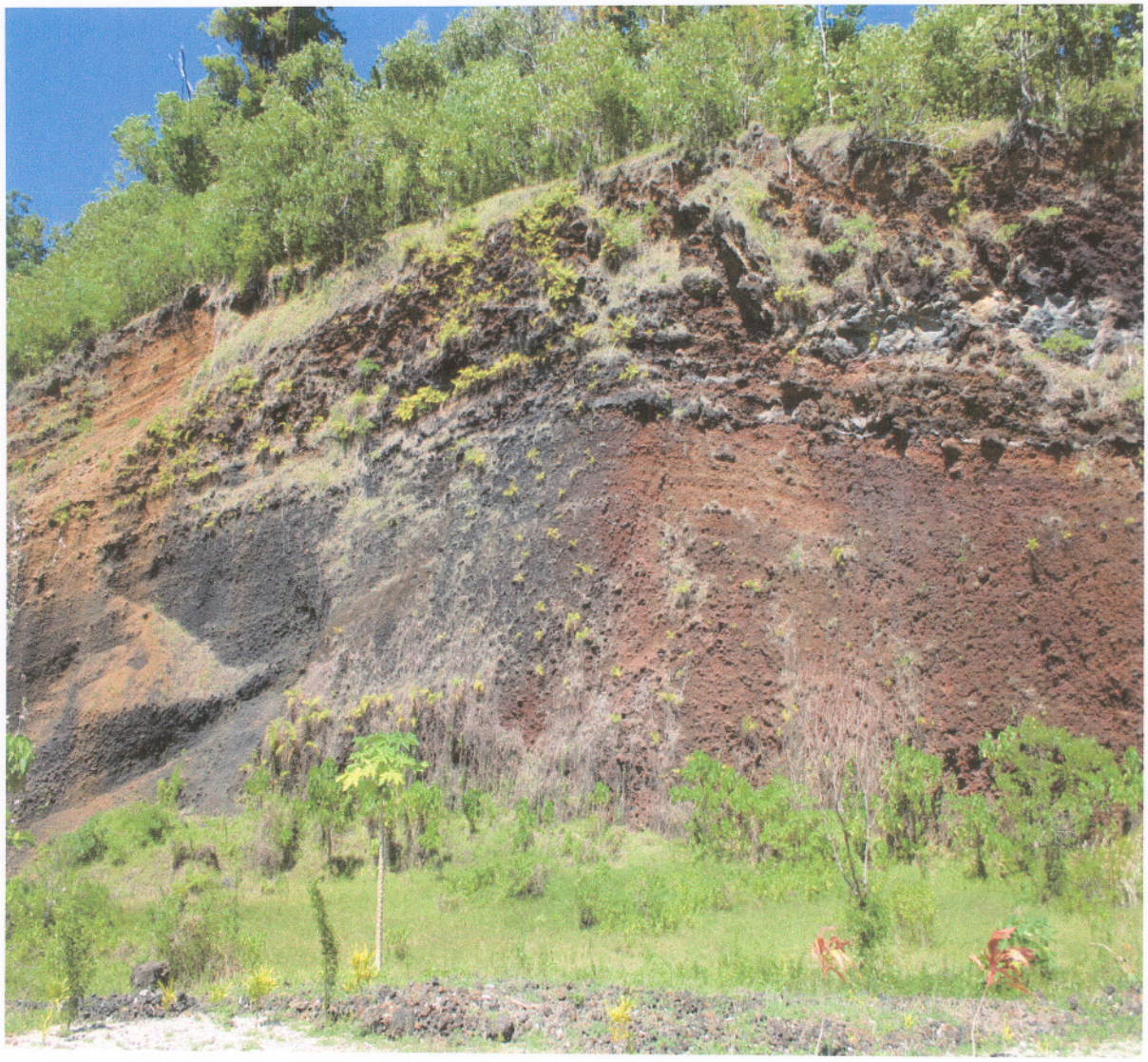
Government of Samoa

UNCCD

SAMOA'S NATIONAL ACTION PLAN (SNAP)

to combat land degradation and mitigate the effects of drought.



United Nations Convention to Combat Desertification

Ministry of Natural Resources and Environment

2004

FOREWORD

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Samoa, for the past twenty years has begun to enjoy and is continuing to enjoy political and economic stability under the leadership of the Human Rights Protection Party; and in this year 2006, the first year of the five years' Parliamentary term since the General Elections held in March, its government is reaffirming with much vigor its commitment and dedication to the protection of Samoa's environment.

The National Action Plan to combat the problem of land degradation in Samoa has come out at an opportune time when the government and people of Samoa are united in their resolve to implement the programmes which hopefully would alleviate the problem of land degradation in the country.

Land degradation is the form of desertification that affects Samoa. It is not only an environmental problem, but essentially a development problem as well. Desertification leads to the deterioration of the earth's natural habitat. It is a phenomenon which poses an important and serious challenge to mankind in his responsibility as caretaker of a common heritage. Mankind should therefore strive to improve the living conditions of people by doing what is required to preserve our fragile ecosystem.

Land degradation in Samoa is linked to changes in land use patterns dictated by human activities as well as by forces of nature. There has been a marked change in land use from forestry to agriculture which has posed a serious threat to land-based ecosystems. Human activities in the form of cultivation of marginal lands and excessive exploitation of coastal resources have resulted in the loss of biomass and consequently in land degradation.

Land development targets sustainability and productivity of land. Land tenure reforms molded by culture and tradition are directed at initiatives to address individual, family, village and national aspirations; as well as adjusting to the changing global, regional, national economic, ecological, social and political dynamics that characterise small island countries like Samoa.

The National Action Plan to combat land degradation in Samoa has been prepared through a series of consultative processes with all interested stakeholders. The document is a tool for the implementation of programmes to address the problem of land degradation in Samoa.

The Government of Samoa is highly committed to the successful implementation of the Convention through this National Action Plan and strives to secure necessary support and means of addressing issues highlighted in the Plan.

As Minister for the Ministry of Natural Resources and Environment I wish the government and people of Samoa in this the first year of the current Parliamentary term every success with the implementation of Samoa's National Action Programme to combat land degradation in our country.

Faumuina Tiatia Liuga
Minister Natural Resources and Environment

25 September 2006

PREFACE

Samoa, an Independent Island Nation in the South Pacific with a land area of 2935 square kilometers and a population of 174,140 (from the Population Census of 2001) is heavily dependent upon soil, water, forest and land resources for the livelihood of its people.

Subsistence agriculture, cultivation in the marginal and fragile steep slopes, as well as high dependence on forests and land resources have accelerated soil erosion and landslides in mountainous areas; while riverbank cutting, flooding, and sedimentation become much more prevalent in the low-lying areas. In spite of concerted efforts to empower communities and their active involvement through established partnership for the sustainable management of natural resources, land degradation and the depletion of natural resources are continuing in an unprecedented manner.

To address these problems, the United Nations Convention to Combat Desertification (UNCCD) a United Nations initiative came into existence. The Convention provides a working instrument for the improvement of the living conditions of affected communities through sustainable management of soil, forest, biodiversity, water and other natural resources. The Ministry of Natural Resources and Environment, the implementing focal point for UNCCD in Samoa, is pleased to present the National Action Plan (NAP) for the implementation of the Convention by Samoa as an affected country party. The NAP is the product of extensive consultations with representatives of government institutions, local bodies, private sectors, NGOs, CBOs, media, academia and the general public. The NAP is Samoa's response to the long-standing commitment by the government and its people to the call for natural resource management modeled on a synergistic-conservation framework.

The Ministry acknowledges with appreciation the assistance and cooperation provided by the UNCCD Secretariat in Bonn, the Asia Regional Coordinating Unit in Bangkok, UNDP, UNDP-GEF, SPREP, Global Mechanism, FAO and all other international and regional organisations and agencies for their valuable contribution to the formulation of Samoa's NAP. The dedication and commitment of the UNCCD Task Team, the working arm of the National Steering Committee is commendable of praise.

With funding of $500,000 US now secured from UNDEP-GEF through the MSP-SLM initiative, Samoa looks forward with keen anticipation to implementing the Programmes of this NAP to combat land degradation in Samoa.

Tuuu. Dr. I. Taulealo
Chief Executive Officer
Ministry of Natural Resource and Environment

25 September 2006

ACRONYMS

ADB:	Asia Development Bank
CBD:	Convention on Biological Diversity
CCA:	Community-based Conservation Area
CDI:	Capacity Development Initiatve
CEA:	Country Environmental Analysis
CIM:	Coastal Infrastructure Management
CSP:	Country Strategy and Program
DEC:	Division of Environment and Conservation
DLSE:	Department of Lands, Survey and Environment
DMO:	Disaster Management Office
EEZ:	Exclusive Economic Zones
EIA:	Environment Impact Assessment
ENSO :	El Nino Southern Oscillation
EPC:	Electric Power Corporation
EU:	European Union
FAO:	Food and Agriculture Organisation
GEF:	Global Environment Facility
GIS:	Geographic Information System
GoS:	Government of Samoa
IRETA:	Institute for Research, Extension and Training in Agriculture
ISP:	Institutional Strengthening Project
IWP:	International Waters Project
LD:	Land Development
LSE:	Lands, Survey and Environment
MDG:	Millennium Development Goals
MEAs:	Multilateral Environmental Agreements
MET:	Meteorology Division
MNRE:	Ministry of Natural Resources and Environment
MOA:	Ministry of Agriculture and Fisheries
MSP:	Medium Sized Project
NAP:	National Action Programme
NAPA:	National Adaptation Programme of Action
NBSAP:	National Biodiversity Strategy Action Plan
NCSA:	National Capacity Self Assessment
NE:	North East
NEMS:	National Environmental Management Strategy
NGOs:	Non Governmental Organisations
NIP:	National Implementation Plan
NSC:	National Steering Committee
NTT:	National Task Team
NUS:	National University of Samoa
NW:	North West
PEAR:	Preliminary Environment Assessment Report
PUMA:	Planning and Urban Management Agency
SAFT:	School of Agriculture and Food Technology

SAMFRIS:	Samoa Forest Resources Information System
SDS:	Strategy for Development of Samoa
SE:	South East
SES:	Statement of Economic Strategy
SLM:	Sustainable Land Management
SMP:	Sustainable Management Plan
SPC:	South Pacific Commission
SPREP:	South Pacific Regional Environment Program
ST:	Samoan Tala
SUNGO:	Samoa Umbrella of Non-Governmental Organisations
SW:	South West
SWA:	Samoa Water Authority
TECs:	Targeted Environmental Components
UNCCD:	United Nations Convention to Combat Desertification
UNDP:	United Nations Development Programme
USP:	University of the South Pacific
WASSP:	Water Support Sector Programme
WIBDI:	Women In Business Development Incorporated
WRD:	Water Resource Division

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CHAPTER 1: BACKGROUND

Samoa acceded the United Nations Convention to Combat Desertification (UNCCD) on 20 August 1998 two years since the Convention entered into force on 26 December 1996.

As an affected country party to the Convention, Samoa has in 2000 prepared and submitted a Capacity Development Initiative Report which contains a preliminary assessment as to land degradation in Samoa and its capacity level and needs. The First National Report was produced in 2003 followed by the Third National Report in 2006. Since 2004 Samoa began the process for the formulation of its National Action Plan (NAP). The NAP commands a bottoms-up, participatory process at all levels of society, to be developed as the conceptual legal-policy framework for implementing the Convention at the national and local levels. The NAP is the core instrument to address the problem of land degradation in Samoa, in accordance with provisions and spirit of the Convention.

Traditionally, Samoa is geographically divided into Districts. Each district comprises a number of villages depending on its size. Every village is administered by a Village Council comprising the chiefs and orators of that village. The family or *aiga* is the basic social unit. Each family is headed by a head-matai or *sa'o* appointed by family members. It is a fundamental role of the head-matai assisted by other chiefs and orators of the family as well as the Village Council to hold family and communal lands respectively as trustees for the use and benefit of family members and the whole village.

Land is the foundation of Samoan Society and provides the safety net for the Samoan people against poverty. It is the source of identity for Samoan people; so when land becomes degraded, it can lead to the degradation of the very existence and identity of the Samoan people as well as its culture.

CHAPTER 2 : SAMOA'S NATIONAL ACTION PLAN

2.0 INTRODUCTION

- **Theme: "O le eleele o le tofi o Samoa! O oe nei, o au fanau taeao!"**
  "Land is Samoa's heritage! You today, your children tomorrow!"

The NAP is the product of an interactive participatory process evolved from a series of meetings, workshops, seminars of stakeholders supplemented by studies and literature reviews, technical expert views solicited from sources such as the UNCCD Steering Committee, the UNCCD Task Team, Regional and International Organisations. Significantly, the Plan is the perception of local communities on land degradation problems affecting their lives and it incorporates local traditional knowledge of solutions to address these problems.

The NAP calls for the establishment of a legal and regulatory framework utilizing existing national policies and programmes through an Action Programme that would contribute significantly to sustainable land management in Samoa. The NAP focuses on issues outlined by the Convention and on the review of previous reports submitted as part of Samoa's obligations to UNCCD.

2.0.1 VISION AND MISION

- **Vision:** "To produce a healthy and productive environment to support and sustain the livelihoods of Samoan people."

- **Mission:** "To sustain the productivity of land and land based resources in order to maintain a balance between development and the conservation of the environment in Samoa."

2.0.2 NAP Process

The NAP consultative process was conducted at the national and local levels. The National level consultation comprised stakeholders from government institutions, business sector, NGOs and academic institutions. The local level on the other hand comprised the local communities which include farmers, planters, landowners and village people generally.

The Process began with a Resolution by the National Steering Committee to set up a Task Team to stocktake available data and information on land degradation issues in Samoa. Following on from this, a first partial draft of the NAP featuring only the Action Plan component was prepared in mid-2004. The draft produced a matrix of identified key sectoral issues (causes and effects of land degradation) and theme areas to guide the formulation of appropriate actions and programmes to address the expressed land degradation concerns. This draft commenced the initial stage of the NAP existence and the process of stakeholder consultations.

2.0.2.1 *National Level Consultations*

The first draft of the NAP document was consulted at a national stakeholders workshop organized by the MNRE late in 2004. The workshop was attended by more than 30 stakeholders representing various government Ministries, NGOs, private sector and academic institutions. The comments and views received had revised the initial draft by the Taskteam. The Taskteam resumed with data collection in the following year 2005 to further the NAP development and a series of interaction meetings amongst members continued, focusing on the NAP Content, goals and objectives.

Further actions by the taskteam to progress the NAP to the next level resumed the process of NAP development in early 2006. A local consultant was contracted to prepare the first and second NAP drafts using the Content prepared by the Taskteam and endorsed by the NSC. The consultant was required to utilize all sectoral data and published materials so far collected to initiate the write-up of the first formal draft. A major stakeholders' forum was organized to consult the first draft by national stakeholders. This forum was attended by more than 40 participants involving a team of experts in natural resource management, high-level government sectoral representatives, NGOs, private sector, educational institutions and representatives from identified local communities. The consultant was then required within the last week of the contracted period to submit the second draft incorporating comments and suggestions put forward at this forum.

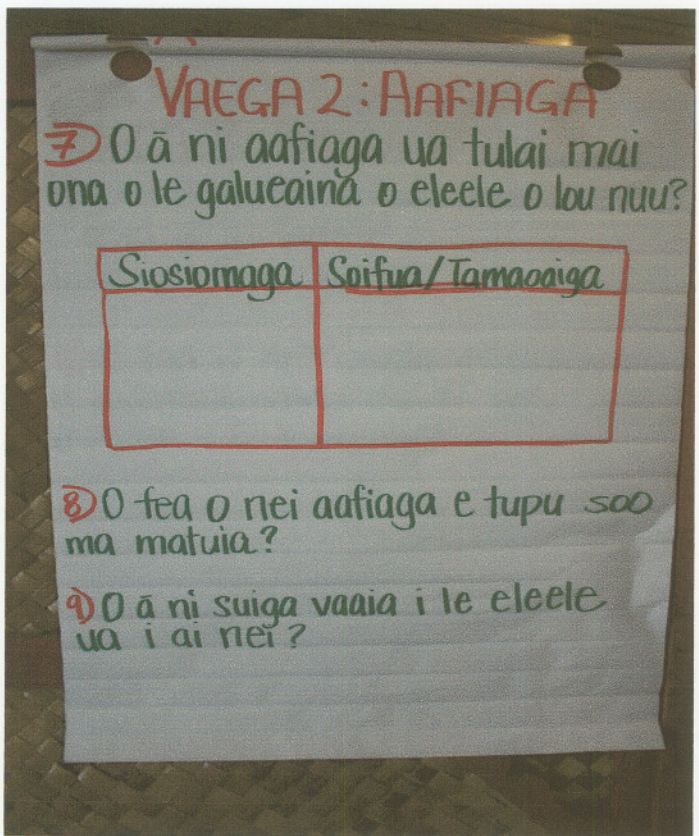
2.0.2.2 *Local Level Consultations*

Input from local communities not influenced by National Stakeholders was received and noted; and was fed into the formal draft NAP document.

Nation-wide public consultations of all local communities were also held. The whole country was consulted by island (Upolu and Savaii) and each by region (West and East). Participants were selected from a list of all registered villages in the country totaling 248. The taskteam invited six participants from each 248 villages to represent six individual village groups (village mayors, chief and orators, women's council, untitled men, untitled women and youth) identified as existing in a village institution. Of the 1,488 invited participants, a approximately 1,300 attended the one week public consultations, of which 2 days were designated for Upolu and 2 for Savaii.

Working Group Sessions (Faletua ma Tausi Group) – Upolu Public Consultations

The design of the programme used to consult local communities includes awareness on the Convention, enlightenment on the NAP goals and objectives and a flipchart questionnaire to obtain workshop participants' views on causes and effects of land degradation as well as appropriate actions to address them. Similar survey questionnaires were designed and distributed to participants prior to consultations, to obtain a feedback on their experiences with working the land and how they perceived the status of land degradation in the village context. The baseline data collected from this one week consultation is significantly large and efforts have been made by the Taskteam to analyse it during a residential retreat in August 2006. The results from this analysis are used in this chapter as the guide to formulate appropriate actions for the NAP.



Flipchart Questionnaire for Working Group Sessions

2.1 NAP Regulatory Policy Framework

The matrix below provides the overarching framework which is the operational policy tool for the implementation of the National Action Plan. The framework is testimony to the mainstreaming of sustainable land management concerns into national actions as well as the streamlining of these concerns into national plans and sectoral policies. The causes and effects of land degradation have been addressed in this framework under 9 broad land management areas. Some of these areas have been identified through similar paralleled formulation processes such as the National Capacity Self-Assessment (NCSA) project, which recently submitted the Stocktaking and Thematic Assessment Report on Land Degradation in Samoa. Additional land management areas were identified as appropriate during the NAP formulation process. Each program of actions aims at land improvement efforts to promote aspirations of local and national communities while at the same time recognizing the global agenda for member countries to achieve sustainable development goals. This will ensure the sustainability of land-based resources in order to not only benefit the present generation but to preserve the resources for tomorrow's generation as well.

NATIONAL ACTION PLAN FRAMEWORK	
LEGAL-POLICY FRAMEWORK	The UNCCD provides the international legal mandate for the formation of country parties and the implementation of the Convention. Samoa is an affected country party in terms of Articles 5 & 10 of the Convention. At the national level, the NAP finds legal justification for its existence under provisions of the Lands Surveys & Environment Act[1] 1989 which legislates for the protection and conservation of the environment. The Planning and Urban Management Act 2004 establishes the Planning and Urban Management Agency (PUMA) to regulate every development affecting the use of land and land-based resources. **Relevant Strategies:** Strategy for the Development of Samoa Coastal Infrastructure Management Plans National Disaster Management Plan **Relevant Policies:** • National Landuse Policy • National Population and Sustainable Development Policy • National Water Resource Policy • National Biodiversity Policy • National Waste Management Policy • National Policy for Sustainable Development of Forests

1 Lands and Environment Act 1989, Part VIII, Divisions 1-7

	• National Policy on Conservation of Biological Diversity • National Biodiversity Policy • Reclamation Policy • Sandmining policy etc
GOAL	To mitigate land degradation and the impacts of drought through improved land-use and land based resource management."
OBJECTIVE	To combat land degradation through sustainable land-use management to ensure food security and sustainable livelihoods for all Samoans.
STRATEGY	1. Identification of key factors (both human and natural) contributing to land degradation and measures to mitigate the effects of drought. 2. Planning and implementation of best practices and measures to promote sustainable land management (both preventive and rehabilitative) and adapt as necessary. 3. Identification of practical measures (both preventative and rehabilitative) to mitigate the impacts of drought in drought prone areas. 4. Identification of the roles and responsibilities of all key stakeholders (e.g. government, local boards and bodies, NGO's and civil society) in the implementation of all programmes. 5. Strengthening the enabling environment to ensure effective implementation of the NAP. 6. Identification of capacity development needs of all stakeholders involved in sustainable land management.
ACTIONS	**BROAD LAND MANAGEMENT AREAS** 1. Sustainable Land Management 2. Sustainable Management of Watershed Areas 3. Management of Degraded Coastal Areas 4. Management of Other Degraded Areas 5. Forest Resource Management 6. Soil Management and Conservation 7. Management of Agricultural Practices 8. Management of Drought/Flood Prone Areas 9. Natural Disaster Management

2.1.1 Background Analysis and Rationale Behind each Action Programme

The following Sections provide an overview of the Key Action Programmes whilst Annex 1 presents a Matrix with the elaborated actions for each Programme.

2.1.1.1 Sustainable Land Management (SLM)

Background

Developing land for commercial purposes is a priority high on the government SDS 2005-2007 to be rigorously pursued for investment purposes by utilizing customary lands through the leasing process and by accelerating the growth of the agricultural sector and the development of the forestry sector. It is therefore envisaged that in the next five to ten years, Samoa will undergo tremendous changes to its landscape development accompanied by increasing levels of land and environmental problems. There is need to restrict the transfer of productive arable land to other uses. There is also a need to promote enforcement of appropriate and sustainable landuse standards and codes of practice such as land zoning, land use capability and enforcement of EIA on all landuse developments to ensure standards and codes of practices are complied with.

Construction infrastructure - Savaii

Rationale

The sustainable management of land development activities is the key to maximizing chances of achieving sustainable development goals of Samoa in line with millennium development goals. In this area, three (3) main programmes have been developed.

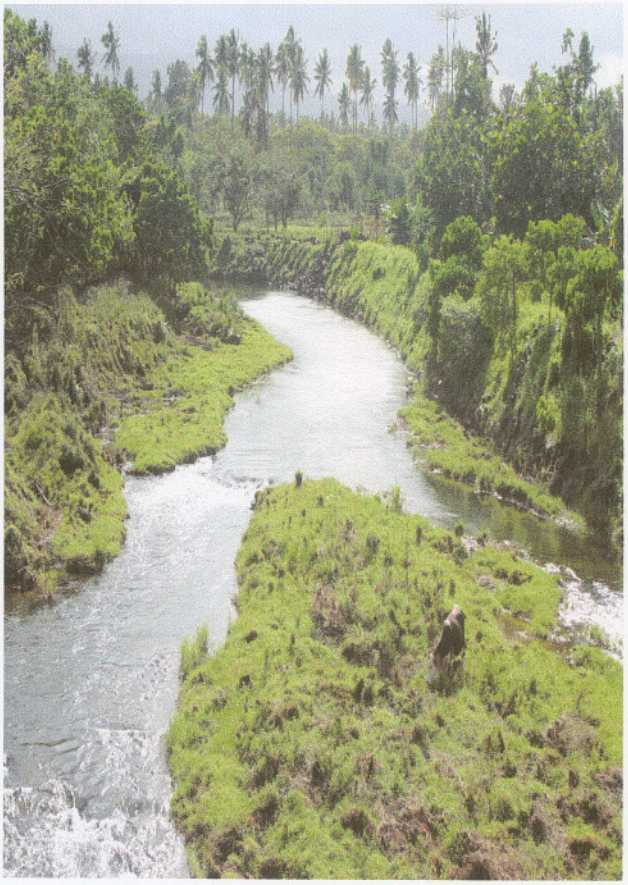
Action Programmes

i) Institutional Land Reform
ii) Public Awareness on SLM (sectoral, public and private sectors)
iii) Capacity Building on SLM practices

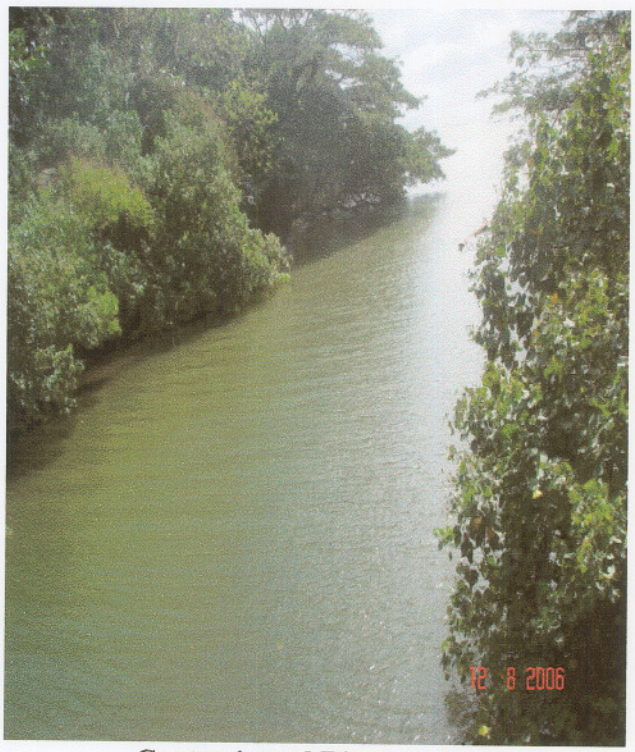
2.1.1.2 *Sustainable Management of Watershed Areas*

Background

Water, a valuable natural resource is scarce, due to paucity of the ground surface and the porosity of the soil structure resulting in low water-retention of the soil and flooding. In some parts of the country particularly on northwest Savaii and Upolu, water deficit is extremely acute after a lengthy period without rain, causing soil compaction but also draining the soil of nutrients during a prolonged period of rain. This impacts severely on production yields for most households in these communities. The feedback from local communities during the nation-wide consultations confirms these concerns. For years the management of water resources at the national level has been fragmented but with the establishment of the Samoa Water Authority, the servicing of water to the community is now controlled and regulated. There is however a desperate need to fully identify and protect Samoa's water reserves and supplies. Water shed management moved from the Ministry of Agriculture to the Ministry of Natural Resources and Environment by the setting up of a Water Division to manage water resources. The Water Sector Support Programme (WASSP) is an initiative by the government to ensure the provision of high quality water supply, safe disposal of wastewater, and sustainable management of water resources for Samoa.



Sili River in Savaii



Contaminated River- Letogo

Rationale

The introduction of the Water Sector Support Programme is a promising undertaking which significantly addresses outstanding water issues and contributing to sustainable protection and management of water resources in the country. The outstanding concern in this area is local governance issues and this NAP offers a complementary role to the Water Sector for resolving sensitive issues potentially arising out of water resource management at the local level. It requires in this

respect an integrated innovative approach to harmonize processes such as consensus building amongst relevant local stakeholders. Another area commonly viewed by locals of NW Savaii is their heavy reliance on pumped water sources from other villages and the regularity and availability of water supplied to them due to high elevation and high costs. Another critical concern was that rainfall received annually is acutely insufficient to provide for their needs. Many locals from these drier parts aspire for a water irrigation system to help feed and sustain moisture to their crops. Another critical issue is the general lack of understanding of water issues. To address these concerns, there is a critical need for a National Water Information System (NWIS) to facilitate better cooperation and information flow amongst all stakeholders and to encourage the networking of information.

Action Programmes

i) Conservation and protection of watershed areas to minimize erosion and consequent degradation
ii) Develop a system of resolving governance issues

2.1.1.3 Management of Degraded Coastal Areas

Background

Approximately 70 percent of Samoa's population are coastal communities and have become highly vulnerable to erosion due to natural and human contributing factors. This is a major concern due to the large number of low-lying coastal villages that characterize the islands of Samoa and the subsequent effects on the coastal ecosystems. Mangrove ecosystems in Samoa are commonly found on sheltered coastlines and have been severely degraded due to human activities such as waste disposal, land reclamations, pollution, and uncontrolled clearing. Coastal degradation is also mainly a result of mining and removal of sand and gravel, and the increase in reclamations of the sea which impacts severely on inshore fishery stock. This in turn gives rise to threats on the livelihoods of communities highly dependent on affected coastal ecosystems. Of particular concern is the destruction of the coastal environment due to large scale commercial mining of sand to meet construction demands. Sea level rise, cyclones, strong wave action etc are some of the natural causes of coastal erosion which demand urgent attention and mitigation measures.

Rationale

The management of coastal areas is not wholly delegated to an exclusive unit or mechanism. However various sections under MNRE have mandates to facilitate some form of management for these highly vulnerable areas. Conservation efforts are continuing in main mangrove areas but need to be strengthened and expanded to address all coastal communities.

Action Programmes

i) Enhance and strengthen capacities for rehabilitation of degraded coastal areas
ii) Sustainable Management of coastal resources
iii) Waste Management in coastal areas
iv) Conservation of mangrove communities

2.1.1.4 *Management of Other Degraded Areas*

Background

Degraded land areas are visible in and around the country yet not highly recognized by the SDS as a priority issue to be addressed. Interior land both flat and steep suffer from excavations for land-filling and construction purposes. Rainfall splash on cultivated lands resulting in erosion of top-soils which drain into the coastal sea environment generating high turbidity levels and impact on inshore fishery. Coastal land areas are visibly degraded from aggressive acts of coastal wave actions which can penetrate 200m of solid land at a time of storm surges. This represents the greatest threat to loss of significant lands eroded into the sea. There is limited coordinated effort at the national level however to enforce any significant control over the use of land resources particularly with government plan to promote development. The challenge therefore would be to strike a balance between development and the conservation of the environment and natural resources.

More scenes from Vaitele excavation site

Rationale

Not much effort is made to rehabilitate degraded land areas to prevent it from further erosion and degradation.

Action Programmes

i) Rehabilitation of quarried land areas
ii) Rehabilitation of contaminated sites from general waste dumps
iii) Rehabilitation of barren lava fields with alternative uses

Lava fields in Savaii

2.1.1.5 *Forest Resource Management*

Background

The forest sector has performed very well in producing periodic inventory of Samoa's forest resources over the years which culminated in the production of Samoa's Forest Resource Information System (SamFris) in 2004 to provide basic information concerning the state of the country's forest resources. While the forestry sector plays a declining role in the economic development of the country in recent years, the latest forest cover inventory estimated that 60.2% of forests still remain. It indicates that significant forests have been lost, utilized and/or degraded over the years due to increase of land development activities including settlement areas, infrastructure developments, agriculture and logging etc. The GoS report 2001 reported that 23,885ha or one third of the country's forest were cleared between 1977 and 1990, citing an annual clearance rate of 3% as one of the highest in the world. Thus, there are critical concerns about the rate of logging of the remaining merchantable forests and while most forest cutting is on customary and communal lands, strict control over further exploitation of large areas of forest resources must be enforced. Land tenure also presents a constraint whereby there is limited control over ownership and grant of rights of use by the landowners to local interests of the private sector without strictly channelling them through proper mechanisms of control and monitoring.

Logging at Samalaculu, Savaii - 2006

Formerly logged area now under agricultural use

Rationale

The key issue for the forest sector is the need to rehabilitate degraded forest areas with reforestation programmes and to bring them as well as mountain land areas and those areas rich with land-based ecosystems under conservation measures.

Action Programmes

i) Promotion of community, leasehold and private forests on degraded land areas and on public lands
ii) Expansion of conservation areas on forested mountain areas and hilly parts of the country that is vulnerable to degradation
iii) Promoting domestication of forest plants and other high-value/low volume plants on all ecological zones and the sustainable use of Non-wood Forest products (NWFPs) to help improve the living standards of local people
iv) Management of Deforestation Activities

2.1.1.6 *Soil Management and Conservation*

Background

Samoan soils are extremely porous, therefore despite high rainfall, crops suffer water shortages whenever there is no rain for a week or so. The soil profiles are such that ploughing of land is difficult in most areas, but more so in Savaii. Soils in areas with pronounced dry periods has a mixed-layer of mineral development dominated by base saturation and boulders. Farmers in Samoa show a tendency of avoiding areas of shallow and rocky soils, partly because they are difficult to clear and partly because permanent water supply is often absent. Many farms and plantations have moved to marginal areas such as hilly/steeplands/sloped lands and on buffer zones of water catchment areas. This landuse pattern on hilly parts is particularly notable on the NE coasts of Upolu; where a significant amount of soil drains into coastal seas.

Soil management has been indirectly addressed through the use of sustainable agricultural practices by some farmers through organic farms and shifting cultivations with fallow periods. However there is a critical need to conserve and rehabilitate soil. There is no government institution assigned with the responsibility of managing soils in Samoa.

Soils naturally porous, stony and bouldery

Rationale

Soil resources require physical safeguard against detrimental manual practices to the land environment. The resource deserves formal management within a specified institutional structure to ensure that the resource is utilized at manageable levels; and for soil issues to be given fair recognition for protection with appropriate measures at the higher level and streamlining them into legislation as well as national policies and plans for effective enforcement. Greater attention is given to research and conservation measures to address soil needs. While agriculture cannot be practiced in isolation from the need for sustained soil fertility, there is a need for agro-oriented activities to give due consideration to soil fertility needs in order to ensure against further depletion and to undertake sustainable agricultural practices and structural mitigation measures to ensure rehabilitation of soil degraded land areas.

Action Programmes

i) Promote sustainable soil fertility practices and research into appropriate use of soil resources and to ensure the bio-pesticide potential of selected local plants

ii) Promote the sustainable management of soil resources through a centralized institutional mechanism

iii) Rehabilitation of soil degraded land areas

2.1.1.7 *Management of Agricultural Practices*

Background

Agriculture is perhaps the most commonly-practiced form of livelihood activity for the majority of Samoan households and remains still the backbone of Samoa's economy. The current SDS is bent on accelerating agricultural growth by promoting large scale commercial farming (crops & livestock), organic farming and diversification of crop productions into new high-yield value crops and products. However there is concern arising from the vigorous commercially driven focus for agricultural development promoted by the SDS without much consideration given to the consequential impacts of such actions on the land environment. The most pronounced capacity gap is traditional practices of cultivating the land are no longer operational while technological innovations to agriculture is rapidly on the increase due to the shift from small-scaled subsistence farming to larger-scale plantation agriculture. The management of agriculture practices is a priority area despite current trends for planters and farmers practising sustainable farming such as mixed cropping and agro-forestry. However, marginal upland and steep land areas are subjected to farming practices that are unsustainable and susceptible to erosion of soil nutrients downstream draining into sea or resulting in water-logged land area. Shifting cultivation and slash & burn methods are notably used.

Lalomanu, Aleipata - Hillslope taro plantation

Rationale

There is notably high dependence on the use of chemical fertilizers. There was genuine concern expressed during the NAP consultations of excessive use of chemical means of fertilizing soils as the key threat to soil fertility and the degradation of land resulting in poor yields of crops. The main programmes are formulated around the concept of sustainable cultivation through the adoption of sustainable land use practices.

Action Programmes

i) Promotion of agro-forestry and alley cropping plantations on sloping and contour mountain areas
ii) Enhancement of mixed cropping; applying terracing-improvement measures on sloping/hilly or marginal lands and promoting growth of trees and plants along the riverbanks
iii) Promote conservation of agro-soil degraded land areas
iv) Promote sustainable agro-land use practices in hilly-sloped areas in villages that have limited flat lands for subsistence cultivations
v) Promote organic farming
vi) Strengthen food-security programmes to ensure sustainable livelihoods of communities

Farm in Savaii over cleared land

Livestock farm in Upolu

2.1.1.8 *Management of Drought/Flood Prone-Areas*

Background

Drought and Flood are climatically-produced events. The management of drought and flood requires reliable information, good facilities and equipment for creating a reliable system to detect and monitor their occurrences. There is limited awareness of vulnerable communities to cope and to adapt to the onset of a drought. Communities also have limited capacity to cope with extreme events, such as flooding and where farmed steeplands are notably vulnerable to top-soil erosion, there is not only poor drainage system but limited effort to realize the impacts and provide for soil protection measures. Often flooding results in downstream runoffs contaminating coastal waters and degrading land areas along the path. These are particularly exacerbated during extreme events, as evident when tropical cyclones Ofa (1990) and Val (1991) devastated Samoa causing immense damage and the dry spells that followed.

Rationale

Due to greater vulnerability of NW parts of Savaii and Upolu to drought, assistance should be given to affected communities that expressed concerns over the effects of drought to their livelihood during public consultations of the NAP. According to them, dry spells is the natural cause of land degradation in their districts.

Action Programmes

i) Promotion of drought-resistant crops and animals with water retention potentials
ii) Improvement of water supply in drought-prone areas through the installment of water facility measures
iii) Improvement of relevant facility in the Climate Sector (Meteorology Division) for early warning systems for flood & drought-related events
iv) Improvement in application of meteorological information to agriculture
v) Development of a Sustainable Management Plan for Flood Prone Areas including water catchment areas

2.1.1.9 *Natural Disaster Management*

Background

Samoa is highly vulnerable to natural disasters. The highly destructive cyclones of the 1990s (Ofa & Val) had almost crippled the economy of Samoa causing widespread damage to natural resources, buildings and infrastructure.

Rationale

There is a need for adequate national warning systems for cyclone recovery. The initial setup of a National Disaster Council has culminated in the establishment of the Disaster Management Office (DMO) now under the MNRE. The management of extreme events which include cyclones and tsunamis are high on the National Disaster Management Plan (NDMP). However, while Samoa has so far been provided with satellite receiving equipment to improve early warning forecast facilities, capacity gaps exist in the areas of effective cyclone and drought warning systems as well as recovery measures following natural disasters.

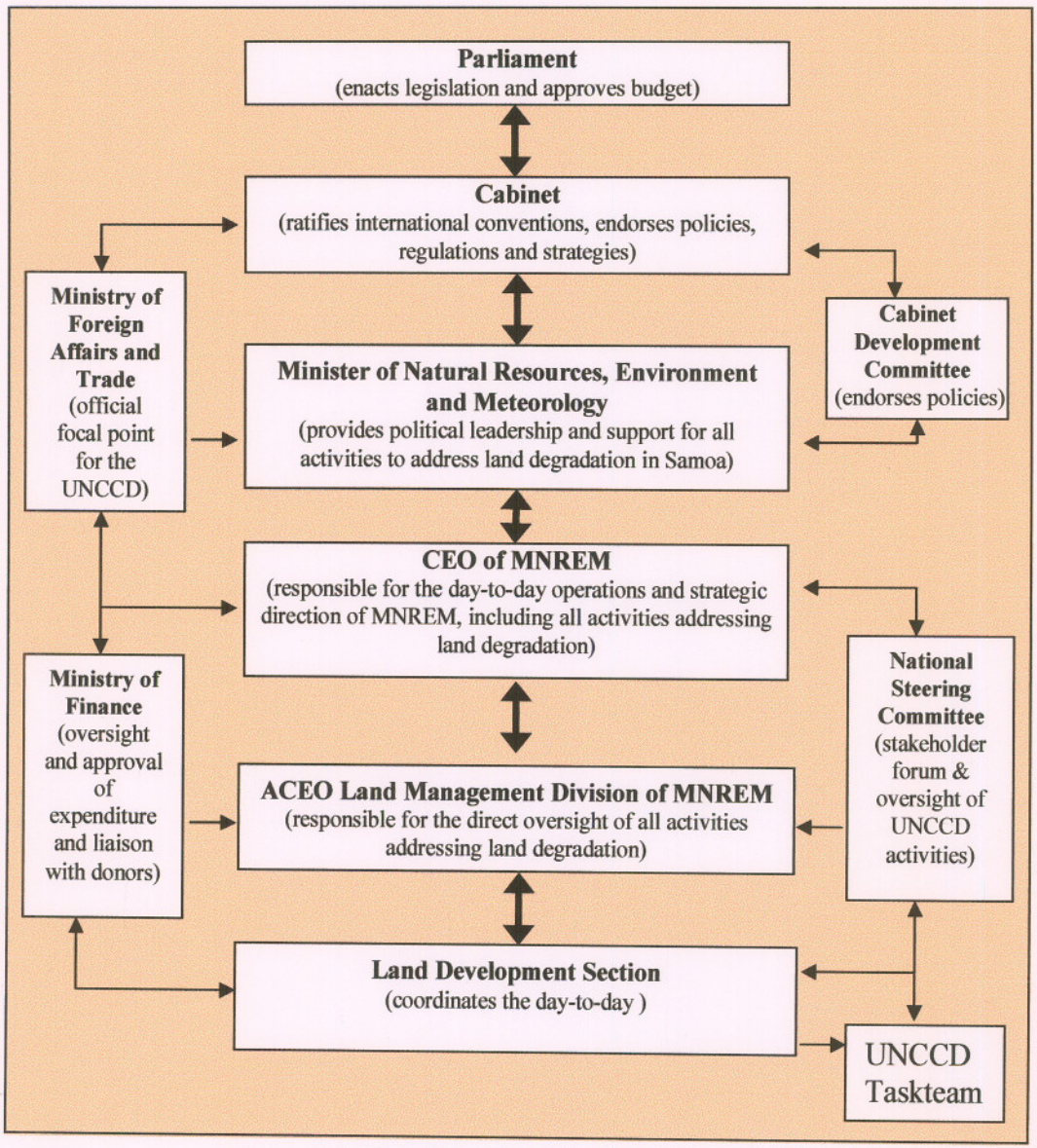
Action Programmes

i) Promotion and improvement of public awareness and preparedness as well as provision of modern facilities to improve disaster forecasting

ii) Promotion of land recovery management plans and restoration of degraded lands with rehabilitative measures

CHAPTER 3: NATIONAL IMPLEMENTATION PLAN

The programmes outlined in the preceding CHAPTER will be implemented through a coordinated approach. Various government agencies, local bodies including academic institutions, and NGOs, CBOs and the local communities will play pivotal roles in their implementation. The Ministry of Natural Resources and Environment (MNRE) will play a coordinating role and develop facilitative mechanisms for their implementation. The overall framework for the implementation of Samoa's NAP is provided in Figure below.



3.0 IMPLEMENTATION ARRANGEMENTS FOR THE NAP SUCCESS

The line Ministries will be involved in formulating necessary laws, policies, standards, guidelines, and procedures. As a focal point for UNCCD, the Ministry of Natural Resource and Environment will focus on developing these instruments with stakeholders' participation. MNRE will ensure necessary coordination, monitoring and evaluation of the NAP activities. In order to ensure effective implementation of this NAP, the following higher-level mechanisms have been proposed.

3.0.1 At the Executive Decision-Making Level

3.0.1.1 *Environment Board*

Will facilitate the promotion and recognition of environmental issues and ensures protection and conservation measures are well-implemented.

3.0.1.2 Land Board

All NAP related matters affecting the administration of the land tenure system in terms of allocation of Government and Customary land through the leasing and licensing mechanisms will be channeled through the Land Board for endorsement and approval.

3.0.1.3 *PUMA*

Will ensure that all project activities are operational within the national framework of sustainable development. They shall sanction all NAP activities that are land development oriented using current operational procedures and to ensure that the land use control mechanisms are applied to project activities.

3.0.2 Other Existing UNCCD Committees

The NAP will use the same operational committees for the implementation of UNCCD to provide the NAP with institutional arrangement for the main purpose of policing the NAP programme operations and project implementation.

3.0.2.1 *National Level*

3.0.2.1.1 *UNCCD National Steering Committee.*

This committee will provide overall policy and operational guidance, and facilitate donor coordination and project implementation. It will monitor and evaluate programmes and projects and will prepare and approve the annual report on project implementation. The NSC may establish working committees to develop projects on cross-sectoral programmes as and when required. Annex II provides further details on the specified relevant roles of each to the UNCCD-NAP project.

3.0.2.1.2 *UNCCD-NAP Taskteam*

The UNCCD Taskteam will provide technical assistance with NAP project implementation whenever required by the National Steering Committee.

3.0.2.1.3 *UNCCD-NAP Coordinating Unit*

The Division of Land Management (DLM) of MNRE through its Land Development Section is the focal point for UNCCD activities and provides the Secretariat for UNCCD implementation as the facilitator and coordinator of all NAP activities. It will collect information and prepare monitoring report as required from time to time.

3.0.3 Institutional Arrangement for NAP Programme Implementation.

For each NAP implementation the following arrangements are necessary;

3.0.3.1 *Project Manager*

The PM will be responsible for the implementation of NAP projects, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors.

3.0.3.2 *Project Management Unit*

Headed by the PM, the PMU will have operational and financial autonomy, including the authority to select and sub-contract specific activities or components to local consultants and local institutions.

3.0.3.3 *Technical Advisory Group*

The MNRE CEO will chair the TAG. Members of the TAG will be selected for their technical knowledge and expertise from the required component fields.

3.0.3.4 *Local Level Coordination*

Local bodies - community groups, women, youths, landowners, farmers, landusers, village authorities - will be encouraged to establish appropriate coordinating and reporting bodies/mechanisms for district level coordination. They will play an important role in integrating natural resource management with NAP goals and objectives into district plans and village programmes.

Local level coordination will be developed. NGOs will be promoted as facilitators and coordinators of community-based programmes

Emphasis will be given to representation of women, and dis-advantaged members of the communities, user groups, local NGOs and clubs involved in developmental activities. Village committees (women & youth), cooperatives and land user-groups will be encouraged and promoted to develop projects and programmes in the spirit of this NAP.

3.0.3.5 *NAP Programme Management and Implementing Agencies*

The Ministry of Natural Resources and Environment (NAP Coordinating Unit) and Taskteam members will be mobilized to assist the partners in developing projects to implement the proposed programmes.

Already, a number of government departments and their district offices, local bodies, NGOs and land-users are involved in implementing similar activities and they will continue to expand these on-going activities and integrate them into proposed programmes for project planning and implementation of the NAP. The line agencies, in particular the Ministry of Agriculture (Crop & Livestock), NGOs and MNRE divisions (Forestry, DEC, WRD, PUMA, Technical Services, Meteorology) will have a direct role in implementing the majority of the activities proposed in this NAP in collaboration with the local bodies, users and other stakeholders. In short, the District Development Committees (DDC) and Village Council/Development Committees (VDC) will have a greater role in implementing the NAP and in monitoring its success.

3.0.3.5.1 *National Stakeholders Participation*

The major stakeholders in implementing the NAP are;

- Local Bodies (VDC, VDC, Village Councils)
- NGOs and CBOs
- Academic and research Institutions
- Media
- Women, farmers, youth and people at large

Local NGOs and CBOs will be the main facilitators and implementers in creating public awareness. Facilitative mechanisms will be developed to encourage their participation in developing farmers' capabilities to implement the NAP activities. The academic, scientific and research institutions will be encouraged to conduct strategic and site-specific research and refine locally suitable techniques and technologies blended with scientific innovations. The USP and NUS will be encouraged in problem-solving action research independently or through collaborative arrangement.

The MNRE divisions (Forestry, WRD, PUMA, DEC) and MAF will promote research and development activities to assist the farmers in adopting proven resource use and conservation techniques and in encouraging all private sector stakeholders to adhere to control mechanisms processes such as development consent process and the licensing/permit systems that would ensure environmentally-friendly land use practices.

3.0.3.5.2 *Local Stakeholders Participation*

All programmes in the NAP have been designed to ensure that all local communities will obtain optimal benefits through promotion of income-generating activities and to subsequently benefit their land environment and resources. The significant involvement of local communities during the NAP

formulation process will continue into the implementation stage of the NAP as they are the main beneficiaries of the Programme Implementation.

3.0.4 Operational Conditions of the NAP & NAP Programme Projects

This NAP is a living document which shall undergo 5 year-term reviews by the National Steering Committee and endorsed by the Environment Board. Approved reviews of the NAP will be submitted to UNCCD Secretariat. Amendments to the NAP may be made as and when necessary to ensure completion of implementation of programmes. The NAP programme projects will undertake mid-year term reviews as part of monitoring and evaluation to ensure success of various stages of project implementation.

3.1 BUDGET AND FINANCING MECHANISMS OF THE NAP

The budget estimate is based on the life of the NAP implementation. As the nature of the programme is large, an indicative budget estimate has been proposed and will be elaborated on during project formulation and implementation. Funding for NAP Implementation may be derived from the mobilisation of resources both at national and international levels.

Action Programmes will be elaborated into several activities and sub-activities during programme implementation.

All proposed programmes are noted with key actions to implement them however the actions are subject to modifications during the implementation phase of the NAP programmes. Each action programme is estimated to cost between $US100,000.00 to $US5 millions for small-sized to full-sized projects, depending on technology, size of area to be covered etc The estimated budgets to these programmes will be subject to modifications during formulation of project proposals.

3.1.1 Domestic Sources

The community will be encouraged to set up trust funds to be used for the maintenance of land-based ecosystems to ensure sustainability. Fees will be charged to access land-based resources such as eco-tourism areas through eco-tours. Trust Funds may be set up utilising the use of the following areas;

- National Parks and Reserves;
- Poverty Alleviation;
- National Agricultural Research and Development;
- Village income from the sale of silt, sand, and boulders from rivers and streams as well as aggregate materials
- Biodiversity Conservation.

Local people will be expected to contribute their time and labour but funding of programmes should come from national or external sources. People's participation and their willingness to conserve soil, forests, biodiversity and water would be their most important contribution in achieving NAP goals and objectives. Other sources of funding will be provided by government through technical

assistance and subsidies. Incentive scheme activities will be promoted and lobbied to government for their kind input towards the NAP success.

3.1.2 External Sources

External sources for the NAP project implementation will be in the form of donor contributions and in-kind contributions made possible through the co-financing mechanism. The main external sources for funding the implementation of the NAP will be from GEF and Global Mechanism through UNCCD and UNDP. Bilateral assistance may be possible through AusAid and JICA. A significant portion of the national budget is met through external grants and loans; so there are possibilities to integrate many of the NAP programmes into existing projects and programmes under implementation through external funding.

3.1.3 Funding Provided by MSP-SLM on Capacity Building and Mainstreaming

The project is submitted under the LDC-Small Islands Developing States (LDC-SIDS) Portfolio Project and will help achieve the objectives of Operational Programme 15 and Strategic Priority 1 relating to Targeted Capacity Building for SLM for strengthening local and national capacity for SLM, including mainstreaming into national development strategies and policies, improving quality of project design and implementation, and ensuring that all relevant stakeholders views are reflected and integrated into the process.

3.2 PRIORITY AREAS FOR INTERNATIONAL COOPERATION AND ASSISTANCE

Addressing land degradation is a priority issue for Samoa and the Government is committed to the mobilization and allocation of national funding towards the implementation of the NAP. However the limited financial resources available from national sources reinforce the need to identify alternative sources of funding for the successful implementation of all developed Main Action Programmes.

As outlined above, assistance from GEF through the SLM-MSP, has already been secured for the implementation of some activities under the NAP particularly those related to Capacity Building and Mainstreaming of Sustainable Land Management. However, the Government continues to seek additional funding through bilateral and multilateral sources and will make every effort to strategically mobilize national financial sources and allocate counterpart funding.

All main action programmes were developed through an extensive consultative process at the national and local levels ensuring the participation of local communities who are also among the main targeted beneficiaries. The programmes enumerate activities for the conservation of degraded areas/barren lava fields/mountains and in the area of forest and soil conservations. As a least developing country, Samoa would not be in a position to invest a significant amount of financial resources for the implementation of these programmes. In fact, all programmes proposed in this NAP would require the assistance of external funding sources.

Samoa will make every effort to mobilize the national financial sources and allocate counterpart funding. It seeks additional funding through bilateral and multilateral sources. In this context, the developed Country Parties and the international donor communities are urged to further assist Samoa in the spirit of the UN-CCD for the implementation of these programmes.

Several other programmes that are related to sustainable land management in the areas of biodiversity, climate change, water and forests have been initiated with donor-assistance. These programmes should be integrated with proposed programmes to rehabilitate degraded lands including the implementation of preventive measures to minimize potential land degradation and to mitigate the effects of drought.

3.3 MONITORING AND EVALUATION PLAN OF THE NAP

The monitoring and evaluation of NAP Implementation will capitalize on existing mechanisms for its success. Most government agencies have institutional arrangements for regular and periodic monitoring and evaluation; and NAP shall build on these existing mechanisms to monitor and evaluate NAP Implementation in accordance with international codes and guidelines.

The national coordinating Unit will assume its responsibility for NAP monitoring and evaluation. Furthermore the district level and village level coordination committees will also be involved in progress monitoring and evaluation through submission of monthly activities. A reporting mechanism will be developed to ensure timely submission of reports of activities at the village and district levels.

The national Coordinating Unit will review, monitor and evaluate the progress of NAP implementation. It will also prepare and disseminate monitoring reports and it will also report the progress of NAP implementation to the NSC and the Environment Board.

3.3.1 Indicators

Quantifiable indicators would be developed to monitor project development and implementation. Two broad-based and indicative monitoring indicators are given in Table below.

3.3.2 Means of Verification

The means of verification of the activities are broadly related to the rise in income level of the local people, reduction in the area of degraded lands, increased productivity of natural resources and farmland. This can be verified by the documents, research results, improved expenditures on social services and lifestyles of the people. Some of the activities require special survey to confirm that the activities are implemented in the spirit of the action programme. Other sets of activities require establishment of forecasting facilities for rainfall and drought and early warning systems.

Table 2: **Selected Indicators and Means of Verification**

INDICATORS[2]	Means of Verification
1. Increase in Areas of Community forests, leasehold forests and private forests in the degraded lands	Annual reports and other government documents, number of forest users Studies and research reports
2. Instruments such as policies, laws, standards etc released and implemented, and institutions strengthened by increased number of knowledge-base manpower	Government document and gazette notification, roster of experts and number of trainings Scientific journals and research

3.3.3 Assumptions

Some of the assumptions made as pre-requisites for the successful implementation of this NAP are related with effective participation of, and collaboration of the local bodies, private sector, academic institutions, farmers and research institutions and NGOs. Stakeholders will be involved in implementing the programmes with due consideration for their expertise.

The most important assumption is that bilateral and multilateral donors will provide additional technical and financial assistance to implement this NAP in accordance with the spirit of the Convention.

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2 Provides just 2 samples

ANNEX 1: SAMOA'S NATIONAL ACTION PLAN MATRIX

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
A. Sustainable Land Management	1. Institutional and Systemic Land Reform	To clarify SLM functions in order to attain a clear understanding of all stakeholders on necessary actions to achieve SLM	1.1 Develop a National Land Administration Policy which shall build on the current National Landuse Policy and extensive enough to cover all other areas of land administration important to Samoa and to ensure that such a policy is formulated in a way to reduce poverty and create opportunities for all 1.2 Establish village/district level committees to enable effective pursuit of sustainable management of land-based resources and monitoring of illegal activities 3.3 Develop or update land capability classification and land use planning to help address sustainability issues by considering the broader between land development and the environmental quality. 1.3 Extend development of sustainable land management plans on rural lands 1.4 Strengthen the development and enforcement of regulating the different uses of land to ensure minimal social and environmental implications on land-based resources 1.5 Mainstream SLM issues into national development plans and initiatives for higher-level recognition and to ensure that it is realistic, practical and acceptable at all levels
	2. Public Awareness on SLM (sectoral, public & private sectors)	To build understanding and appreciation of SLM practices by all stakeholders	2.1 Conduct nation-wide consultations of the PUMA Act 2004 and other related laws and policies to ensure that all stakeholders are adequately aware of mandatory powers, concepts of sustainable landuse practices, control mechanisms and procedural policy measures etc
	3. Capacity Building on SLM practices	To strengthen national and local capacity to deal with SLM	3.1 Review all existing sectoral processes and mechanisms of control (EIA, PEAR, SMP, Development Consent, Licensing and Permit System) to ensure reasonable applicability of these mechanisms for ascertaining effective compliance from all stakeholders 3.2 Develop a National Monitoring and Evaluation Plan to ensure strict enforcement of legal-policy control mechanisms and the monitoring/evaluating of development activities and existing institutional-systemic measures to ensure that they are operational within the national framework of sustainable development.

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
			3.3 Develop or update land capability classification to enhance appropriate land use planning in areas of residential, industrial and agricultural use suitability. 3.4 Enhanced SLM through improvements of individual, systemic and institutional capacities including relevant national plans and policies. 3.5 Strengthen the regulatory capacity of MNRE staff and sectoral implementing sectors in natural resource management
B. Sustainable Management of Watershed Areas	4. Conservation and protection of watershed areas to minimize erosion and consequent degradation	To ensure protection against degradation of watershed areas	4.1 Develop a scheme of compensation and incentives for community resource owners through reafforestation and replanting of water catchment areas 4.2 Design income generation activities for communities in areas of water resource conservations 4.3 Regulate destructive activities around water catchment areas with fine penalties and imprisonment 4.4 Strict enforcement of the Sustainable Forest Management Policy and legislation which regulate the clearance of trees and forest areas 4.5 Implement Replanting and Reafforestation of degraded watershed areas and to declare as buffer zones
	5. Develop a system of resolving governance issues	To ensure effective participatory process and facilitation of water resource issues arising out of disputed governance matters	5.1 Develop an appropriate policy approach to address issues of governance in the management of a resource common to a number of villages and with differing type of landownership on all sides of a water resource 5.2 Undertake necessary preparatory studies and implement single village watershed management pilot with differing land ownership and governance issues including a consultation with all landowners of the pilot site 5.3 Review existing Water Act to legalize the enactment of the newly established mechanism to effectively address water resource issues and implementation of related activities and to accommodate expansion of its functional mandate 5.4 Develop a framework of networking with the regional and international on information sharing and internal of relevant expertise and technology 5.5 Establish a centralized Water Resource Information System (WRIS) to ensure effective coordination and networking of information sharing and access to information amongst stakeholders on water issues
C. Management of Degraded Coastal Areas	6. Enhanced capacities for rehabilitation of degraded coastal areas	To ensure protection and rehabilitation of degraded coastal areas	6.1 Conduct trials of soil protection measures through the rehabilitation of 2 pilot sites on eroded coastal areas 6.2 Conduct extensive consultations for coastal communities of Upolu and Savaii

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
	7. Sustainable management of coastal resources	To mitigate coastal degradation through effective control measures of coastal resource use	7.1 Identify all potential sources of coastal sand to ensure availability and sustainability of sand resources for development purposes 7.2 Effective enforcement of legislation and policies to sustainable manage sand resources and protect coastal ecosystems 7.3 Strengthen enforcement of policies to sustainably manage reclamations and other development activities affecting the coastline
	8. Waste Management in Coastal Areas	To prevent contamination of the quality of coastal waters with toxic waste disposal and chemical/organic materials	8.1 Identify all degraded coastal dumping sites for rehabilitation purposes 8.2 Rehabilitate mangrove areas and coastal ecosystems affected by general waste dumping
	9. Conservation of mangrove communities	To strengthen coastal resilience against and lessen vulnerability to effects of degradation	9.1 Establish more mangrove protected areas for conservation 9.2 Reforestation and Replanting of Mangroves programmes 9.2 Strengthen enforcement of legislation to regulate landuse around and protect mangrove areas and reduce pollution 9.3 Promote recreation and ecotourism in coastal communities as income-generating method of protection 9.4 Educate general public through effective awareness programmes
D. Management of Other Degraded Areas	10. Rehabilitation of quarried land areas	To ensure these land areas are brought under conservation measures and beneficial to communities and landowners	10.1 Identify all degraded quarried lands in Samoa and prioritize for immediate actions to protect and conserve these land areas for regeneration 10.2 Pilot Vaitele quarry site for rehabilitation and conservation purposes 10.3 Develop a strategic plan for the construction of structural hard rehabilitation measures and for the procurement of the degraded land to enable declaration as a Government Reserve land for community benefits and public access
	11. Rehabilitation of contaminated sites from waste dumps	To facilitate the restoration of contaminated sites	11.1 Identify all possible contaminated sites from toxic and solid wastes 11.2 Pilot 2 contaminated dumping sites for rehabilitation purposes

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
	12. Rehabilitation of barren lava fields with alternative uses	To ensure that these barren lands are under some form of economic use for the communities	12.1 Develop a strategic plan of action for management of these barren land areas 12.2 Conduct a research into possibilities of uses appropriate of these land areas 12.3 Pilot lava fields in Saleaula and Aopo as community-based conservations and replant with value-added products such as nonu 12.4 Implement a geological feasibility study of lava fields to determine viability of associated dangers and/or safety with recommended alternative uses 12.5 Develop opportunities for interested stakeholders through the leasing and licensing mechanisms to enable effective alternative uses of these lava fields 12.6 Promote the conservation of lava fields as community based programmes with commercial significance and as source of livelihoods for households 12.7 Integration of information and data to formulate geological maps of degraded lands, mountains and lava fields using GIS and Satellite images 12.8 Conduct feasibility studies of lava fields to ascertain possibilities with the introduction of windmill farms as energy saving alternative for the affected communities
E. Forest Resource Management	13. Promotion of community, leasehold and private forests on degraded land areas and on public lands	To ensure the improvement of communal and individual family livelihoods from forests and rehabilitation of degraded lands	13.1 Develop a trust fund from income generated to ensure sustainability of the management of degraded lands 13.2 Implement replanting of degraded lands with economic tree crops 13.3 Provide subsidies for forest development to poor users 13.4 Provide technical assistance to landowners and resource users as post-support programmes 13.5 Promote plantation of multi-tiered economic tree crops (wild and domestic species) in private and communal lands 13.6 Promote private forestry on farmers lands, preferably degraded lands 13.7 Implement operational/collaborative forest management plans 13.8 Review and strengthen the role of Forestry Division to enforce the un-enforced existing grading rule and guide for specifying timber and wood-based products
	14. Expansion of Conservation Areas on forested mountain areas and hilly parts of the country	To enable conservation of virgin forests of mountain areas and sloped land areas vulnerable to degradation	14.1 Declare forest areas that are rich with endangered and endemic species as Nature/Biosphere Reserves 14.2 Promote rearing of feral animals and birds to generate funding locally for species conservations 14.3 Encourage possibilities of forest ecotour activities in forest conservation areas that are biodiversity-rich 14.4 Implement complete ban of logging activities on forest conservation areas

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
	that is vulnerable to degradation.	while ensuring protection from logging interests yet benefiting to forest users and communities	14.5 Re-evaluate the effectiveness of the logging licensing and monitoring systems to ensure that landowners do not get duped easily by the dollar value of leasing land to lessees through unfair deals.
	15. Promote domestication of forest plants and other high-value/low volume plants on all ecological zones and promote the sustainable use of Non-wood Forest products (NWFPs) to help improve living standards of local people.	To provide a basis for improving the living standard of the local people living on peripheral ecological zones especially the landless and poor people	15.1 Inventory actively traded NWFPs 15.2 Conduct research and studies on stock and sustained yields and marketing of NWFPs 15.3 Identify low volume and high value NWFPs, and develop methods and technologies for cultivation, harvesting and processing including legally protected and endemic species 15.4 Develop promotional package of, and enabling mechanism for the sustainable use of endemic species. 15.5 Provide landusers and foresters with trainings and upskill through demonstrations of domestication know-how 15.6 Develop a community forestry programme as an income generation alternative.
	16. Management of Deforestation	To highly restrict the practice of unsustainable deforestation impacting on the integrity of land-based ecosystems	16.1 Develop or strengthen existing regulatory frameworks to stipulate bans on all the identified potential native and secondary forests from logging interests with high regard for the protection of potential integral land-based ecosystems of environmental significance, both local and global 16.2 Develop an extension programme of reafforestation projects that are appropriately designed and feasible including plantations, community woodlots, hedge or boundary plantings for poles etc. 16.3 The Government to develop a plan for the strategic protection of all important forest areas and declare as biosphere conservation areas including watersheds, designated national parks and reserves, and areas in erosion-prone locations including riverbanks and steep slopes 16.4 Institutionalize the management of deforestation as a unit within the Forestry Division with strict controls by strengthening existing policies and review of it's key mandate

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
			16.5 Develop an integrated approach for sectoral advices and management amongst the sectors
F. Soil Management and Conservations	17. Promote sustainable soil fertility practices and research into this area for appropriate use of soil resources and to ensure the bio-pesticide potential of selected local plants	To ensure organic soil fertility results will provide information that will form the basis of recommendations on sustainable organic farming in terms of soil fertility.	17.1 Conduct a series of soil sampling studies to determine the characteristics of the major soil types of Samoa so as to construct and update outdated soil maps of Samoa. 17.2 Implement a research study on fertilizers and pesticides that enhances crop development especially on depleted soils and thus production of biomass 17.3 Conduct a series of soil fertility studies to determine the sustainability of organic farming methods. 17.4 Conduct a series of soil fertility studies to determine sustainable nutrient replenishment by means of intercropping with nitrogen fixing trees. 17.5 Conduct a series of soil fertility studies to determine an effective farming system in which fallowing is an integral part.
		To ensure and maintain soil biological processes and minimize fossil fuel inputs in the form of fertilizers, pesticides, and mechanical cultivation.	17.6 Develop a national policy framework to curb practices that are unsustainable to soil fertility and to develop a national guide for farmers to encourage practices that increase soil organic matter. 17.7 Develop a national strategy and strengthen existing policy to strictly curb the importation of chemical fertilizers that impact soil fertility allowing only entry of some fertilizers; especially N fertilizers and pesticides that provide for micro-organism activity and thus decomposition of organic matter.
		To ensure that active organic matter provides habitat and food for beneficial soil organisms that help build soil structure and porosity, provide	17.8 Develop approaches that integrate study and research on the correlations between different soils and climate conditions to ensure spontaneous practices of sustainable soil activity based on the principle of increasing biomass production 17.9 Design a soil drainage system in areas that experience water logging strongly influenced by topography in soil depression areas in bottom hills and to construct artificially soil drainage systems in soil depleted areas to capture eroded soil nutrients for reuse

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
		nutrients to plants, and improve the water holding capacity of the soil	
		To promote sustainable landuse practices that are environmentally-friendly to replenishing soil fertility	17.10 Develop a system of promoting the use of cover crops and refraining from slash and burn and those practices that reduce decomposition rates, such as reduced and zero tillage, that lead to an increase in the organic matter content in the soil 17.11 Develop a practical systemic approach that identifies and reasonably promote the random use of sustainable tillage and ploughing activities in correlation to high levels of organic matter accumulation in soils and; discourage conventional and individual tillage practices on deprived organic matter soils and to discourage the use of cropping systems that return little residue to the soil 17.12Conduct a trial of soil protection measures through rehabilitation of degraded land areas. Tackle fertility decline and nutrient depletion through the[3]; - use of organic (composts, prunnings, farmyard manure) and inorganic inputs - intensive fallowing (which includes application of lime, planting of legumes, etc. on fallow lands to quicken rejuvenation of degraded lands); - practice agroforestry, particularly with the use of nitrogen-fixing trees such as *Erythrina specieies* or gatae - Crop rotation using nitrogen-fixing plants (such as peanuts etc) in the rotation; and Liming where appropriate (ie. Especially where pH<5.5)
		To prevent pest and diseases of food crops and to improve fertility of acid soils	17.13 Conduct a series of studies to evaluate the effectiveness of extracts from local plants in controlling pests and diseases of important food crops. 17.14 Implement a series of practical exercises as part of liming trials to improve the fertility of degraded acid soils and in order to determine the amounts

SAMOA'S NATIONAL ACTION PLAN (SNAP) PROJECT PROFILES			
LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
	18. Promote the sustainable management of soil resources through a centralized institutional mechanism	To ensure the sustainable management of soil resources and apply appropriate control mechanism to curb inappropriate use of soil resources	18.1 Establish a national coordinated mechanism specific to soil research and conservation of soil resources and for rehabilitation purposes of degraded land soils 18.2 Review existing legislation to accommodate specific provisions for the need to protect soil resources 18.3 Develop all series of national plan for the promotion of soil protection and conservations 18.4 Others during the project proposal
	19. Rehabilitation of soil degraded land areas	To minimize/mitigate soil erosion with rehabilitative measures	19.1 Reverse degraded land areas due to soil erosion through practice of the following[4]; - agroforestry, consider planting of trees and shrubs along the contours - practice bench terracing where appropriate; - plant grassy strips - contour ploughing and/or planting - Conservation (minimum/zero) tillage; and - Consider introducing vetiver grass if not found locally to effectively control erosion
G. Management of Agricultural Practices	20. Promotion of agroforestry and alley cropping plantation on sloping land areas	To encourage plant-based economic activities that are sustainable cultivations	20.1 Encourage plantation of nutritious and fast growing plants having water retention and soil binding properties (eg. talie) including expansion of on-farm conservation practices on degraded soils 20.2 Promote the use of corridor plantations and green manure and integrated plant nutrient system and phase-out agro-chemicals 20.3 Promote block plantations on sloping lands as well as sericulture, floriculture and grass raising as income generating activities
	21. Enhancement of mixed cropping and terrace improvement on sloped lands and promotion of	To promote cultivation of erosion reduction crops and terrace improvements	21.1 Construct terrace improvement and water diversion structures on sloppy farmlands and introduce crops having soil binding properties 21.2 Construct water/run-off harvesting dams, and use catchment ponds 21.3 Promote land husbandry in upland watershed areas

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LAND MANAGEMENT AREA Theme	**ACTION PROGRAMMES**	**OBJECTIVES**	**ACTIONS**
	greenery along the riverbanks		
	22. Promote conservation of agro-soil degraded land areas	To ensure that these lands are rehabilitated and brought under some sustainable management levels and to regenerate it as a land-based biodiversity ecosystem	22.1 Conduct geological survey of all soil degraded areas (both used and unused bared lands) to appropriate priority development of sustainable technological innovative approach 22.2 Pilot these degraded land areas as research fields and for conservation 22.3 Develop a national strategy that enforces the conservations of these areas and ensure beneficial gains to communal owners or individual landowners through eco-tour activities and to utilize for educational purposes 22.4 Encourage the practice of agrosilvipastoral systems that combines annual crops, woody perennials and non-woody perennials and with livestock or trees 22.5 Develop a programme for sustaining practice of organic farms and promotion of value-added products on degraded agro-soils
	23. Promote sustainable agro-landuse practices in hilly sloped areas in villages that have limited flatlands for subsistence cultivations	To ensure that these marginalized communities are well sustained with subsistence food supply	23.1 Pilot hilly sloped communities for trial terracing and contours cultivations to prevent soil runoffs and sustained outputs 23.2.Provide technical assistance and extension services to these communities 23.3Implement alley cropping and terracing on mountain areas that are cleared 23.4 Develop pro-poor sustainable management plans for these vulnerable communities with considerations for sustained soil fertility etc. 23.5 Implement an agro-forestry scheme in potential villages
	24. Promote organic farming	To minimize use of chemical fertilizers and encourage best sustainable farming methods	24.1 Conduct trainings through demonstration plots and workshop on organic farming practices 24.2 Develop and apply training modules on organic farming in Samoa
	25. Develop food-security programmes to ensure sustainable livelihoods of	To ensure rural and peripheral urban populations are not deprived of food products and ensure access	25.1 Diversify crop farms and domesticate value-added plants 25.2 Provide certified organic on-farm trainings to vulnerable communities to increase their interests and capacities 25.3 Develop an incentive scheme programme to provide low-income families with momentum and passion to implement and explore sustainable farms 25.4 Develop a national programme that is pro-poor to address the vulnerability

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	communities	to social services	needs and hardship contributing to sustainable land management 25.5 Undertake a survey to measure poverty trends over time and to assess the impact of economic growth on the disadvantaged in Samoa taking into account vulnerability and need of empowerment of disadvantaged groups 25.6 Instigate a poverty mapping to give a geographic visual presentation of the intensity of poverty incidence to assist planners and policy makers to easily detect the most poverty stricken areas and to allocate more resources to alleviate poverty 25.7 Encourage women and youth groups to participate in livelihood activities that are sustainable and environmentally friendly
H. Management of Drought/Flood Prone Areas	26. Promotion of drought-resistant crops in drier parts of Samoa and with water retention potentials	To ensure that communities are well-supplied with basic food supply and nutrients	26.1Conduct research into drought-resistant soils and crops and to determine locally available drought-resistant food crops. 26.2 Undertake studies to determine the extent of drought resistance of the identified drought resistant crops 26.3 Promote drought resistant food crops in drought prone areas. 26.4 Develop and implement land husbandary activities on drought-prone areas to ensure improvement and sustenance of its ongoing capacity to yield plant materials and water. 26.5 Undertake assessment studies of drought/flood prone areas in order to accord priority for proper allocation of resources 26.6 Trial a drought-prone area with sustainable agriculture through implementing organic farming and planting with drought-resistant crops 26.7 Identify floodplains and areas vulnerable to water logging and construct appropriate technology for water rediversion to depleted fertile soil land areas.
		To effect a programme that promotes active understanding, management and improvement of primary concern to drought-prone lands in order to maintain its	26.8 Develop a programme of training the understanding and appreciation of the local residents as well as develop such programme with the involvement of the people on improvements in land husbandry using their knowledge, awareness of problems, insights, skills et.

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		productive capabilities and to avoid their degradation	
	27. Improvement of water supply through erection of water facility measures for sustained supply of water.	To improve rainwater productivity in the northwest parts of Samoa	27.1 In areas subjected to soil exposure and compaction, implement breaks of soil compaction layers by subsoiling and preventing recompaction by conservation tillage and deep-rooting cover crops to increase rainwater productivity significantly and prevent crop failure during dry spells. 27.2 Extend water-tank programmes to other drier parts of the country that are relatively deprived of this resource. Encourage the build of individual family tanks for water storage in other parts upon requests.
		To ensure that technologies and practices are facilitated to drought prone areas	27.3 Develop a scheme of irrigation system in these rainwater deprived communities of NW Savaii 27.4 Undertake studies on appropriate water harvesting and distribution technologies for irrigation farming
	28. Improvement of relevant facility in the climate sector (MET) for early warning systems for drought-related events	To ensure that communities are issued with advance warnings related to droughts and effects	28.1 Develop an effective system of managing climate data for prediction purposes 28.2 Establish effective early warning systems to ensure adequate time for communities to adapt 28.3 Develop early response plans for sectors and communities to prepare in advance with coping strategies to mitigate the effects of droughts and impacts of flood events especially communities residing in lowlying areas.
		To promote and increase the capacity of irrigation to increase food production in drought prone areas and to increase the income of	28.4 Promote awareness of appropriate irrigation practices in drought prone areas 28.5 Carry out studies and promote appropriate hydroponic farming. 28.6 Create an information mechanism to proactively identify overseas markets that Samoan farmers can supply 28.7 Develop and implement Samoa's existing capacity of its early warning systems in terms of technology and manpower 28.8 Identify niche market crops that Samoan farmers can supply with crops and added value forest products

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		farmers	
	29. Improvement in application of meteorological methods in agriculture	To ensure sustained climate predictions in advance for land-based activities	29.1 Sustaining studies of Agrometeorology to improve application of Meteorological methods in Agriculture and proper assessment and management 29.2 Link between Climate and Land Degradation through observations of the Climate Systems 29.3 Dissemination of Information to relevant Stakeholders 29.4 Capacity Building in the application of meteorological and hydrological information in drought preparedness and management 29.5Upgrading equipments to enhance credibility in monitoring climate variability 29.6 Develop climate maps 29.7 Construction of a water irrigation system in NW Savaii
	30. Development of a Sustainable Management Plan for Flood Prone Areas including water catchment areas	To enhance capacities for the minimizing of land degradation in flood prone areas	30.1 Conduct a vulnerability assessment of all flood prone areas both coastal and inland 30.2 Develop sustainable management plan for flood prone communities 30.3 Strengthen capacity at national and local levels to manage flood prone areas
I. Natural Disaster Management	31. Promotion and improvement of disaster awareness and preparedness as well as providing modern facilities to improve disaster forecasting	To strengthen capacity for disaster management at the national and local level	31.1 Implement effective awareness programmes on disaster preparedness for protection of natural resources, buildings and infrastructure 31.2 Develop village-based preparedness plans and adaptation measures for the loss of land production and assets 31.3 Strengthen DMO under MNRE as the coordinating unit for national response to disasters

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	32. Promotion of land recovery management plans and restoration of degraded lands with rehabilitative measures	To minimize timeframe for recovery and to ensure against (prolonged) poverty symptoms	32.1 Develop land recovery management plans for all Districts in Samoa in preparation for unpredictable aftermaths of a cyclonic and drought event 32.2 Assist affected communities with rehabilitation programmes through replanting and revegetation prior to recultivation of land 32.3 Pilot 2 most affected communities for trial

REFERENCES

i) Capacity Development Initiative Report 2000

ii) First National Report to UNCCD 2003

iii) NCSA UNCCD Stocktaking Report 2006

iv) NCSA UNCCD Thematic Assessment Report 2006

v) NCSA UNFCCC Stocktaking Report 2006

vi) NCSA UNFCCC Thematic Assessment 2006

vii) NCSA CBD Stocktaking Report 2006

viii) NCSA CBD Thematic Assessment Report

ix) Third National Report to UNCCD 2006

x) Country Environment Analysis Report 2006