry Division	Female	Principal Officer
Tauati Fau	MNRE – GEF/ EWACC	Male	Project Manager
Kolone Tikeri	UNDP Samoa	Male	UN Environment
Setoa Apo	MNRE - DEC	Male	Principal Officer
Samantha Kwan	MNRE-DEC	Female	Senior Officer
Czarina Stowers	MNRE-DEC	Female	Principal Officer
Dr. N M D	USP	Male	Scientist
Ana Tiraa	FAO	Female	Climate Specialist
James Atherton	Private Sector	Male	Consultant
Leilani Duffy	Private Sector	Female	Consultant
Moeumu Uili	MNRE-DEC	Female	Principal Officer
Frances Reupena	MNRE-Environment Sector	Female	ACEO
Joe Teo	MNRE- Forestry Div	Male	Senior Officer
Pauline Pogi	MNRE-WRD	Female	Principal Officer
Tuuau Letaulau	MNRE-Forestry Div	Male	Principal Officer
Entole Simanu	MNRE-DEC	Female	Senior Officer
Fatutolo Iese	MNRE - DEC	Male	Officer
Eugene Meleisea	MNRE-DEC	Female	Senior Officer
Piula Hakai	MNRE-DEC	Female	Senior Officer
Unity Roebeck	MAF-Fisheries Div	Male	Principal Officer
Chris Brown	Private Sector	Male	DB TK Consultant
Alphonso Kembo	Private Sector	Male	TK Consultant
Leilua T Tipamaa	Samoa Conservation Society	Male	Secretary
R. M. Faasavalu	NUS	Female	Academic
Shirley Tugalua	MNRE - Legal	Female	ACEO
Sailele Aimasau	MNRE-Coporate Ser	Female	Principal
Filipo Tuivavalagi	FAO	Male	Agricultural Specialist
Vainuupo Jungblut	SPREP	Male	PA Officer
Faleafaga Toni	SUNGO	Male	Member
Fetoloai Yandall Alama	MNRE-PUMA	Female	ACEO
Tuiolo Schuster	MNRE-Corporate Ser	Female	ACEO
Roini Tovia	MNRE-DEC	Female	Officer
Kim Kaleti	MNRE-DEC	Male	ATCO
Fini Mape	MNRE	Male	ATCO



Simona Marinasau	UNDP Samoa	Female	UNDP Res Rep
Muaausau Pau Ioane	MNRE-Technical Div	Male	Principal
Cecilia Aмосa	CSSP	Female	Project Manager
Lotomalie Levi	MNRE-WRD	Female	Principal
Susau Siolo	MNRE-Forestry Div	Female	Principal Officer
Paul Anderson	SPREP	Male	Project Manager
Toai B Lee	MNRE-DMO	Female	Principal Officer
Kelekalani Slade	MNRE-Capacity Building	Female	Officer
Faasili Lam	FAO	Female	Regional Manager
Faainu Latu	NUS	Male	Academic
Silafau Meredith	Private Sector	Male	Consultant
Fuimaono P	SUNGO	Male	CEO
Adi Tafunai	WIBDI	Female	President
Seumalo Afele Failagi	MNRE-DEC	Male	ACEO

## 8.2. Annex 2: Assessment of Actions and Measures taken to implement Samoa national or NBSAP Targets

National Target	Description of Actions	Measures taken at the National / Community Level
<p>1. Biodiversity Awareness</p>	<p>1.1 Undertake a formal assessment of the current state of knowledge on the value of biodiversity and existing conservation activities and information</p> <hr/> <p>1.3 Promote educational and awareness programs on Biodiversity for different target groups</p> <hr/> <ul style="list-style-type: none"> <li>○ Promote opportunities and support learning-exchange programs on the values of biodiversity, the threats it faces and the steps the Government and the people can take to conserve, protect and use it sustainably</li> </ul> <hr/> <p>1.4 Promote public awareness and understanding of Access and Benefit Sharing and Protection of Traditional Biological Knowledge</p>	<p>To date no formal assessment undertaken to measure the current state of knowledge on the value of biodiversity and existing activities in Samoa, which is a set-back to confirming the real impact of biodiversity value from a deeper understanding of peoples perspective</p> <p>However, Samoa has taken exceptional measures in promoting biodiversity awareness and education such as:</p> <ul style="list-style-type: none"> <li>✓ Over the past four years between 2014 to 2017 alone over 35 national biodiversity and conservation awareness and educational programs were implemented (MNRE Annual Report 2013/14 and 2016/2017).</li> <li>✓ Similarly opportunities to support learning exchanges had increased to about 57 different learning activities were accounted for the same period and this range from school programs and competitions, information sharing among relevant stakeholders and between line ministries through biodiversity knowledge products, trainings , presentations, field visits and workshops.</li> <li>✓ Additionally, recent national and community awareness workshops around mid-2018 were embarked upon by DEC to promote people’s understanding especially local communities on Access and Benefit sharing and the safeguarding of traditional biological knowledge</li> <li>✓ The recent review of the National Environment Sector Plan 2013-2016, highlighted one of the strengths of the sector plan is the increase awareness of environmental issues such as climate change, invasive alien species control programs and restoration and rehabilitation programs.</li> <li>✓ Improvement in the NESP coordination with other sectors as well as increase in outreach programs and consultations and regular engagements with local communities all contribute to biodiversity awareness.</li> </ul>
<p>2. Biodiversity Mainstreaming</p>	<p>2.1 Maintain environment sustainability as a priority goal into the Development of Samoa (SDS)</p> <hr/> <p>2.2 Conduct and explore options on the use of Payment of Ecological Services (PES) approaches or tools in national accounting</p> <hr/> <p>2.3 Encourage the use of economic valuation (cost-benefit analysis) of ecological and biodiversity services</p>	<p>Biodiversity recognition within the SDS 2016-2020 continues to remain a priority area: Environmental Resilience improved through increased protection of:</p> <ul style="list-style-type: none"> <li>✓ Key habitats and at risk species, conservation and sustainability of environmental and natural resources improved.</li> <li>✓ And ensuring environmental compliance is strengthened and increase in the establishment of protected areas and conservation sites.</li> <li>✓ MNRE has expanded over the years and biodiversity conservation has decentralized from DEC whereby other division activities now support biodiversity actions such as: FD, WRD, LMD, and PUMA.</li> </ul> <p>The application of the Payment for Ecological Services (PES) approach is fairly new in Samoa and not much concrete work has been undertaken except for a few studies in the past and some focusing on specific sectors. From institutional knowledge some of these research related to PES in Samoa include:</p> <ul style="list-style-type: none"> <li>- An economic valuation of the terrestrial and marine resources of Samoa (Mohn-Shahwahid and McNally: 2001) estimated the total economic value (TEV) of Samoa natural resources at \$21.0million tala per annum (about 2.7% of Samoa’s GDP at</li> </ul>

		<p>the time) and this is based on the perspective of Samoan people. However taking into account global benefits generated for the rest of the world including climate regulations services and ecosystem services of biodiversity the TEV was valued at \$232.5million tala per annum, about 29.9% of Samoa’s GDP at the time. Fast forward to 2018, the TEV would be much different probably at a higher value given the commitment and awareness that the government and Samoan people have on biodiversity or could be less if environmental degradation is considered.</p> <ul style="list-style-type: none"> <li>✓ IUCN funded WANI II project (2009-2011) with Water Resource Division and the research focused on a rehabilitation of the Togitogiga Water Catchment Area the main water source for the SWA treatment plant. The PES methodology was a questionnaire used to gauge locals and overseas visitors to the National Park on the potential application of the PES in Togitogiga. No follow-up on this research on specific outcomes whether it is feasible;</li> <li>✓ More exploration on the potential use of PES had been carried out under the SMSMCL project which looked at assessing potential opportunities of PES development in Samoa. No report was made available on the outcome of this study in terms of feasibility and opportunities arising from the application of PES approach in Samoa;</li> <li>✓ A local researcher under the Water and Sanitation Sector 2013-2016 Research Initiative had conducted a study on PES for residents of the Apia Catchment Area (Taua’a:2015) to engage them on their perspective about a user payer system for upstream water resources. The outcome of the research showed that PES is a complex system that needs thorough understanding and assessment of its benefit if it was integrated into national budget planning to strengthen the management and sustainable use of natural resources and as a revenue earner for DEC.</li> <li>✓ To date no recent research or study into economic valuation (CBA) of Samoa ecological and biodiversity services, although this has potential in future local budget planning for biodiversity values. The Samoa Bureau of Statistic or Ministry of Finance would be the ideal institutions to consider this action for future implementation.</li> </ul> <p>Although measures are in place to show commitment in the value of Biodiversity its action is still limited due to the long delay in enacting the draft Environment Management and Conservation Bill (EMC) 2018 which has taken over five year when it was first developed in 2013. As well, integrating economic value of natural resources into national budget planning is a gap that needs to be considered than real value of biodiversity expressed in monetary terms are measurable.</p>
<p>3. Negative and Positive Incentives</p>	<p>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</p> <p>3.2 Ensure assessment and feasibility studies are conducted for the use of bio-control</p> <p>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</p>	<p>Samoa under its obligations to these international convention the Rotterdam and Stockholm Convention, Basal and the Vienna/Montreal Protocol</p> <ul style="list-style-type: none"> <li>✓ Makes it mandatory for all imported chemical entering the country to get registration and follow compliance procedures;</li> <li>✓ Shipment of hazardous waste from Samoa to overseas (New Zealand) disposal and recycling has to undergo the Basel Convention requirements through notification procedures.</li> <li>✓ Feasibility study had been conducted for the control of myna birds prior to its operation as shown in the report on managing mynas in Samoa (2015) by DEC which provides 10 years of lessons learned in the control and removing of myna birds using a control method of toxic bait;</li> <li>✓ MAF Crops Division uses biological control agents for the rhinoceros beetle impacting on coconut plantations.</li> </ul> <p>However given the increase in invasive pest and some biocontrol agents that have been introduced and have eventually become pests themselves,</p>

		<p>there is an urgent need to strongly emphasize that assessment and feasibility studies are to be conducted first prior to the release of any biocontrol agent.</p> <p>PES is still a new concept which requires time and effort to carry out assessment on its pros and cons in the context of Samoa’s biodiversity and agro biodiversity. The current measures undertaken through the SMSMCL project in scoping potential opportunities that PES can support in the sustainable management of resources and critical habitats for conservation should provide a baseline into its applicability in Samoa.</p>
<p>4. Sustainable Production and consumption</p>	<p>4.1 Implement management plans and by laws to regulate unsustainable resource and land use practices in terrestrial, water catchments, and marine areas</p> <p>4.2 Promote sustainable agriculture including integrated pest management practices, organic agriculture, conservation and management of genetic resources and proper soils management practices</p> <p>4.3 Promote and implement agroforestry demonstration plots and sustainable production of community forestry plots</p>	<p>Samoa has been very active in community engagement and the development of management plans and by-laws to govern environmental resources in villages and districts and to also regulate any unsustainable practices either terrestrial, water catchments and marine areas.</p> <p>Significant measures in place included:</p> <ul style="list-style-type: none"> <li>✓ The Marine Wildlife Protection Amendment Regulation 2018 under</li> <li>✓ 76 Village Fisheries By-laws completed out of 102 participating villages in the Community Based Fisheries Management Programme (CBFMP);</li> <li>✓ Review of 10 Sustainable Village Development Plans (SVDP) under the SMSMCL Project to strengthen sustainable land management farming practices;</li> <li>✓ 18 Management Plans developed for 18 Water Catchment Area in Samoa, some management plans are awaiting final endorsement by cabinet;</li> </ul> <p>All these management plans are implemented by each respective village’s with support from the lead government agency such as MNRE – Forestry, DEC, Water Resources and MAF – Fisheries Division. Despite having management plans in place, the enactment of the EMC Bill 2018 would provide strong enforcement and the community level. Forestry Division of MNRE has been actively promoting agroforestry demonstration plots and community woodlots:</p> <ul style="list-style-type: none"> <li>✓ From 2012-2016 a total of 833 farmers have registered and an estimated 279.2 hectares of land covered in the program. The annual target of 200 farmers fluctuates annually as it takes time for some farmers to realize the benefits of this program.</li> </ul>
<p>5. Habitat fragmentation and degradation</p>	<p>5.1 Assess the current conditions of all natural habitats as a baseline for measuring the rate of loss and/or degradation</p> <p>5.2 Develop new and/or strengthen existing guidelines to control and monitor the use of resources within natural habitats</p> <p>5.3 Strengthen monitoring and effectively enforce processes to properly screen and minimize the negative impacts of development activities on natural habitats</p> <p>5.4 Reduce loss of mangrove and wetland forests from land reclamation, logging, and waste disposal</p>	<p>There are some critical natural habitats that have completed baseline assessments and the outcome poses major threats to their existence:</p> <ul style="list-style-type: none"> <li>✓ Upland cloud forest of Samoa in Savaii is the only remaining pristine cloud forest and the rate of degradation and loss of habitat is gradually rising due to increase in predators finding their way up to the top, and expanding agricultural farm lands and individual logging all pose threats to the cloud forest. It has also been noted that increase in temperature now and in the future will alter the climatic condition of the cloud forest and may have detrimental impacts to those native and endemic species whose survival depends on the existence of this habitat;</li> <li>✓ Enforcement of existing legal instruments such as the PUMA Act 2004 and PUMA (EIA) Regulation 2007 and the Lands Survey and Environment Act 1989, and Forest Management Act 2011, can help protect and halt further developments within critical habitats such as mangrove and wetlands and upland cloud forest in Savaii.</li> <li>✓ Application of Environmental Impact Assessment (EIA) in the case of big developments that may have adverse impact on the environment or Preliminary Environmental Assessment Report (PEAR) or an Environmental Management Plan (EMP) all these measures help to ensure that minimal negative impacts of developments on natural habitats;</li> <li>✓ Screening process are closely monitored and site assessments before issuing of permits for land reclamation and license to</li> </ul>

		<p>logging businesses as well as impact from waste disposal effluent.</p> <p>We have positive measures in place to reduce the loss of natural habitats although we need to be consistent with monitoring the application of these measures.</p>
6. Sustainable Fisheries	<p>6.1 Develop, review, and implement policies and management plans promoting sustainable fisheries in inshore and offshore areas</p> <p>6.2 Promote eco-tourism activities beneficial to the conservation of marine species and critical habitats</p>	<p>Promoting sustainable fisheries both inshore and offshore areas are vital steps to sustaining Samoa marine resources and the MAF Fisheries Division have put in place measures to guide using of marine resources such as:</p> <ul style="list-style-type: none"> <li>✓ Review of the Community-based Fisheries Management Plan 2017</li> <li>✓ Tuna Fisheries Management Plan 2017-2021</li> <li>✓ Tuna Fisheries National Monitoring Control and Surveillance Strategy 2016-2020</li> <li>✓ Fisheries Management Act 2016 and;</li> <li>✓ Aquaculture Development and Management Plan</li> </ul> <p>Establishment of community marine reserves and protecting turtle nesting grounds on the beach support ecotourism activities and at the same time protect critical habitats such as:</p> <ul style="list-style-type: none"> <li>✓ Saletoga Resort manages a marine reserve use by visitors for snorkeling and some tourism operators in Lefaga protect and monitor turtle nesting sites</li> </ul>
7. Sustainable Resource Management	<p>7.1 Finalize, implement, and effectively enforce National Forestry legislations and policies frameworks</p> <p>7.2 Support and encourage the development of woodlots and agroforestry systems, with management plans, seedlings, and marketing information for five years</p> <p>7.3 Increase capacity of relevant stakeholders for promoting and supporting agroforestry and other mixed crops, trees, and livestock systems</p> <p>7.4 Enforce effective management of aquaculture activities to avoid accidental release of species into pristine environments and ecosystems</p>	<p>A milestone achievement for the conservation, protection and compliance is supported by the number of Forestry legal instruments in place:</p> <ul style="list-style-type: none"> <li>✓ Endorsement of the National Forestry Plan 2016-2020</li> <li>✓ 2011 Forestry Management Act and the</li> <li>✓ 2 Million Tree National Strategy Action Plan 2015-2020</li> <li>✓ To date between 2012-2017 a total of 833 farmers have registered for woodlots and agroforestry systems, an annual target of 200 farmers although this is short by 100 plus due to farmers slowly accepting this system;</li> <li>✓ Capacity building of farmers and all relevant stakeholders are never in shortfall as many trainings and workshops are offered to support agricultural development in Samoa from agroforestry trainings, livestock and poultry trainings to cattle and sheep husbandry and livestock production and management. These are mainly offered by the relevant government ministry and some training's are supported through projects such as the 15 community farmer training for sustainable land management funded by the SMSMCL project MNRE.</li> <li>✓ Development of aquaculture requires an EIA in order for a Development Consent to be reviewed and screened to ensure that no accidental release of species into the natural environment and that the construction of tanks are air-tight to avoid any accidents that would harm the natural ecosystems.</li> </ul>
8. Pollution	<p>8.1 Encourage the development, adoption, and implementation of village resources management plans including Village Sustainable Development Management Plans</p> <p>8.2 Minimize coastal pollution from unsound waste disposal practices and unsustainable agricultural practices</p> <p>8.3 Effectively enforce the protection of river bank reserves for catchment purposes and to minimize coastal pollution</p>	<p>To date 26 SVDP were developed by the Ministry of Women Community and Social Development (MWCSD) which addresses:</p> <ul style="list-style-type: none"> <li>✓ Social, economic, health and environmental issues within the villages. These SVDP enforces hygiene and cleanliness within every village household and waste management is one the key aspects of these plans;</li> <li>✓ Recently updated 41 Community Integrated Management (CIM) Plans with 365 village plans identifies waste management as a key action in each village that is enforced under the women's committee program and fines are imposed by the village council;</li> <li>✓ Measures are in place to protect river bank reserves for catchment purposes and reduce coastal pollution by enforcing – Water Resources Management Regulations 2013, National Upland Watershed Conservation Policy and the National Water Resources Management Strategy 2007-2017 and village water catchment Management Plans.</li> </ul>

9. Invasive alien species	<p>9.1 Review and secure funding for implementation of the National Invasive Species Action Plan (NISAP) 2008-2011</p> <p>9.2 Develop, endorse, and implement Samoa's Invasive Species Emergency Response Plan (SISERP) 2015-2020 (draft)</p> <p>9.3 Develop, maintain, and update Invasive Species Database</p> <p>9.4 Strengthened collaboration of relevant government agencies to monitor and properly manage the discharge of ballast water from ships</p>	<p>Implementation measures to address actions in the NBSAP target-9 has been slow in progress such as:</p> <ul style="list-style-type: none"> <li>✓ The NISAP 2008-2011 is currently under review;</li> <li>✓ The draft SISERP 2015-2020 is yet to get endorsement and information not available on status of activities;</li> <li>✓ The Invasive Species database is currently inactive and DEC is in the process of hiring someone to develop the database</li> <li>✓ The SNITT (Samoa National Invasive Species Task Team) is a strong working collaboration between all government agencies and NGOs, academia with representatives from the community who are task with monitoring IAS pathway into the country including discharge of ballast water from ships. Despite the slow progress there has been specific work on invasive species implemented under the GEF-PAS project which includes: myna bird control program, removal of invasive trees and weeds from Valima Botanical and Reserve etc. As well during the Critical Ecosystem Partnership Fund (CEPF) in 2009-2013 Rat eradication program had been implemented for the outer islands of Aleipata district and biosecurity trainings. The tsunami 2009 post monitoring saw the return of <i>rattus rattus</i> back on the island.</li> </ul>
10. Pressures on vulnerable ecosystems minimized	<p>10.1 Effectively promote and implement existing planning and approval frameworks to reduce coastal reclamation and sand mining activities</p> <p>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</p> <p>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</p> <p>10.4 Updated and implement the Community integrated management (CIM) plans</p> <p>10.5 Reduce coral destruction and use of unsustainable fishing methods</p>	<p>The Landuse Policy 2004 , the Lands, Surveys and Environment Act 1989, PUMA Act 2004 and the PUMA Regulation 2007 are the guiding framework for the management of sand-mining and land reclamation:</p> <ul style="list-style-type: none"> <li>- Between, 2012-2017 a total of 313 sand-mining permits were issued and an estimated 52 permits for coastal reclamation. The number of sand-mining activities and land reclamation have fluctuated over the years however there is weakness in the reporting in the MNRE Annual Reports because it only captures revenue but not the actual volume of sand being mined and the hectares/acres of coastal areas being reclaimed;</li> <li>- The Vaitoloa Assessment by SROS (2009) which is part of the Vaiusu Bay clearly shows the poor status of the marine environment being highly toxic (lead, iron, arsenic and mercury) and any marine species be it shellfish or fish are highly poisonous and not fit for human consumption. Consideration to ban fishing within this area should be enforced;</li> <li>- Outcome of the research by Tara Expedition Team (2017) provides alarming results in the poor status of our coral reefs especially Upolu Island, however there is a need for baseline assessment of coastal sand budget and coral cover to determine sustainable harvesting of sand for developments and the impacts of land reclamation;</li> <li>- 43 CIM Plans have completed their review and update with over 100 small project for villages addressing immediate priority climate resilience needs;</li> <li>- Enforcement of Fisheries Management Act 2016 and Lands Survey and Environment Act 1989, can impose penalties on anyone who conducts unsustainable fishing practices and destroys coral. Similarly village by-laws can govern fishing practices and promote the conservation of coral reefs.</li> </ul> <p>Measuring the actions taken does not provide sufficient information to determine the impact of human activities and climate change.</p>
11. Protected Area (17% terrestrial and inland water and 10% coastal and marine areas)	11.1 Encourage and support the establishment of new terrestrial and marine PA's, CCAs, and MPAs	<p>This national target shows positive progress in the number of terrestrial and marine protected areas, community conservation areas, national parks, catchment areas, and large marine protected areas some are part of Key Biodiversity Areas (KBA) and Important Bird Areas (IBA),:</p> <ul style="list-style-type: none"> <li>• Malololelei Biodiversity Park (2015); Malaefatu recreational park (2015); Taga and Gataivai CCA and countless Marine Reserves and Watershed Areas;</li> </ul>



	<p>11.2 Acquire legal status for at least 50% of all existing and proposed terrestrial and marine protected areas</p>	<ul style="list-style-type: none"> <li>✓ Over half of these PAs, CCAs, National Parks and Marine Protected Areas have no legal status for both terrestrial and marine KBAs and IBAs.</li> <li>✓ The 33% with slight increase for terrestrial due to additional CCAs and Water Catchment Areas and the 23% inshore areas whereby the majority covers all the KBA sites (8 Terrestrial and 6 Marine plus 6 IBAs), these sites mainly terrestrial are mostly under customary land and requires trans-boundary agreements between districts and villages to support conservation efforts;</li> <li>✓ A number of ecological / biodiversity studies and surveys continuous by DEC which includes: Fusiluaga Vaipu Swamp Ecological survey (2017), Cetacean survey in Savaii (2015), Turtle nesting survey in Satoalepai and Malua (2014), Ecological survey in Taga and Gataivai (2015), monitoring of MPAs in Aleipata and Safata and Ecological and biological assessment for Malololelei reserve (2016) to name a few.</li> </ul> <p>Although there are obstacles but the level of improvement in PA system in Samoa has exceed the national targets. The enactment of the EMC Bill 2018 will further strengthen the PA network for Samoa.</p>
<p>12. Extinctions prevented and status improved</p>	<p>12.1 Conduct biological surveys in areas that were not surveyed as part of the 2013 BioRAP</p> <p>12.2 Conduct surveys to determine the status of threatened and vulnerable species</p> <p>12.3 Develop, review, and implement species recovery and/or management plans</p>	<p>Progress in BioRAP has improved over the years since most MNRE DEC/Forestry staff have the skills to undertake rapid assessment with minimum requirements from overseas experts for assistance:</p> <ul style="list-style-type: none"> <li>✓ Since 1992-1994 Survey of Lowland and Upland Forest of Samoa, more BioRap continued from 2012 Upland Savaii BioRAP, the 2014 Upland Forest ecosystem (Mauga Salafai, Lailii-Falevao); and the 2016 Biological Assessment Program for Central Savaii, Falealupo and Uafato-Tiavea Forest all KBA terrestrial sites; and Marine MPA ecoregions Aleipata and Safata;</li> <li>✓ DEC continues its work with outside experts or on their own to conduct survey's to determine status of threatened and vulnerable species for Samoa which includes: monitoring the manumea or tooth-billed pigeon current status has been updated in the IUCN Red List to Critical and the sheath-tailed bat and swallowtail butterfly considered extinct;</li> <li>✓ Other species survey covers the Preliminary survey of Samoa Freshwater Macro-faunal biodiversity (2008);</li> <li>✓ There are 1440 Samoan species on the IUCN RL and 93 have been assessed with various status: 50 corals identified as vulnerable, 9 marine fish and 6 freshwater fish, (6 birds) 2 birds critical and 1 endangered and the 3 vulnerable, 1 plant status is critical and 1 reptile (green turtle) status is also critical. There is limited information on the status of all Samoan species on the IUCN RL especially marine species the ones that have been identified as threatened and critical because there are no information available on their current status.</li> <li>✓ Two bird species recovery plans (Manumea and Ma'oma'o) are yet to be reviewed, updated and implemented.</li> </ul> <p>Although a number of key research has been undertaken to assess status of some of Samoa's terrestrial and marine species it is still ad hoc in the sense that no species database in place to record information and regularly monitor and update status following the IUCN RL species for Samoa. Most studies noted are based on individual research or availability of outside funding support. Also very limited follow-up on the recommendations from BioRAP surveys.</p>
<p>13. Genetic diversity maintained</p>	<p>13.1 Invest in an ongoing biosecurity awareness raising program for the public to enhance understanding of the risks to biodiversity and the economy associated with illegally introduced germplasm</p> <p>13.2 Document all introduced agrobiodiversity (flora and fauna) and describe</p>	<p>MAF Quarantine Division and MNRE DEC is responsible for Biosecurity measures for Samoa and most awareness on TV are through QD programs raising awareness on the risk to biodiversity from potential harmful pest if they are introduced;</p> <ul style="list-style-type: none"> <li>✓ DEC coordinates the SNITT and lead management and control of IAS that are already in country and impacting on natural habitats;</li> </ul>

	<p>their current status, population levels, and trends, and geographic distribution</p> <p>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</p> <p>13.4 Facilitate the ex-situ conservation of rare an threatened native agrobiodiversity</p>	<ul style="list-style-type: none"> <li>✓ Agro-biodiversity is important to Samoa’s economy given the current vulnerability of small-islands to pest diseases and climate change as such ex-situ conservation and genetic modification of some variety of crops (cocoa, taro, bananas and coconut) to improve resilience are considered favorably. MAF CROPS continue its research in the cross-cultivation of varieties of species for root and tree crops (taro, taamu, yam, bananas, coconut and cocoa) genetic modification. However limited information is made available on success of such programs and their likely implications on the environment;</li> <li>✓ No <i>ex-situ</i> conservation program has started for the protection of rare and threatened native agro-biodiversity and biodiversity for Samoa. Although such program would require large investment to set-up facilities etc.</li> </ul> <p>There is more work in this area that needs to be documented and captured the benefits and adverse impacts of genetic diversity on natural habitats and biodiversity. Apart from the Biosecurity Act 2005 and the Samoa Biosafety Framework 2004, the urgency in the enactment of the EMC Bill 2018 would also strengthen Samoa’s legal position with regards to minimizing genetic erosion and safeguarding genetic diversity.</p>
<p>14. Essential ecosystem services restored</p>	<p>14.1 Develop and implement Management Plans for at least 4 government managed terrestrial KBAs</p> <p>14.2 Review and update existing Management Plans for the 2 existing Marine KBAs (Aleipata and Safata)</p>	<p>Progress has been made in this area towards the conservation and protection of KBA sites with:</p> <ul style="list-style-type: none"> <li>✓ Three management plans completed for 3 KBA sites (Lake Lanutoo part of Vaisigano Catchment Area, Le Pupu Pue National Park and Mauga Salafai ) the third is part of the Central Upland Savaii KBA.</li> <li>✓ Recent BioRap in Uafato-Tiavea and Falealupo Peninsula KBAs under the SMSMCL project are in the process of completing Management Plans for the two KBA sites;</li> <li>✓ No review or update of the existing management plans for the 2 marine MPA / KBAs (Aleipata and Safata). Although DEC marine proposal for the revival of the Aleipata MPA and Mangroves of Falealili has been approved by MoF under the PPCR-ECR (climate resilience World Bank Project) and one of the key activities is the update of the Aleipata Management Plan, this project is expected to be implemented within the next 12months which ends in 2019.</li> </ul> <p>Strong interest in the protection and conservation of Samoa’s KBA both marine and terrestrial, although the finalization and endorsement of the EMC Bill 2018 will give stronger grounds to legally support KBA PAs.</p>
<p>15. Resilience enhanced, ecosystem restored</p>	<p>15.1 Implement climate proofing projects including those promoting climate change resilience building in all sectors</p> <p>15.2 Restore 3% of degraded ecosystems on annual basis</p> <p>15.3 Implement soft option to enhance climate change adaptation and mitigation objectives including trees and coral replanting schemes for degraded forests, mangroves, and coral reefs.</p> <p>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.</p>	<p>MNRE is the main government agency responsible for the implementation of all climate related projects in Samoa:</p> <ul style="list-style-type: none"> <li>✓ ICCRIFS (Integration of Climate Change Risks and Resilience into Forestry Management in Samoa) and the ICCRAHSS (Integrating Climate Change Risks in the Agriculture and Health Sectors in Samoa) GEF funded project on climate change that looked at impact of climate change on upland and lowland forest ecosystem, as well as impact of climate change on food security and health;</li> <li>✓ Current climate change projects which supports climate proofing infrastructure and the implementation of soft options small projects for communities include: Enhancing Resilience of Coastal Communities to Climate Change (AF); Enhancing Climate Resilience of Coastal Resources and Communities (PPCR Project); Strengthening Multi-Sector Management of Critical Landscape (SMSMCL Project); Economy Wide Integration of Climate Change (EWACC) Project; and Pacific Resilience Program (World Bank) to name a few;</li> <li>✓ Inter-government agency and other relevant stakeholders work in close collaboration as seen in the joint effort in the government lead CIM Plan process. As well as in the NESP review 2013-2016 and updated NESP 2017-2021, reflecting the strong support of other sectors through its implementation;</li> </ul>

		There are limitations especially documenting lessons learned from all these Climate Change resilience projects and at the same time measure the rate of recovery for degraded ecosystems based on the restoration programs implemented through these projects. It is years after the project has been implemented that real impact is seen in the rate of native forest recovery.
16. Nagoya Protocol Operational	16.1 Facilitate Samoa's accession to and ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their use	<p>Samoa became a party to the Nagoya Protocol of the CBD in 2014 and implementation of actions in the NBSAP under this target has been slow. The only policy that is in place is the Bio-prospecting policy 2001 and Samoa uses an access permit system to allow access to its genetic resources to be used for biodiscovery. Recent activities are under way with the GEF funded project on Strengthening human resources, legal framework and institutional capacities to implement the Nagoya Protocol (2017-2019):</p> <ul style="list-style-type: none"> <li>✓ Draft of the national legal policy framework for the Nagoya Protocol is under review;</li> <li>✓ Confirmed action plan developed and currently being implemented under the GEF project</li> <li>✓ Key activity of this project targets a campaign on raising awareness on the ABS national framework, CBD and Nagoya Protocol targeting policy makers, researchers and IPLC (indigenous people and local communities) and relevant industries</li> <li>✓ Design and development of a centralized ABS CHM is also included in the project.</li> </ul> <p>Implementation of activities for the Nagoya Protocol project funded by GEF will expedite the process of meeting this national target or exceed by 2020. The long term sustainability in the implementation and support for this target is questionable as seen from the level of progress to date. However strong coordination with relevant partners and government agencies such as MCIL, NUS and established Local Community Groups can all take part in the implementation of ABS activities relevant to their line work.</p>
	16.2 Develop and endorse national legal policy framework for the Nagoya Protocol	
	16.3 Develop and implement action plan addressing national priorities under the Nagoya Protocol	
	16.4 Promote public awareness and understanding of Access and Benefit Sharing of Traditional Biological Knowledge	
	16.5 Develop centralized ABS clearing house mechanism information system	
17. NBSAP Adopted and commenced	17.1 Endorse and implement NBSAP	<p>This target has been achieved through the endorsement of the NBSAP 2015-2020 which is currently being implemented:</p> <ul style="list-style-type: none"> <li>✓ The review and preparation of the 6<sup>th</sup> National Report to the CBD for Biodiversity (2018) will contribute to the mid-term review for the NBSAP since the global ABT are one in the same with Samoa's NBSAP targets.</li> </ul>
	17.2 Undertake midterm review (2018) review of the current NBSAP	
18. Traditional Knowledge integrated	18.1 Facilitate the enactment of the Environment Management and Conservation Bill 2018	<p>As mentioned throughout the measures taken to address actions to meet the NBSAP targets that the biggest gap in Samoa's national biodiversity program is the long delay in the enactment of the EMC Bill 2013/2018. It has been noted that the urgency of getting the EMC finalized is expected by the end of 2018:</p> <ul style="list-style-type: none"> <li>✓ The actions identified in this target also reflected in Target-16 and the implementation of activities under the ABS project will address activities in 18.2 to 18.4;</li> <li>✓ There have been surveys already conducted on TK in Samoa such as the TK survey funded by the SMSMCL project targeting the tooth-billed pigeon and understanding its behavior but to gauge local knowledge on their perspective of the bird especially the hunters. Information from the survey can confirm accidental shooting of the bird by pigeon hunters;</li> <li>✓ There has been a lapsed in the monitoring and follow-up by DEC on research work on bio-discovery as in the case of the US based AIDS Research Alliance (USA) and other research work that had collected specimens from Samoa's natural habitats (flora and fauna) for both marine and terrestrial.</li> </ul>
	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	
	18.3 Develop appropriate regulations and a policy framework to support and clarify the implementation of measures regarding access to an 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	

	<p>18.5 Determine up-to-date status of collaboration with foreign research institutions including the US based AIDS Research Alliance (USA) for samples of mamala (<i>Omalanthus nutans</i>) collected from Samoa in 2001 for HIV/AIDS research</p>	
<p>19. Knowledge improved shared and transferred</p>	<p>19.1 Conduct conservation education programs for local communities particularly those having ownership of lands with significant biodiversity that are art of the KBAs</p> <p>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</p> <p>19.3 Review, enhance, and update the existing Biosafety Clearing House Mechanism and Samoa Biodiversity Database</p> <p>19.4 Develop systems and protocols for biodiversity data management including protocol for recording and saving field survey data and reports</p> <p>19.5 Re-launch the Samoa biodiversity Database in a high profile activity to promote stakeholder awareness of its existence and purposes</p> <p>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.</p> <p>19.7 Develop and implement a Communications Strategy for promoting the updated NBSAP</p> <p>19.8 Initiate an NBSAP awareness raising program targeting local communities, schools, and the business sector to promote NBSAP targets, and priority actions</p> <p>19.9 Review existing draft National Biodiversity Framework and strengthen Biosafety Steering Committee</p>	<p>Implementation measures for this target is very slow and some activities identified 19.1 and 19.8 are addressed in Target 11, Target 1 and Target 17. However the rest of the actions identified has shown very few or no actions at all:</p> <ul style="list-style-type: none"> <li>✓ No review or update of the Samoa ecology bibliography</li> <li>✓ No review or update of the existing Biosafety CHM and Samoa Biodiversity Database</li> <li>✓ No systems in place for biodiversity data management</li> <li>✓ Launching of the Samoa Biodiversity Database will only come after it has been updated</li> <li>✓ No network of formal users for the CHM established</li> <li>✓ No communication strategy for the NBSAP developed</li> <li>✓ The National Biodiversity Framework and Biosafety Steering Committee has not been active</li> </ul> <p>Most of these actions have not been implemented due to lack of resources both financial and human to support the work. This target has been neglected but it is the only target, focusing on information management and improving knowledge sharing and transfer. This is the only target that can monitor, store information and provide scientific based evidence and knowledge sharing information that will be useful for future update of Biodiversity national reports.</p>
<p>20. Resource mobilization increased</p>	<p>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</p> <p>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</p> <p>20.3 Maximize the use of competent local institutions, NGOs, and experts to expedite the implementation of donor-funded NBSAP activities</p> <p>20.4 Encourage an integrated and coordinated approach to funding on-going initiatives such as public awareness and</p>	<p>The Samoa country program strategy for the GEF-SGP goals aligns with some of the NBSAP Targets such as:</p> <ul style="list-style-type: none"> <li>✓ Community empowerment to engage the community champions as mentors to others, relates to Target -1 and Target-18</li> <li>✓ The strengthening of village management plans by integration of project findings such as mangrove audits, MPAs, EIA reports, relates to Target – 14 and the SGP focus on seascape and landscape type projects correlates with NBSAP Target 11 on protected area;</li> <li>✓ GEF SGP funds the largest number of community biodiversity projects with a total of 47 projects between 2005-2017;</li> <li>✓ Potential for GEF-7 to support a Biodiversity proposal given the gaps that will come out of the 6 National Report;</li> <li>✓ There are some NGOs with potential skills and expertise to support MNRE-DEC in the implementation of biodiversity related projects;</li> <li>✓ MNRE Divisions are already working in collaboration to implement joint awareness programs as a cost saving</li> </ul>

	<p>education, and capacity building in biodiversity conservation with other relevant divisions such Forestry, Land Management, Water resources, etc.</p>	<p>exercise and promote partnership in conservation work such as with the Land Management Division, Forestry and Water Resources;</p> <ul style="list-style-type: none"> <li>✓ PES is still at early stages and more work needs to be done to assess its benefits and negative impacts and what opportunities that the ministry can draw from its application;</li> <li>✓ This would be on-going activities beyond the life of the target and that benefits from ecotourism should also support biodiversity local initiatives.</li> </ul> <p>Resource Mobilization is an important NBSAP Target to ensure opportunities are explored for resources available to support the implementation of all the 20 national targets. Having the GEF Division within MNRE strengthens DEC's position in accessing GEF support. Additional potential funding to explore under climate investment pr</p>
<p>20.5 Document local experiences (successes and failures) with user pay scheme from the use of biodiversity</p>		
<p>20.6 Conduct feasibility study of all potential PES products in Samoa. Draw on similar studies conducted in other Pacific Islands e.g. Fiji</p>		
<p>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</p>		

### 8.3. Annex 3: Case Study 2: Example of Gender Responsiveness from UNDP-GEFG SGP Samoa

#### 8.3.1. Gender Integration into Biodiversity – UNDP GEF Small Grants Programme

**Case Study: *Women in Biodiversity Program at the Village level: Background Gender and Biodiversity***  
Gender has now been widely recognized as a critical factor in the way communities have utilized natural resources and the impact that women and men have on biodiversity. Gender considerations are relevant to the achievement of the objectives of the Convention on Biological Diversity (CBD) in multi-faceted ways. The 2015-2020 Gender Plan of Action<sup>49</sup> provides a mandate to address gender consideration, emphasizing the importance of compiling knowledge and building capacity to identify the impact of conservation and sustainable use policies and programs on relations between men, women and to reduce gender inequalities.

Considerable efforts over the past fifteen years at the national and international forum, have brought the Convention on Biological Diversity<sup>50</sup> (CBD) to understand the fundamental roles that women play in managing and conserving biodiversity and the need to integrate the gender perspective into their framework. The CBD further recognizes that women, require special consideration because of institutionalized systems that marginalized women, and do not explicitly value women’s contributions to biodiversity. Gender issues in relation to biodiversity involve identifying the influence of gender roles and relations on the use, management and conservation of biodiversity. Gender<sup>51</sup> roles of women and men include different labour responsibilities, priorities, decision-making power, and knowledge, which affect how women and men use and manage biodiversity resources. The roles and responsibilities of men and women in the management of biodiversity, and the ability to participate in decision-making, vary between and within countries and cultures. However, in most circumstances there are gender-based differences and inequalities, which tend to favor males. Stark gender differences are evident in economic opportunities and access to and control over land, biodiversity resources and other productive assets, in decision-making power, as well as in vulnerability to biodiversity loss, climate change and natural disasters.

Therefore, to inform efficient policies regarding biodiversity conservation, sustainable use and the sharing of its benefits, there is a need to understand and expose gender-differentiated biodiversity practices, gendered knowledge acquisition and usage, as well as gender inequalities in control over resources. The implementation of the Samoa NBSAP does not explicitly document gender responsiveness, and gender has not been mainstreamed into the NBSAP or national biodiversity programme, however activities that contribute to the NTs at the community level and actions undertaken can assist in specifically identifying the essential role women are involved in community activities including projects which all contribute to the achievement of some NTs or Aichi Biodiversity Targets. In order to present relevant activities that Samoa is doing which reflects gender responsiveness this case study 2, will demonstrate the important contribution of women at the community level in biodiversity conservation through the UNDP GEF Small Grants Programme.

#### 8.3.2. Introduction to the UNDP/GEF-SGP and Gender Responsiveness

The Global Environment Facility Small Grants Programme (GEF-SGP) Samoa is implemented through UNDP was established in 2004 and launched in 2005. The programme is a sub-regional program which covers Tokelau, Niue and Cook Islands under the management of the Samoa UNDP-GEF SGP Office. To date, the program has supported over 200 small projects and about 98 biodiversity projects with a total grant commitment between 2005 and 2018 which stands at USD \$ 4 million plus as shown in Table 6.1 below.

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<sup>49</sup> [www.cbd.int/gender/action-plan/defaults.shtml](http://www.cbd.int/gender/action-plan/defaults.shtml)

<sup>50</sup> ibid

<sup>51</sup> ibid

**Table 6.1 Country Stats for Samoa UNDP GEF SGP from 2005 to 2018<sup>52</sup>**

Basic Stats	Total Amounts	Average Amounts
<b>Number of Projects</b>	240	
<b>Total Amount in Grants</b>	4 714 960 USD	19 646 USD
<b>Total Amount of Cash Co-financing</b>	687 305 USD	2 864 USD
<b>Total Amount of Kind Co-financing</b>	2 001 711 USD	8 340 USD
<b>Total Amount of Co-financing</b>	2 689 016 USD	11 204 USD

**Focal Areas Breakdown Report**

Focal Areas - Total	Number of Projects	Grant Amount	Co-financing in Cash	Co-financing in Kind
<b>Biodiversity</b>	98	1 811 688 USD	214 679 USD	536 434 USD
<b>Climate Change</b>	14	257 279 USD	57 000 USD	42 930 USD
<b>International Waters</b>	21	222 814 USD	30 835 USD	119 045 USD
<b>Multifocal Area</b>	14	186 218 USD	30 321 USD	59 571 USD
<b>Chemicals and Waste</b>	19	286 756 USD	11 701 USD	21 497 USD
<b>Land Degradation</b>	80	1 319 443 USD	154 985 USD	910 320 USD
<b>Climate Change Adaptation</b>	23	358 205 USD	133 756 USD	195 598 USD
<b>Capacity Development</b>	14	272 557 USD	54 027 USD	116 316 USD

The highest GEF Focal Area commitment is in biodiversity with \$USD 1 million worth of grants and the average amount per grant is less than USD \$20,000.00.

The Samoa SGP Country Programme for OP6 2015-2018 has two strategic focuses: (1) Cross-cutting OP6 Grant Making Strategies and (2) Landscape and Seascape based OP6 as the basis for all its grant programme activities. The strategy also promotes gender inclusiveness with a specific section of the strategy that supports social inclusion such as “the SGP will continue to encourage and facilitate social inclusion to empower those marginalized by building capacity and empowering them to participate in the community”.

All CSO initiatives in the environment are expected to ensure women, youth, people with special needs and livelihoods generation be integrated into project design and implementation by ensuring the following; (i) all SGP projects shall be reviewed from a gender perspective utilizing a checklist prepared by UN Women; (ii) a gender specialist and youth specialist are already members of the Technical Advisory Group reviewing projects and making recommendations; (iii) all NSC’s will be encouraged to have at least one gender / youth specialist assisting in making decisions and (iv) the proposed target of 30% of SGP projects to be initiated/implemented by women and youth organizations and/or directly addressing gender issues.

<sup>52</sup> UNDP-GEF Small Grants Programme Samoa website link <https://sgp.undp.org/spacial-itemid-projects-landing-page/spacial-itemid-project-search-results.html?view=allprojects>



## 8.4. UNDP GEF SGP Project: Biodiversity and Women Projects

### 8.4.1. Case Study Title: Reducing the Impact of Climate Change through the Conservation of Mangrove Ecosystems and Coastal Resources – establishing the Vailoa Faleata Mangrove Conservation Area<sup>53</sup>

This case study is adopted directly from the UNDP/GEF-SGP successful Women’s Committee Project for the conservation and protection of the Vaiusu Bay mangrove ecosystem. This is one from a total of 13 biodiversity projects that are being implemented by the Women’s Committee ranging from marine reserves, to subsistence organic vegetable gardening, rehabilitation of coastal springs and the conservation of coastal ecosystems such as mangroves and wetland.

The village of Vailoa in the Faleata district is part of the large mangrove ecosystem in the Vaiusu Bay area bordering the western edge of the Apia Township. The mangroves ecosystem has been severely degraded and had decreased in size over the years due to urban development within the bay as well as and the Vaitele industrial zone. There had also been increase of population pressures from the expanding Apia Township, and the mangroves area was an endpoint for wastewater discharge. There was a solid waste landfill in the neighbouring village of Vaitoloa in the 1950s until the 1990s which also had implications that contributed to the mangroves degradation. Moreover, the extreme degradation of the mangroves led to the significant loss of productive coastal fisheries that provided nurseries for fish, shellfish, and crabs, and a filtering system for run-off into coastal waters.

The Vailoa Village Council and Women’s Committee saw the need to address the problems in their marine ecosystems and the loss of biodiversity that people rely on for survival. They established village rules to prevent further degradation and recognised the need for awareness education, clean-up, and the restoration of the mangroves ecosystem. However, the village required assistance to support its efforts. They sought the help of the UNDP/GEF-SGP in 2014. The goal of their proposal for SGP assistance was to strengthen biodiversity conservation and enhance livelihoods of communities in the Faleata district by reducing mangrove degradation through efficient management. The Vailoa project objectives and activities were:

- To conduct a mangrove biodiversity baseline audit and produce recommendations for rehabilitation efforts.
- To develop a Mangrove Management Plan to guide the village activities throughout the project period and beyond.
- Rehabilitation of the degraded mangrove and springs areas with planting and nurturing of livelihood initiatives.
- Conduct awareness of mangrove restoration and inviting schools to the village clean ups and field study visits.

### 8.4.2. OUTCOMES AND IMPACT

Under the leadership of the village council and women’s committee, the implementation of the Vailoa SGP-funded project completed in 2017. In close collaboration with the UNDP/GEF-SGP Sub Regional Office, the SGP National Steering Committee (NSC), Technical Advisory Group (TAG), and government agencies, Vailoa is now experiencing the outcomes of their project. To date, the policy outcomes align well with the three GEF focal areas of Biodiversity, Climate Change Adaptation, and Land Degradation with priority areas for immediate intervention in improved waste management, better water quality, sustainable fisheries and effective marine protected area.

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<sup>53</sup> *Vailoa Project Factsheet prepared by Christina Taua GEF-SGP intern from April to May 2018*

### 8.4.3. Environmental Impact

The establishment of protected areas and their management help maintain ecosystem productivity, safeguarding essential ecological processes by controlling activities that disrupt them or that physically damage the environment. The first visible environmental impact from Vailoa’s project is the establishment of the mangrove protected area that is now considered as the third largest in Samoa as it is 20 acres in size. This vast mangrove area is now officially adopted by the village council and the Faleata district. Vailoa completed a mangrove audit report in 2015 which stocktake the fauna and flora of the Vailoa mangroves within the Vaiusu Bay. There are three species of mangroves found in Vailoa the *Rhizophora samoensis*, *Bruguiera gymnorrhiza*, and the *Acrostichum speciosum* – with at least 28 associated plants also located in the village of Vailoa which are mainly native and medicinal plants conserved by the village. In the mangroves area, there were at least 14 avian bird species, 14 invertebrates and 12 fish fauna species. There is 75 percent success rate of growth of mangroves planted in the area by the villages which better than the neighbouring communities of the Faleata district.

Also, through this project a walkway to the mangroves area, ramps for easy access and a rock wall to secure other areas which need hard solutions have been built. The conservation of the two natural spring pools is a bonus effort maintain these natural resources for continuous use by the community.



**Picture 1:** Vailoa rehabilitated natural spring and the walkway to mangrove conservation area  
**Picture 2:** Members of the Vailoa Village Women’s Committee and UNDP-GEF SGP Staff

### 5.2.6 Socio-Economic Impact

The environmental impacts may underpin or undermine the socio-economic development of a community. The villagers of Vailoa have often relied on its coastal area and marine resources to support their livelihood through consumption and income earning. The rehabilitation of the mangroves has replenished the marine species such as fish, mud crab and shellfish. The men and women fishers in Vailoa now have businesses from selling these marine resources. The women earn an average of USD 3,800 per annum from the sale of shellfish. At least five fishermen earn USD 4,000 per annum from the sale of fish and mud crab using climate-proof materials and sustainable fishing methods. Vailoa villagers now make an estimate of USD 3,500 per annum.

Another essential socio-economic outcome is the reduction of the unhealthy odour in the village from the waste disposed of in the mangroves area or waste that washed into the mangroves during flooding or high tides. This change is the result of the replanting and constant cleaning activities conducted by the villagers.

The reduction of waste and the odour contributes to the health of residents. The village springs restored during the project has helped with water cleanliness for the villagers' usage when the government water supply is disrupted or rationed during cyclones and droughts. The mangroves protected area and the spring pools in Vailoa are slowly developing into an ecotourism site where local and overseas visitors can visit for just \$5 SAT (USD 2). Approximately 80 percent of the villagers participated in the workshops on the importance of mangroves conducted by the technical agencies like the Ministry of Natural Resources and Environment (MNRE). About 500 students from 4 different colleges visited the mangroves and planted a mangrove seed during their school field visits. The project committee that facilitated the implementation of activities are the champions and are now the local experts for the efforts and skills obtained during the rehabilitation of the mangroves. Also, they are sharing their knowledge with at least three villages of the Faleata district with mangroves ecosystems present in their marine coastal areas.

#### 8.4.4. Policy Impact

The village council and women's committee of Vailoa have been very proactive in advocating its mangroves protected area to neighbouring villages in their district. The result was a significant policy outcome where the village established partnerships not only with SGP but also with government agencies like the MNRE. These partnerships are essential as Vailoa continues to plan and organise environment and socio-economic initiatives. With strong leadership and collaboration with state and non-state organisations, Vailoa produced its Mangrove Management Plan and passed village bylaws in 2015 to strengthen the management and ongoing monitoring of mangroves and the springs. Moreover, Vailoa has installed a project signboard which contains the village bylaws for the mangroves conservation.

The Mangrove Management Plan of the village also convinced other partners to channel their resources through the installation of fifty (50) septic tanks for improved sanitation and reduce sedimentation leakages into the natural spring pools and mangrove conservation. The MNRE is also committed to join efforts with volunteers for an annual clean-up event to help Vailoa maintain their mangroves area. In support of these project policy outcomes, the village council successfully stopped the establishment of the Apia Wharf at the Vaiusu Bay through a submission to the Parliament of Samoa. The village council advocated that the construction of this new wharf would destruct the mangrove conservation and marine resource that the villagers rely on for survival.

The village is continuing with its efforts for improved drainage to reduce and stop the overflow of water and flooding in the area which threatens. They are currently working with other partners for climate proofing engineering of a proper drainage system that is impacting their village and the conservation. Vailoa and its mangrove conservation are recognised by the government and by national partners.

### 8.5. COMMUNITY ENGAGEMENT – Youth participation and Gender Mainstreaming

At the core of GEF-SGP assistance is 'community action' and involvement of people in initiatives to address their own needs and priorities. Vailoa village council and project committee enforced this core value of GEF SGP by encouraging the participation of youth, women, children, and the village men. Youth engagement was instrumental in the project. The youth and untitled men were the main labourers of the village during its rehabilitation efforts. They participated in the consultations in which the village acknowledged their voice. As a result, the village council recognises the leadership of the youth and have invited them to be observers at their meetings. Moreover, the village of Vailoa nominated a female as a youth representative for their village in the Samoa National Youth Council and a youth representative to the Government of Samoa through

the Division for Youth at the Ministry of Women Community and Social Developments (MWCSO – DFY). This representation enables the youth group of Vailoa to contribute to decisions and to directly access information on opportunities that could benefit the youth of Vailoa. The youth of Vailoa have become environmental champions and are also represented in the Youth Climate Action Network (another GEF/SGP grantee) in Samoa, contributing to the NGO their lessons learnt from their conservation in combating climate change.



Picture 3: Some of the Vailoa Women, Youth and Children during the mangrove replanting activity for their GEF/SGP project – active group within the community in the implementation of project activities

The Women’s Committee of Vailoa were the primary implementers and decision makers of the project’s activities. These women were instrumental through their involvement at the village council meetings. They are well organised and quite vocal with issues that affect them like the conservation efforts in this project. A key challenge for women was the performing of strenuous activities such as labour work. The village openly discussed this issue, and high chiefs were amenable in removing such stereotypes against the women. The women continued to host fortnightly cleanups of the mangroves area and had built a committee house beside the village springs. From this house, the women monitor the progress of the mangroves and the cleanliness of the spring pools. Consequently, Vailoa is witnessing an increased mangrove growth and clean water for drinking, bathing and other uses. The village men support and encourage the women to take the lead in village activities that they had often overlooked. A Vailoa woman named Taiafi Matala played a necessary part in the research/audit component of the project. She was the only one who could identify the Samoan traditional names and uses of the floristic and fauna biodiversity through her traditional knowledge and experience. She is a fisher woman and has lived all her life around the mangroves area which has been the primary source of income and livelihood for her family.

### 8.5.1. REPLICATION AND UPSCALING

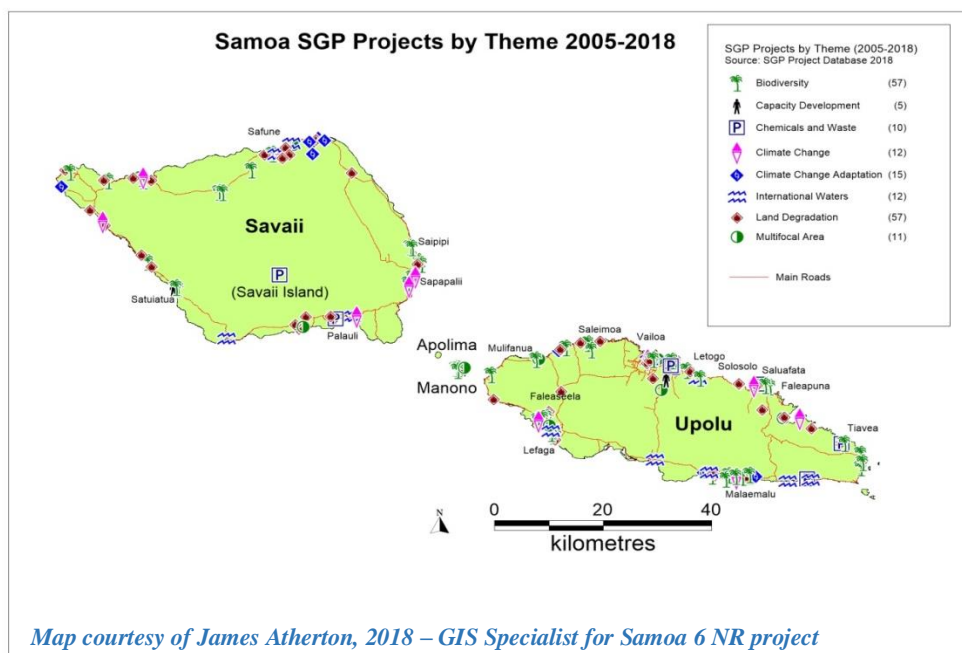
The Vailoa project is a pioneering mangrove conservation initiative in Samoa because it brought about a best practice approach for mangroves conservation. That is, communities should carry out mangrove biodiversity audits at the start of any rehabilitation initiative or conservation project. Seven (7) other communities in Samoa have adopted this approach, including the creation of management plans and bylaws. Other significant lessons from Vailoa’s project are the leadership and governance of the high chiefs who encourage the engagement and participation of women and young people. This level of community leadership and involvement is the result of increased awareness and improved capacity building in conserving the environment to sustain natural resources for the people’s livelihood. The Vailoa project supports the initiative



by the O Le Siosiomaga Society Incorporated in their SGP-funded project that produced mangrove biodiversity audits for the rest of the villages in the Faleata District.

### 8.6. Summary

The Vailoa GEF–SGP project which focused on the rehabilitation of the mangrove ecosystem had demonstrated the active participation of the women’s committee in this project and youth group in the village. The representative from the youth group and a female and the fisher woman Taiafai Matala had exemplified the role of women in this project by emphasizing that women too are custodian in the sustainable management of natural resources and their knowledge of biodiversity surrounding their natural environment, and thus women participation in any biodiversity related project is just as important as men. The map below of the Samoa SGP projects from 2005-2018 shows the wide coverage of biodiversity related projects from inland conservation areas to coastal resources **managements** from marine reserves to the conservation of mangrove and wetland ecosystems.



### 8.7. Annex 4: Updated Protected Area Network and Dataset

#### Summary of Key Biodiversity Areas in Samoa (in hectare)

KBA Name	Grand Total (H)	Ecosystems	Total Area Ecosystem (Ha)	Area covered in PAs	% Covered in PAs	Area covered in KBAs
Aleipata MPA	179.588	Cloud Forest	7781.44	128.99	1.66	7781.44
Apia Catchments	8336.013	Coastal Rainforest	729.36	0	0	112
Central Savaii rainforest	72699.52	Fernland	36.73	0	0	0

Eastern Upolu craters	4759.148	Grass Land	37	0	0	37
Falealupo peninsula	4467.249	Herbaceous Marsh	171.60	19.56	11.4	104.84
O Le Pupue Pue	4227.842	Lake	24.43	19.09	78.13	23.93
Sa'anapu Sataoa CA	100.8089	Littoral Forest	507.63	0	0	22.8
Uafato-Tiavea CF	2316.548	Littoral Scrub	212.52	109.03	51.3	104.39
<b>Grand Total</b>	<b>97086.72</b>	Lowland Rainforest	29042.15	4540.42	15.63	11502
		Mangrove	217.85	0	0	64.56
		Montane Rainforest	64072.29	13951.07	21.77	53299
		Ridge Rainforest	3615.35	110.84	3.07	1368
		Volcanic Scrub	9472.70	0	0	930

ID	ECOSYSTEM_	LABEL	FULL_NAME	AREA_HA	PA_NAME
0	1	CF	Cloud Forest	0.200769897	Lata NP
129	1	CF	Cloud Forest	128.792178714	Mauga Salafai NP
267	91	DLF	Disturbed Lowland Rainforest	266.780134773	O le Pupu Pue NP
5	91	DLF	Disturbed Lowland Rainforest	4.769997499	Proposed extension to NP
63	91	DLF	Disturbed Lowland Rainforest	63.451294403	Forestry Site
0	91	DLF	Disturbed Lowland Rainforest	0.000028797	Forestry Site
325	91	DLF	Disturbed Lowland Rainforest	325.334068939	Proposed extension to NP
64	91	DLF	Disturbed Lowland Rainforest	63.850682438	Mauga Salafai NP
3	91	DLF	Disturbed Lowland Rainforest	2.679060602	Mt Vaea Reserve
705	91	DLF	Disturbed Lowland Rainforest	704.949529600	Proposed extension to NP
14	161	DSEC	Disturbed Secondary Forest	14.344310543	Proposed extension to NP
98	161	DSEC	Disturbed Secondary Forest	98.108645460	Lake Lanotoo NP
2	5	HM	Herbaceous Marsh	2.342711932	O le Pupu Pue NP
17	5	HM	Herbaceous Marsh	17.215861938	Mauga Salafai NP
10	19	Lake	Lake	10.260749486	Lake Lanotoo NP
1	19	Lake	Lake	1.302695681	Lake Lanotoo NP
1	19	Lake	Lake	1.069234097	Lake Lanotoo NP
1	19	Lake	Lake	0.504034733	Proposed extension to NP
0	19	Lake	Lake	0.188742052	O le Pupu Pue NP
6	19	Lake	Lake	5.764979949	Mauga Salafai NP
615	9	LR	Lowland Rainforest	614.660188306	O le Pupu Pue NP
11	9	LR	Lowland Rainforest	10.998391285	Forestry Site
0	9	LR	Lowland Rainforest	0.006305058	O le Pupu Pue NP
29	9	LR	Lowland Rainforest	29.189795805	Mt Vaea Reserve
14	9	LR	Lowland Rainforest	14.254217108	Asau-Falelima NP
1305	9	LR	Lowland Rainforest	1305.07431086	Lata NP
2566	9	LR	Lowland Rainforest	2566.23425769	Proposed extension to NP
5	8	LS	Littoral Scrub	4.735129435	O le Pupu Pue NP
5	8	LS	Littoral Scrub	4.636545597	Forestry Site
100	8	LS	Littoral Scrub	99.655971322	O le Pupu Pue NP
1	12	MR	Montane Rainforest	0.788215532	Lake Lanotoo NP
0	12	MR	Montane Rainforest	0.069502842	Proposed extension to NP
3	12	MR	Montane Rainforest	3.471887456	Asau-Falelima NP
1954	12	MR	Montane Rainforest	1954.24021488	Proposed extension to NP
31	12	MR	Montane Rainforest	31.148254829	O le Pupu Pue NP
342	12	MR	Montane Rainforest	341.516969107	Lake Lanotoo NP
0	12	MR	Montane Rainforest	0.258356430	Lata NP
1873	12	MR	Montane Rainforest	1873.48846045	O le Pupu Pue NP
61	12	MR	Montane Rainforest	60.588528344	Proposed extension to NP
0	12	MR	Montane Rainforest	0.000470442	O le Pupu Pue NP
1642	12	MR	Montane Rainforest	1641.87419572	Proposed extension to NP
734	12	MR	Montane Rainforest	734.025089605	O le Pupu Pue NP
1923	12	MR	Montane Rainforest	1922.84510110	Lata NP
1	12	MR	Montane Rainforest	5	Asau-Falelima NP
5386	12	MR	Montane Rainforest	1.213457698	Asau-Falelima NP
111	13	RR	Ridge Rainforest	5385.54130143	Mauga Salafai NP
17	18	X	Non-native ecosystem	6	Proposed extension to NP
372	18	X	Non-native ecosystem	110.844318962	Proposed extension to NP
504	18	X	Non-native ecosystem	16.754361908	Mauga Salafai NP
1869	18	X	Non-native ecosystem	372.422936452	Lata NP
				503.588419792	Asau-Falelima NP
				1868.66623733	
				9	



17	18	X	Non-native ecosystem	16.909682821	Lake Lanotoo NP
2670	18	X	Non-native ecosystem	2669.51195960	
57	18	X	Non-native ecosystem	2	Proposed extension to NP
689	18	X	Non-native ecosystem	57.261901678	Mt Vaea Reserve
603	18	X	Non-native ecosystem	688.582351084	Forestry Site
1	18	X	Non-native ecosystem	602.678171341	O le Pupu Pue NP
0	18	X	Non-native ecosystem	0.943363376	O le Pupu Pue NP
	18	X	Non-native ecosystem	0.000509883	Proposed extension to NP