Community Integrated Management Plan

Faasaleleaga 3 District - Savaii



Implementation Guidelines 2018

Foreword

It is with great pleasure that I present the new Community Integrated Management (CIM) Plans, formerly known as Coastal Infrastructure Management (CIM) Plans. The revised CIM Plans recognizes the change in approach since the first set of fifteen CIM Plans were developed from 2002-2003 under the World Bank funded Infrastructure Asset Management Project (IAMP), and from 2004-2007 for the remaining 26 districts, under the Samoa Infrastructure Asset Management (SIAM) Project.

With a broader geographic scope well beyond the coastal environment, the revised CIM Plans now cover all areas from the ridge-to-reef, and includes the thematic areas of not only infrastructure, but also the environment and biological resources, as well as livelihood sources and governance.

The CIM Strategy, from which the CIM Plans were derived from, was revised in August 2015 to reflect the new expanded approach and it emphasizes the whole of government approach for planning and implementation, taking into consideration an integrated ecosystem based adaptation approach and the ridge to reef concept. The timeframe for implementation and review has also expanded from five years to ten years as most of the solutions proposed in the CIM Plan may take several years to realize.

The CIM Plans is envisaged as the blueprint for climate change interventions across all development sectors – reflecting the programmatic approach to climate resilience adaptation taken by the Government of Samoa. The proposed interventions outlined in the CIM Plans are also linked to the Strategy for the Development of Samoa 2016/17 - 2019/20 and the relevant ministry sector plans.

We wish to acknowledge the significant contributions of our District and Village communities and our key government partner stakeholders and implementing agencies, in particular:

Ministry of Women Community and Social Development (MWCSD)
Ministry of Works Transportation and Infrastructure (MWTI)
Ministry of Natural Resources and Environment (MNRE)
Ministry of Agriculture and Fisheries (MAF)
Electric Power Corporation (EPC)
Land Transport Authority (LTA)
Samoa Water Authority (SWA)
Ministry of Health (MOH)
Ministry of Finance (MOF)

We acknowledge also our key international donor partners: the World Bank, the Pilot Program for Climate Resilience and Adaptation Fund, Adaptation Fund Project, through the UNDP, for the financial support that enabled the review and update of the CIM Plans.

Finally, I commend these CIM Plans to all relevant stakeholders from government ministries to districts and village communities and development partners to implement with the utmost urgency. It is assured that the implementation of the CIM Plans further enhance the resilience of Samoa to the impacts of climate change.

Thank you

Hoyf. Fiame Naomi Mata'afa Minister of Natural Resources and Environment

Participants in the Plan

The CIM Plan is a Partnership between the Government of Samoa and the villages within the Plan area. The Plan area starts from the ridge extending to the reef broadly covering 4 sectors; Infrastructure; Natural Environment and Resources; Livelihood and Food security; and Village Governance. Both partners have responsibilities for issues and solutions and the Plan gives an integrated approach to the provision of services and improvement of resilience now and in the future.

This Plan incorporates the Faipule District of Fa'asaleleaga 3 (Sa'asa'ai, Sapini/Lu'ua, Siufaga, Salimu/Malae and Saipipi villages).

The village representatives participated in the preparation of this CIM Plan in partnership with the Government of Samoa.

Date of Signing: 15th June 2018

Representative:

Sa'asa'ai Village

Uga Saneri Vaafusuaga

Toalua Meli

Vai Aivale

Tuilata Faatoaga

Sauafiafi Pule

Sapini/Luua Village

- Tuileutu Alavaa Voi
- Taua Falaniko
- Tamasoalii Eli
- Laufor Taua
- Laufiso Afaese

Janfor Yana
Lanfor Vana

Salimu/Malae Village

- Tuileutu Alaivaa Vio
- Taua Falaniko
- Tamasoalii Eli
- Laufoe Taua
- Laufiso Afaese



Saipipi Village

- Gautusa Filemoni Simati
- Vaiao Taioalo Tuuiala
- Analosa Alofa Falefata

Sociala.

Siufaga Village

- Tuileutu Alavaa Voi
- Taua Falaniko
- Tamasoalii Eli
- Laufoe Taua
- Laufiso Afaese

Janes Jana
Laufor Varia

The Government of Samoa adopts the Community Integrated Management Plan for the Faipule District of Faasaleleaga 3as a Management Plan for the Implementation of the Community Integrated Management Strategy (CIMS).

The Ministry of Natural Resources and Environment, as lead organization of Government, on behalf of the participating Government Departments and Corporations, confirms the participation of the Government of Samoa in the preparation of this Community Integrated Management Plan and its adoption as a Management Plan for the implementation of the Community Integrated Management Strategy.

Ulu Bismarck Crawley

CHIEF EXECUTIVE OFFICER, MNRE

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Acronyms:

ASCH	Areas Sensitive to Coastal Hazards
BCA	Benefit Cost Analysis
CBFMP	Community Based Fisheries Management Plan
CC	Climate Change
CCA	Climate Change Adaptation
CDCRM	Community Disaster & Climate Risk Management
CEP	Community Engagement Plan
CHZ	Coastal Hazard Zone
CEHZ	Coastal Frazard Zone Coastal Erosion Hazard Zone
CFHZ	
CIM	Coastal Flooding Hazard Zone Community Integrated Management (Plan) or (Strategy)
	Constal Landslin Harand Zone
CLHZ	Coastal Landslip Hazard Zone
COEP	Code of Environmental Practice
CSO CSO	Civil Society Organization
CSSP	Civil Society Support Programme
DSP	District Sub Project
EbA	Ecosystem based Adaptation
ECCCR	Enhancing Coastal Community Climate Resilience
ECR	Enhancing Climate Resilience
EMP	Environmental Management Plan
EPC	Electric Power Corporation
ERN	Emergency Radio Network
HCSI	High Coastal Sensitive Index
IAS	Invasive Alien Species
IG	Implementation Guideline
KBA	Key Biodiversity Area
KPI	Key Performance Indicator
LTA	Land Transport Authority
LT0	Long Term Output
MAF	Ministry of Agriculture and Fisheries
MET Office	Meteorological Office
МоН	Ministry of Health
MNRE	Ministry of Natural Resources and Environment
MWCSD	Ministry of Women Community and Social Development
MWTI	Ministry of Work Transport and Infrastructure
NAP	National Action Programme
NBSAP	National Biodiversity Action Plan
NDMP	National Disaster Management Plan
NESP	National Environment Sector Plan
NISP	National Infrastructure Strategic Plan
NRW	Non Revenue Water
PA - KO	Priority Area - Key Outcome
PUMA	Planning Urban Management Agency
PPCR	Pilot Programme Climate Resilience
R2R	Ridge to Reef
SIAM	Samoa Infrastructure Asset Management
SOE	State of Environment
SWA	Samoa Water Authority
UNDP-GEF SGP	United Nations Development Programme Global Environment Facility Small Grants
ONDI -GEL SGE	Programme
WB	World Bank

WCR	West Coast Road
WMP	Watershed Management Plan
WSSP	Water Sanitation Sector Plan

Glossary

Coastal Hazard Zones Defined areas landward of the coast which are or are considered likely to be subject

to the effects of hazards over a defined assessment period. In this study, reference is made to four coastal hazard zones: ASCHs (areas sensitive to coastal hazards); CEHZs (coastal erosion hazard zones); CFHZs (coastal flood hazard zones) and

CLHZs (coastal landslip hazard zones).

"Do Minimum" option A Management option that involves continuing with the present maintenance and

upgrading programme on and when required basis.

Emergency Management To provide communities with skills, facilities and materials so that they may adapt,

respond and recover more quickly in the event of emergencies.

Hazard A source of potential harm or a situation with a potential to cause loss.

Infrastructure Built structures and networks which support the national, regional or local

community.

ability to respond and recover at the time of extreme events.

Implementation Guidelines A document to guide land use and resource practices to achieve specified goals,

objectives and policies and provide a framework for the implementation of defenses

and works.

Issue A specific concern regarding both cause and effect.

benefit (e.g. land use includes areas used for villages or crops, resource use includes

activities such as sand mining, gravel extraction or fishing).

Monitoring Process of measuring the effectiveness or impacts of projects and works against

predicted standards, levels or outcomes.

Resilience The ability to be adaptive, responsive and quick to recover.

Community Resilience The ability for the community to be adaptive, responsive and quick to recover from

the adverse effects of hazard.

Natural Resilience— The ability of natural systems to be adaptive, responsive and quick to recover from

natural processes or hazards.

Risk The chance of something happening that will have an impact on objectives. It is

measured in terms of consequence and likelihood. In the Community Integrated Management Plan context it is the likelihood that infrastructure, environment and biological resources and agricultural and marine resources (food security) will be subject to inland and coastal hazards and the potential for loss of property, life or

land due to natural processes.

Stakeholders

Those people and organizations who may affect, be affected by, or perceive themselves to be affected by, a decision or activity. The term stakeholder may also include interested parties.

Strategy

Direction or course of action to achieve a define division.

Susceptibility

The degree to which infrastructure at risk is likely to be damaged by coastal hazards and how easy/difficult, expensive/cheap it is to replace. In the context of the CIM Plan the term susceptibility is equivalent to the term vulnerability as the Samoan phrase for both susceptibility and vulnerability is the same.

Vision

A desired destiny.

Livelihood

A livelihood is a means of making a living. It encompasses people's capabilities, assets, income and activities required to secure the necessities of life Food availability: The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).

Food access

Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).

Utilization

Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security.

Stability

To be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.

1. Introduction to the CIM Plan

1.1 The Strategic Vision

The District Community Integrated Management (CIM) Plan for Fa'asaleleaga 3District has been prepared as part of the Government of Samoa's Adaptation Fund - *Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project*. The CIM Plan is one of the primary means of implementing the CIM Strategy, which was formally approved by the Government of Samoa in February, 2001 and updated in 2015 as providing the Strategic direction for enhancing the resilience of community livelihoods, infrastructure, environment and natural resources using a holistic and integrated ridge-to-reef approach. The Strategy has as its central vision:

Resilience – Community Livelihoods, Infrastructure, Environment and Natural Resources to Climate Change and Natural Disasters

The CIM Plan takes this vision and provides the practical tools with which the communities and the government, in partnership, can implement the Strategy. *To be resilient is to be adaptive, responsive and quick to recover so that communities are environmentally, socially and economically sustainable (CIM Strategy, 2015).*

1.2 The Aim of the CIM Plan

The aim of the CIM Plan is to help communities and the government improve resilience by identifying actions and solutions considered as best approach to issues identified. Not all the solutions may be actioned immediately but the plan will ensure that issues and options are identified for the long-term improvement in resilience of community livelihoods, infrastructure, and environment and resource systems.

The CIM Plan will:

- 1. Improve the community's awareness of all hazard risks from the ridge to the reef;
- 2. Enable the community as well as providers of services and physical, financial, and technical support in all climate prone sectors, to reduce inland and coastal hazard risks in villages;
- 3. Enable the community and government service providers of infrastructure services, livelihoods, environment and natural resources to better adapt, respond and recover from cyclones.

1.3 Structure of the Plan

The CIM Plan consists of two parts each serving a separate and distinct purpose.

- *Plan Development,* which describes the process undertaken in preparing the CIM Plan in conjunction with representatives of the Communities involved, the Government and other stakeholders with interests in the Plan area.
- *Implementation Guidelines*, which describes the Plans and Actions recommended as outcomes of the process, together with the partner responsible for implementing these outcomes. The participants of the CIM Plan preparation process are acknowledged in the Implementation Guidelines.

2. Implementation Guidelines

2.1 Purpose of the Implementation Guidelines

The Implementation Guidelines describe the solutions proposed that will increase the resilience of the villages in the Plan area and the ways these solutions can be implemented. The solutions are presented for various livelihoods, infrastructure, environment and natural resources items that have moderate to low resilience. Where one solution will provide benefits to other items of livelihoods, infrastructure, environment and natural resources these "Other Benefits" are also noted. Implementation is considered to be the joint responsibility of both the villages and the government in partnership. The government is responsible for the provision of national and district "Public", infrastructure and public goods and benefits derive from environmental services and natural resources , while villages are responsible for local and community infrastructure and livelihoods related actions. The responsibility for implementing the proposed actions is also defined. Solutions for both District and Village level issues related to livelihoods, infrastructure, environment and natural resources respectively, and the responsibility of both partners, should be considered together as they combine to provide for the integrated management of all community development initiatives.

The solutions for village level interventions related to livelihoods, infrastructure, environment and natural resources will usually be the responsibility of the Village Council and Families in the village to implement. Advice and resources may be available from the Government to assist the village in implementing these solutions. In most situations these solutions will also provide benefits to both village and district infrastructure and resources and environmental goods that are shared between villages. These solutions should be considered an integral part of strengthening community resilience at both levels.

2.2 Duration of the Plan

The CIM Plan is *reviewed* every 10 years but during the Plan period, the solutions implemented will be *monitored* on a five (5) yearly basis to ensure the proposed solutions are effective and are actually improving resilience. The 5 yearly monitoring of the new CIM Plan is aligned with the 5 year review of **the key national planning and programming** strategy for Samoa: the *Strategy for the Development of Samoa* (SDS). The new CIM Plan recognizes some solutions are likely to take longer than 5 years, whilst others may take up to 10 years to implement due to the complexity of planning process, funding and budgeting programming required to implement these solutions.

Detailed implementation of the solution will determine the monitoring requirements and Key Performance Indicators.

2.3 Financing of the Plan

Implementation of best solutions is the collective effort of all identified responsible agencies, civil society organizations, donor partners **and** district and village communities themselves. Funding will be sourced through several mechanisms recognizing the Government of Samoa's programmatic approach to tackling climate change impacts on its development progress. While every effort has been made to identify priority actions needed to build the resilience of Samoa and its communities, the Government also recognizes that not all actions identified can be financed at once. Implementation of best solutions will be undertaken strategically and over time in line with available funding and, **if** determined a priority CCA activity that will actually build the resilience of communities and Samoa as a whole. Criteria of determining priority CCA best solutions for financing are:

- proposed development is in general accordance with the objectives of the CIM Strategy 2015;
- development is specifically recommended in the CIM Plan
- number of people that will benefit from the development, i.e. population benefit
- development will provide *life sustaining* support for communities
- minimum or neutral environmental effects
- development will improve resilience
- development will achieve speedy recovery
- development will reduce risk
- also identified as a priority in other Sector Plans or National Strategies

During the development of the new CIM Plans, the World Bank funded Pilot Programme for Climate Resilience Enhancing Climate Resilience for Coastal Resources and Communities (PPCR ECR) prepared two (2) key documents:

- ➤ Community Engagement Plan (CEP) the guidelines provided in the CEP is an excellent capacity building tool that can be used by CSO's and village communities themselves to aid development of small grant proposals to existing small grant funding mechanisms like CSSP and the UNDP-GEF SGP.
- ➤ **District Sub Project (DSP)** the guidelines provided in the DSP targets single districts or multi-district projects with a large number of beneficiaries.

Noting Samoa's programmatic approach to CC and CCA, these key documents are fundamental in guiding development partners, implementing agencies and other stakeholders on the most effective way of resourcing and supporting climate change adaptation projects at the village and district levels. These village and district level CCA projects actually achieve the majority of key indicators in various Sector Plans, subsequently achieving key national indicators contained in the Strategy for the Development of Samoa (SDS).

3. Description of Fa'asaleleaga 3 District

3.1 Physical and Natural Resource Setting

The Fa'asalele'aga 3 District is located on the eastern side of the island of Savaii, north of the Faasaleleaga 2 District and Savaii's main town of Salelologa which is located in Fa'asaleleaga 1 district. Fa'asaleleaga 3 is characterised as low-lying next to the sea, sloping gently up past several rounded volcanic cones to 500 metres in the west. The villages of Fa'asaleleaga 3 include Sa'asa'ai, Saipipi, Salimu/Malae, Sapini/Luua and Siufaga. The coastline itself is a mixture offine corals and beaches and rocky shoreline. It is protected by a reef system 500 to 1,000 meters offshore. There is a major reef breaking in front of the village of Salimu/Malae. This influences the tidal flows and sediment transport along the coast. The water is very shallow in front of a number of villages and sand build up has formed a small dune in front of the village of Lu'ua. A marine conservation reserve, where no fishing is permitted also exists in front of this village. Along other parts of the coast, there are signs of storm damage and erosion where sand has been washed away and coconut tree roots are visible.

A wetland is located behind the Lu'ua Primary School in the village of Sapini/Lu'ua that would appear to have some environmental significance, and adds to the biodiversity of the area, but it is also a health concern for villagers. The wetland in the district has devastating effects on the main road and nearby homes when flooding occurs. The damage to wetlands in the district is a cause for concern as the trend is likely to increase in future. Development projects such as bridges whilst enabling the efficient and effective access to other parts of the island have, at the same time, inhibited the free flow of water to and from the wetlands affecting water quality in the areas. This is believed to have contributed to the "dieback" situation now observed in the mangrove areas of Fa'asaleleaga 3 district (Reti, 2016).

The agricultural ecosystem in made up of mainly wet climate including small areas with moderate dry season on the coastal fringe. Alluvium¹ sands have accumulated along the coastal foreshore creating swamps, limiting some household agriculture practices. There is an opportunity to manage the swamp areas with a combination of engineering solutions for the water drainage and the use of swamp tolerant species to increase the resilience of the foreshore and local houses. This leads into gently sloping rolling landscape without deep gorges. The inland section is a landscape dominated by broad sloping ridges separated by deep gorges. The mountain areas support forests. Within the higher areas there are patches of alluvial deposits with high natural fertility (Dews, 2016). There is little coastal vegetation left in much of the district due mainly to land filling and beach erosion. Some mangrove forests exist but there are also signs of vegetation die back probably as a result of human activities including dumping of rubbish in these areas.

The lowland and upland areas of the district of Fa'asaleleaga3 have largely been transformed into cattle grazing and coconut plantations which are contributing to increased sedimentation of the coastal areas(Reti, 2016). Many invasive species were discovered during the site assessments of the district. The worst of which, appear to be the *merremia*, *vaolapiti* and *vaotuaniu*. The *pulu* species are found everywhere but are not considered yet to have a significant impact on the environment of the district except its ability to suppress other species including native species. As many of these invasive are believed to be introduced and spread through animal and human movement (Reti, 2016).

The main North West Coast Road running through this district is considered an important part of the district's infrastructure; however, it is located almost entirely within the CEHZ and CFHZ. There are particular high risk areas at Saipipi, Sa'asa'ai, Salimu, Lu'u and Siufaga where the main road sits within a combination of hazard zones; Immediate Fluvial Hazard Zone (IFHZ), CEHZ, CFHZ and the Tsunami Shore Exclusive Zone (or red zone). The main road is in good condition apart from the need for better drainage under and along the road and regular maintenance of potholes formed during heavy rain periods. During heavy rain, flooding occurs both next to the road and within villages because of the lack of adequate drainage, exacerbated by storm water runoff through the wetlands. The main road provides easy access to nearby villages, shops, schools, and churches, and it links the district with important social infrastructure beyond the District as well as access to Savaii's major hospital at Tuasivi. It is thus an important connectivity route and lifeline access, especially during emergencies. There are seven² access roads within this district³.

¹Consists of silt, sand, clay and gravel as well as much organic matter

²Sa'asa'ai Access Road 1, Sa'asa'ai Access Road 2, Sa'asa'aiUta Road, Saipipi Access Road, Salimu Access Road, Si'ufaga Access Road 1 and Siufaga Access Road 2

³LTA Samoa Infrastructure Asset Management Database

3.2 Social and Economic Setting

The Fa'asaleleaga 3 District currently has a population of 2,847; Sa'asa'ai526, Saipipi 689, Salimu/Malae 476, Sapini/Luua 461 and Siufaga695. Of the total 2,847 total male 1,495, female 1,3524. Development is mostly scattered along or near the main national road.

Primary services such as water, power and telephone generally follow the main road, and occasionally extend inland a short distance to a few houses and fales. As the telephone and power lines are located close to the coast they are at risk from coastal hazards. Water supply for much of the District is supplied by the government reservoir at Palauli. However, there are a number of fresh water springs that also supply drinking water to the villages.

The cash economy of the District is dominated by traditional work. The average income per person per week is \$34,06⁵ with the majority of local residents working in their plantations and in fishing. The District hosts the Amoa Resort Restaurant & Bar as well as the Si'ufaga Beach Resort. A small number of local residents are employed at both resorts. It also supports 4 Primary Schools⁶, the Amoa College as well as the Lu'ua Pre-School and Sa'asa'ai EFK Pre-School. Fa'asaleleaga 3 also hosts a number of churches of different denominations. In addition, there are a number of small shops and home/village occupations/enterprises throughout the area.

3.3 Climate Risk and Resilience

The use of LiDar mapping data, hydrologist and geomorphologist data and findings for this district has helped determine inland and coastal hazard zones and high risk areas for Faasaleleaga 3.

The district has about 3,524 hectare in area. The Tsunami shore exclusive zone covers about 37 hectare in district area and about 96 buildings are located in this area (Tokalauvere, 2017). The Tsunami evacuation zone orange however covers 230 hectares of district area. 462 buildings of the district are located in this zone including three schools. Most of these 462 buildings are also in the CFHZ. The watershed management riparian buffer covers 576 hectares of hectares, therefore leaving 2921 hectares in the "safe" zone. About81% of the total area of the district is safe from the Tsunami evacuation zones and fluvial hazards.

The coastal village of Siufaga has village houses and churches in the hazard zone. Siufaga Primary School is very close to the Tsunami shore exclusive zone and within the CFHZ.

Seawalls have been built along parts of the coast at Siufaga and Sa'asa'ai, however, they are in need of repair. Where there are no seawalls, severe erosion is often apparent. In some areas, particularly near the village of Salimu/Malae, the coastline has receded up to 50 meters.

⁴ SBS Village Directory Census 2016 preliminary count

⁵Community Disaster and Climate Risk Management household survey: final report

Si'ufaga SDA Primary School, Faga Primary School, Sa'asa'ai Primary School, and Saipipi Primary School

4. Fa'asalele'aga 3 District Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Coastal protection for most vulnerable areas	Upgrade or strengthen existing seawalls in areas where road sits less than 5mtrs from the tsunami shore exclusion and immediate inundation zones as short term solution Implement beach replenishment at critical locations along the beach to protect coastal road and infrastructure against inundation and coastal erosion Responsibility: LTA/MWTI/MNRE/Villages/Families	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters Reduce impact from coastal erosion and natural disasters Maintain lifeline access for all of Savaii Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties, public and private assets	Utilise Hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and design Utilize the environmental and social safeguards including EIAs in screening and designing infrastructure facilities Include in budget programming CBA, design and construction. Benefit cost analysis to include appropriate design loads and engineering design and supervision costs on top of capital work estimates Designation of the CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions Strengthen monitoring and enforcement of Development Consent process to stop structures from being built in the defined overland flow paths	CIM Strategy 2015 NISP2011 KESO 5 Community Sector Plan Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA
Drainage systems require maintenance and upgrade in high risk areas of main North West Coast Road	Upgrade drainage and culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendations Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance	Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Minimises national disaster recovery expenditure on damaged properties, public and private assets	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)" Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards	CIM Strategy 2015 NISP2011 KESO 5 TSP2014-2019 Goal 2 KO 1 Community Sector Plan

Reticulated water supply, quality and network to be improved	Responsibility: LTA /MWTI/MWCSD /Village/ Families Extend the water supply to families inland with no access to water Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought District to support SWA water rationing programs during times of drought District to support SWA efforts at exploratory boreholes in district Responsibility: SWA /MNRE/ District /Villages/ CSSP	Increase adaptation during drought periods Improve infrastructure resilience and rate of recovery Improve health and sanitation Reduce contamination of water supply Reduce impact from inland flooding	concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 3 District Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes Implement SWA (2016)10year investment plan to improve water supply network to support all inland families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities	
Village houses, school, churches, tourist facilities, villages pools, government and other village assets in high risk hazard zones	Relocate outside of high risk hazard zones when building/infrastructu re requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from coastal erosion and flooding accommodating the hazard Improve recovery	Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs Enforcement of National Building Code 2017	National Building Code CIM Strategy 2015

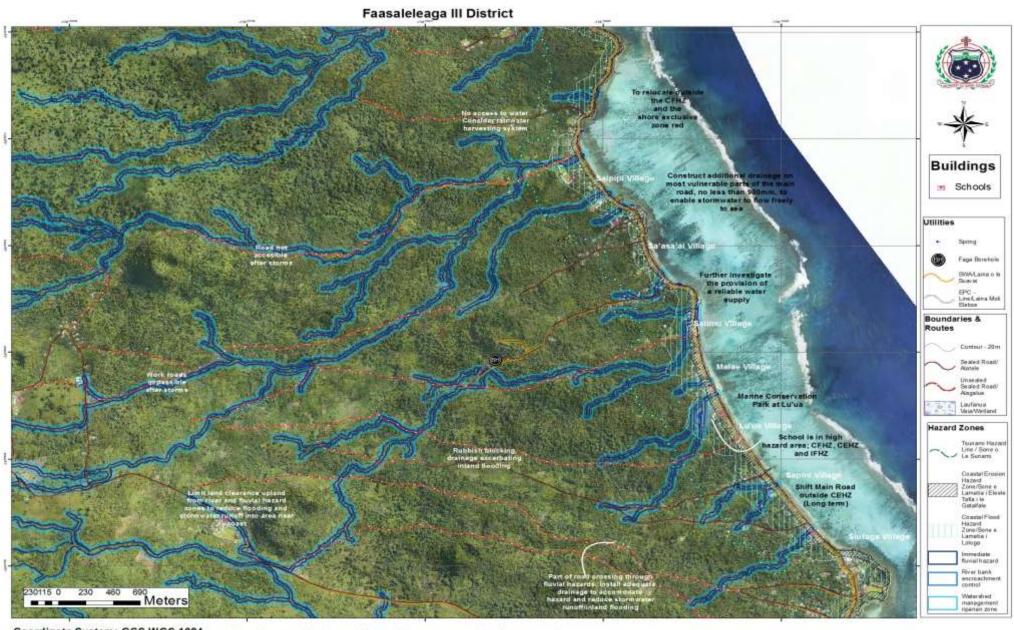
	living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop land use planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges	to create more resilient villages Improve preparedness and readiness response to natural disasters Safer villages, houses and roads	Encourage insurance of significant investments and assets within hazard zones Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions	
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	Responsibility: Village / Families /MWTI/ MNRE Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter Conduct evacuation shelter assessment and mark on CIM Plan hazard maps Develop a Village Climate Disaster Management Plan (VCDMP) Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies	Improve resilience of public infrastructure Improve preparedness and readiness response to natural disasters	Enforcement of National Building Code 2017 Utilise hazard maps and Geomorphologist findings to inform location and designs	National Disaster Management Plan 2017-2021 National Building Code National Policy for People with Disabilities

	Implement CDCRM program Install relevant signs to guide the community on emergency response			
	procedures and to locations of evacuation shelters			
	Where no suitable houses exist, build emergency shelter(s) outside the hazard zones Retrofit identified			
	and approved schools or churches outside hazard zones and designate as			
	evacuation shelter Responsibility:			
	MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Natural Resources	Best Solutions	Benefits		Relevant Sector
and Environment			-	Plans, National Strategies &
	71			Policies
Soft coastal protection measures	Plant native species along coastal areas to	Soft coastal	Develop an integrated land	Litaro Million Iroo
		protection	management plan for	Two Million Tree
_	_	protection measures will	management plan for Faasaleleaga 3 district with	Planting Strategy
needed for most vulnerable areas	strengthen existing seawall and to reduce	measures will	Faasaleleaga 3 district with	
needed for most	strengthen existing	measures will		Planting Strategy
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau,	measures will support and strengthen existing and new	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the	Planting Strategy 2015-2020 Restoration Operational Plan
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are	measures will support and strengthen existing and new infrastructure	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and	Planting Strategy 2015-2020 Restoration
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau,	measures will support and strengthen existing and new	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater	measures will support and strengthen existing and new infrastructure along the coast	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in	Planting Strategy 2015-2020 Restoration Operational Plan
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act
needed for most	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act
needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011
needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed *Responsibility:* MNRE/ MAF/Villages* Implement village	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops Develop an integrated land	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011
needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed *Responsibility:* MNRE/ MAF/Villages* Implement village awareness and	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops Develop an integrated land management plan with the	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011 National Waste Management
needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed *Responsibility:* MNRE/ MAF/Villages* Implement village awareness and cleanup programme	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach Improve health and sanitation	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops Develop an integrated land management plan with the aim of reducing any	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011
needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed *Responsibility:* MNRE/ MAF/Villages* Implement village awareness and cleanup programme to reduce illegal	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops Develop an integrated land management plan with the	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011 National Waste Management
needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed *Responsibility:* MNRE/ MAF/Villages* Implement village awareness and cleanup programme to reduce illegal rubbish dumping	measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach Improve health and sanitation Reduce leachate	Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops Develop an integrated land management plan with the aim of reducing any unnecessary actions that	Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011 National Waste Management Strategy

	drainage cleanup and awareness programme Produce posters and village signs for public awareness Introduce ban on illegal rubbish dumping in district especially around fluvial hazard zones Conduct campaign for public awareness of district ban and establish a "neighbourhood watch" agreement with district to monitor and report on illegal dumping activities Government, district and villages to monitor, report and apply penalty on offenders Responsibility: MNRE/ District/	Reduce contaminant from overland flooding entering sea	Utilise Waste Management Act/Legislation to guide process of effecting the 'polluter pays' principle Develop and register District/Village bylaws to include penalizing illegal rubbish dumping in district lands Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes on waste management	Draft NESP 2017- 2021 Village Fono Act(Amendment Bill 2016)
Governance	Best Solutions	Benefits	the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes. Collaborate with Sui o Nuu to monitor the use of and impact on	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability of communities to adapt, respond and recover quickly in the long term Improve	Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021

natural resources	accountability	
	and enabling	
Facilitate continuous	environment of	
awareness raising	communities	
programs with the		
villages		
Responsibility:		
MWCSD /Village		

Fa'asalele'aga 3 District Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

Data Source: Ministry of Natural Resource and Environment, Samoa
Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

4.1 Sa'asa'ai Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	•	Relevant Sector Plans, National Strategies & Policies
Coastal protection for most vulnerable areas	Upgrade or strengthen existing seawalls in areas where road sits less than 5mtrs from	Improve infrastructure resilience and rate of recovery	Utilise Hazard map and Geomorphologist Drainage Infrastructure Database to inform design	CIM Strategy 2015 TSP2014-2019 Goal 2 KO 1
	the tsunami shore exclusion and immediate inundation zones as short term solution	Improve preparedness and readiness response to	Utilize the environmental and social safeguards including EIAs in screening and designing infrastructure	Community Sector Plan Vulnerability
	Where reclamations, sand mining or other major coastal works are proposed Government and village to manage processes by requiring villagers to get the appropriate permits and consent	natural disasters Reduce impact from coastal erosion and natural disasters Maintain lifeline access for all of Savaii	Include in budget programming CBA, design and construction. Benefit cost analysis to include appropriate design loads and engineering design and supervision costs on top of capital work estimates	Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA
	Responsibility: LTA/MWTI/ MNRE/ Villages/ Families	Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties, public and private assets	Designation of the CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions Strengthen monitoring and enforcement of Development Consent process to stop structures from being built in the defined overland flow paths	
Drainage systems require maintenance and upgrade in high risk areas	Upgrade drainage and culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendations Implement national standards for culverts and drains to facilitate	Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Minimises	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)"	CIM Strategy 2015 NISP2011 KESO 5
	the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance	Minimises national disaster recovery expenditure on damaged properties, public and private assets	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with	

Reticulated water supply, quality and network to be improved Reticulated water supply, quality and network to be improved Reticulated water supply, quality and network to be improved Reticulated water supply, quality and network to be improved Reticulated water supply, quality and network to be improved Reticulated water supply to families inland with no access to water supply to families inland with no access to water and the water supply to families inland with no access to water supply to families as a short term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MNRE, District / Villages / CSSP Reduce impact from inland flooding systems of looding systems of the building in the bui		Responsibility: LTA		affected communities	
Apply for necessary permits as required by law Utilities hazard maps and Geomorphologist Infrastructure Drainage Database to Inform designs				affected communities	
Reticulated water supply, quality and network to be improved Procure rainwater harvesting rainwater harvesting rainwater harvesting rainwater harvesting systems Procure rainwater harvesting systems Reduce contamination of water supply network to support all indiand families without access to drinking water supply and procurement of rainwater harvesting systems Procure rainwater rareas and before high rainwater harvesting systems Procure rain					
Reticulated water supply, quality and network to be improved Reticulated water supply, quality and network to be improved Procure rainwater harvesting systems for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MMRE/District/Villages / CSSP SSP SSP				Geomorphologist Infrastructure Drainage	
Reticulated water supply, quality and network to be improved Procure rainwater harvesting for vulnerable families as a short term solution and sanitation of water supply metwork to support all inland families without access to drinking water supply and procurement of rainwater harvesting systems EFKS Church hall, Pre-School and other village assets in high risk hazard zones when building /infrastructure requires replacement EFKS Church hall, Pre-School and other village assets in high risk hazard zones when building /infrastructure e requires replacement Mitigate potential damage from coastal erosion Mitigate potential damage from coastal erosion Mitigate potential damage from coastal erosion Utilize hazard maps and develop zonation strategy for saafe areas Mitigate potential damage from coastal erosion Utilize hazard maps and develop zonation strategy for saafe areas National Building Cid Strategy 2015 CIM Strategy 2015				Strategy and Flood Management Plan for	
supply, quality and network to be inland with no access to drace and rate of recovery for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MNRE/District /Villages / CSSP EFKS Church hall, Preschool and other village assets in high risk hazard zones EFKS Church hall, Preschool and other village assets in high risk hazard zones supply to families adaptation during drought periods to water to water to water the water infrastructure requires replacement adaptation during drought periods bylaws to include regulating developments around catchment areas and boreholes developments around catchment areas and boreholes in district of recovery for vulnerable and sanitation Improve infrastructure resilience and rate of recovery for water supply network to support all inland families without access to drinking water Reduce contamination of water supply boreholes in district Responsibility: SWA/MNRE/District /Village / District / Village / District				District/Village bylaws to include maintenance of drainages and illegal rubbish	
network to be inland with no access improved Improve					CIM Strategy 2015
Procure rainwater harvesting gainwater harvesting systems for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MNRE/ District /Villages / CSSP Reduce impact from inland flooding systems EFKS Church hall, Pre-School and other village assets in high risk hazard zones Relocate outside of hulding/infrastructure resilience and rate of recovery for vulnerable families as a short term solution Reduce contamination of water supply boreholes in district Reduce impact from inland flooding systems Reduce impact from inland Geomorphologist findings to inform location and design Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilizes us o Nu'u monthly meetings to monitor progress of village programs and responsibilities EFKS Church hall, Pre-School and other village assets in high risk hazard zones Mitigate potential damage from coastal erosion Willigate potential damage from coastal erosion Utilize hazard maps and Geomorphologist Drainage Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Utilize hazard maps and Geomorphologist Drainage Odd Odd Odd Odd Odd Odd Odd O	network to be	inland with no access	drought periods	bylaws to include regulating developments around	Water and Sanitation Sector Plan
harvesting rainwater harvesting systems for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/ MIRE/ District /Villages / CSSP Relocate outside of high risk hazard zones sisk hazard zones EFKS Church hall, Pre-School and other village assets in high risk hazard zones Relocate outside of building/infrastructure e requires replacement harvesting rainwater harvesting state of recovery rate of recovery rate of recovery for vulnerable families as a short term solution Reduce contamination of water supply network to support all inland families without access to drinking water contamination of water supply network to support all inland families without access to drinking water supply and procurement of rainwater harvesting systems Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for sasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Mitigate potential damage from coastal erosion District to support SWA (2016) Reduce contamination of water supply network to support all inland families without access to drinking water Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Mitigate potential damage from coastal erosion Mitigate potential damage from coastal erosion EFRS Church hall, Pre-Schola and other village assets in high risk hazard zones Mitigate potential damage from coastal erosion		Procure rainwater			SWA 10 Year
for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MNRE/District /Villages / CSSP EFKS Church hall, Pre-School and other village assets in high risk hazard zones For vulnerable families as a short term solution District to support SWA/MNRE/District /Villages / CSSP Reduce contamination of water supply boreholes in district Responsibility: SWA/MNRE/District /Villages / CSSP Reduce impact from inland flooding Reduce impact from inland flooding Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities EFKS Church hall, Pre-School and other village assets in high risk hazard zones when building/infrastructure or er equires replacement Mitigate potential damage from coastal erosion Mitigate potential damage from coastal erosion Village investment plan to improve water supply network to support all inland families without access to drinking water SWA/MNRE/District /Village Fono Act(Amendment Bill 2016) Village Fono Act(Amendment Bill 2016)					
term solution District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MNRE/ District / Villages / CSSP Reduce impact from inland flooding EFKS Church hall, Pre-School and other village assets in high risk hazard zones when building/infrastructure e requires replacement Reduce impact from inland flooding Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities EFKS Church hall, Pre-School and other village assets in high risk hazard zones when building/infrastructure e requires replacement Minimise expenditure on damaged properties & pressonal assets Mitigate potential damage from coastal erosion Mitigate potential damage from coastal erosion Reduce impact from inland extension costs of water supply and procurement of rainwater harvesting systems Village Fono Act(Amendment Bill 2016)		for vulnerable	-	10year investment plan to	, ,
District to support SWA efforts at exploratory boreholes in district Responsibility: SWA/MNRE/ District /Villages / CSSP Reduce contamination of water supply boreholes in district Responsibility: SWA/MNRE/ District /Villages / CSSP Reduce contamination of water supply boreholes in district Reduce impact from inland flooding Utilize Hazard Maps and responsibilities Reduce impact from inland flooding Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Reduce impact from inland extension costs of water supply and procurement of rainwater harvesting systems Utilize Sui o Nu'u monthly meetings to develop an Integrated Catchment and Flood Management Strategy for faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Mitigate potential damage from coastal erosion Willise hazard maps and Geomorphologist Drainage			•	network to support all	
Responsibility: SWA/MNRE/ District / Villages / CSSP Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities EFKS Church hall, Pre- School and other village assets in high risk hazard zones When building/infrastructur e requires replacement Mitigate potential damage from coastal erosion from inland flooding Supply and procurement of rainwater harvesting systems Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas CIM Strategy 2015		SWA efforts at exploratory	contamination of water supply	access to drinking water Include in budget programming design, and	Act(Amendment Bill
Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities EFKS Church hall, Pre-School and other village assets in high risk hazard zones when building/infrastructur e requires replacement Minimise expenditure on damaged properties & personal assets replacement Mitigate potential damage from coastal erosion Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Mitigate potential damage from coastal erosion Utilise hazard maps and Geomorphologist Drainage		SWA/ MNRE/ District /Villages /	from inland	supply and procurement of rainwater harvesting	
EFKS Church hall, Pre- School and other village assets in high risk hazard zones when building/infrastructur e requires replacement Minimise of village programs and responsibilities		CSSP		Geomorphologist findings to	
School and other village assets in high risk hazard zones when building/infrastructur e requires replacement replacement Mitigate potential damage from coastal erosion Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage				meetings to monitor progress of village programs and responsibilities	
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risk hazard zones building/infrastructur e requires replacement mitigate potential damage from coastal erosion building/infrastructur e requires properties & personal assets to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage					Lode
Mitigate potential damage from Utilise hazard maps and coastal erosion Geomorphologist Drainage		building/infrastructur e requires	properties &	Faasaleleaga 3 District. MNRE to develop zonation strategy	CIM Strategy 2015
Conduct awareness and flooding Infrastructure Database to			damage from coastal erosion	Utilise hazard maps and Geomorphologist Drainage	

	1			
	raising campaign on flood resilient building	accommodating the hazard	inform designs	
	practices and designs	viio iiudui u	Enforcement of National	
	for at risk	Improve recovery	Building Code 2017	
	communities living in	to create more	2 maing 3040 2017	
	and near high risk	resilient villages	Encourage insurance of	
	hazard zones	resilient villages	significant investments and	
	nazara zones	Improve	assets within hazard zones	
	Design infrastructure	preparedness	assets within hazara zones	
	to take into account	and readiness	Designation of the IFHZ,	
	the immediate hazard	response to	CEHZ and CFHZ as an "at	
	zones; for example,	natural disasters	risk" zone with appropriate	
	raise floor levels of		land use planning controls	
	houses in flood prone	Safer villages,	and restrictions	
	areas	houses and roads		
	Danielan landura			
	Develop land use			
	planning and			
	development controls to restrict			
	developments within			
	high risk hazard zones			
	such as CEHZ and CFHZ			
	Families and village to			
	limit building and			
	developing on natural			
	overland flow paths			
	exacerbating inland			
	flooding and storm			
	water surges			
	Responsibility:			
	Village / Families			
	/MWTI/ MNRE			
Natural Resource &	Best Solutions	Benefits	Guideline to assist with the	
Environment				National Strategies & Policies
				Policies
Village pool located in	Village pool is currently	Increase	Utilise Hazard Maps and	CIM Strategy 2015
high risk hazard zones	in a poor location with	adaptation	Geomorphologist findings for	_
(coastal erosion and	an assessment needed	during drought	planning purposes	Water and Sanitation
flooding from fluvial	for options to either	periods	MANDELIA C. C. C. C. C. C.	Sector Plan
inundation, wave	rejuvenate or find a new	Ţ 1 1.1	MNRE Water & Sanitation	Communiter
impacts and storm	site depending on the	Improve health	to conduct water testing	Community Engagement Plan
surges)	location of springs.	and sanitation	and analysis of village pool	Engagement Plan
	Test the quality of the	Doduce	prior to any intervention	Village Fono Act
	water source before any	Reduce	Undata Village bylavya ta	(Amendment Bill
	further investment on	contamination of	Update Village bylaws to	2016)
	the pool is undertaken (eg: fence/repair works)	water supply	include managing and maintaining village natural	2010)
	(eg. lence/repair works)		resources	
	Responsibility: CSSP/			
	NGOs/MNRE/Villages		Utilise Sui o Nu'u monthly	
			meetings to monitor progress	
			of village programmes and	
			responsibilities	

Soft coastal protection		Soft coastal	Develop an integrated land	Two Million Tree
measures needed for	along coastal areas to	protection	management plan for	Planting Strategy
most vulnerable areas	strengthen existing	measures will	Faasaleleaga 3 district with	2015-2020
	seawall and to reduce	support and	the aim of reducing any	
	coastal erosion and	strengthen	unnecessary actions that	Restoration
	landslips; Talie, Fetau,	existing and new	may adversely affect the	Operational Plan
	Toa, Togatogo are	infrastructure	natural habitats and	2016-2020
	known to have greater	along the coast	ecosystems of the area	
	resilience to natural			NESP 2017-2021
	disasters and changing	Reduce impact	MAF to assist in	
	climate conditions	from coastal	establishment of pilot sites to	
		erosion and	trial climate ready plant	
	To act as an effective	natural disasters	varieties	
	wave barrier, a			
	minimum distance of	Implements an	MNRE Forestry, DEC and	
	200m of vegetation is	Ecosystem Based	MAF to collaborate on	
	needed	Approach	supply of climate resilient	
		• •	crops	
	Responsibility: MNRE/		-	
	MAF/Villages	_		
Governance	Best Solutions	Benefits	Guideline to assist with the	
				National Strategies &
				Policies
Ct. tl. tl.	TT 1 / 1 /	Ct tl	D 1 1 1 1	77:11 E A .
Strengthen the	Update and/or	Strengthen	Develop and register	Village Fono Act
governance of	develop bylaws to	implementation	district/village bylaw to	(Amendment Bill
natural resources	manage the use of	of all national	protect all district/ village	2016)
and land use through		sector plans	and government assets,	
Bylaws	to control land use	C+	environment, livelihood and	Community Sector
	impacts; such as	Strengthen	food security especially	Plan
	drainage maintenance,	monitoring of all	activities affecting water	<i>c</i>
	rubbish dumping,	National Acts,	catchment areas and	Community
	sand mining, stray	Regulation,	coastline	Development Plan
	animals and	Strategies, Plans	Helt C : N / All	2016-2021
	unregulated	and Policies	Utilise Sui o Nu'u monthly	
	developments in	T 1:1: 0	meetings to monitor progress	
	water catchment	Improve ability of	of district/village bylaws	
	areas and near	communities to		
	boreholes.	adapt, respond		
	Collaborate with Sui o	and recover		
		quickly in the		
	Nuu to monitor the	long term		
	use of and impact on natural resources	Improvo		
	naturar resources	Improve accountability		
	Facilitate continuous	and enabling		
	awareness raising	environment of		
	programs with the	communities		
	villages	Communities		
	villages			
	Responsibility:			
	MWCSD /Village			
L	MV CSD / Village			



Sa'asa'ai Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

Data Source: Ministry of Natural Resource and Environment, Samoa Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

4.2 Saipipi Village Interventions

CIM Plan Solutions

CIM Plan Solui		-		_
Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant National, Sector Plans and Strategies
Village houses, Churches, School and private residences located in high risk hazard zones	Relocate outside of high risk hazard zones when building/infrastructure requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop land use planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families / MWTI/ MNRE/ MWCSD Upgrade drainage and	Minimise expenditure on damaged properties and personal assets Safer villages, houses and roads Increases awareness for insurance	Planning provisions to be guided by the Planning and Urban Management Act 2004 Enforcement of National Building Code 2017 Encourage insurance of significant investments and assets within hazard zones Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to determine safe areas for relocation purposes Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions	CIM Strategy 2015 Draft NESP 2017-2021 National Building Code
require maintenance and upgrade in high risk areas of main North South Coast	culverts in accordance with Vulnerability Assessment of the	resilience of infrastructure resilience and rate of response and	guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National	TSP2014-2019 Goal 2 KO 1

Road exacerbating flooding into village	Samoa Road Network recommendations	natural hazards	Road Standards in Samoa (2016)"; "Samoa Code of	Community Sector Plan
lands	Implement national standards for culverts	O	Environmental Practice (2007)"	
	and drains to facilitate the overland flow of storm water	families to relocate inland	Undertake a Cost Benefit Analysis to weigh options for funding	
	and reduce flooding Implement regular	Minimises national disaster recovery expenditure on	Incorporate environmental and social safeguards	
	drainage inspection and maintenance	damaged properties, public and private assets	concerns in the design and undertake consultations with	
	Responsibility: LTA /MWTI/MWCSD /Village/ Families	and private assets	Apply for necessary permits	
	/vinage/ rainines		as required by law	
			Utilise hazard maps and Geomorphologist Infrastructure Drainage	
			Database to inform designs	
			Develop Integrated Catchment Strategy and Flood	
			Management Plan for Faasaleleaga 3 District	
			Develop and register District/Village bylaws to	
			include maintenance of drainages and illegal rubbish dumping into waterways	
Access/ work roads	Upgrade roads to accommodate for	Improve	Utilise hazard maps and	CIM Strategy 2015
require maintenance and upgrade as it	inland flooding in accordance with	infrastructure resilience and	Geomorphologist Drainage Infrastructure Database to	NISP2011 KESO 5
exacerbates flooding	Vulnerability Assessment of the	rate of recovery	inform location and designs Develop an Integrated Flood	TSP2014-2019 Goal 2 KO 1
	Samoa Road Network	Improve preparedness and readiness	Management Plan for Faasaleleaga 3 District. MNRE	Community Sector
	Upgrade to include	response to natural disasters	to develop zonation strategy for safe areas	Plan
	adequate sized culverts to facilitate	Reduce impact	Develop an integrated land	
	the overland flow of storm water	from coastal erosion and	management plan with the aim of reducing any	
	exacerbating river	natural disasters	unnecessary actions that	
	overruns, and to reduce flooding onto main roads and village lands	Safer villages, houses and roads	may adversely affect the natural habitats and ecosystems of the area	
	Implement regular	Minimise national disaster recovery	Include in budget programming CBA, design	
	drainage inspection and maintenance	expenditure on damaged	and construction	
	Village to regulate	properties and public assets	Designation of the IFHZ, CEHZ and CFHZ as an "at	

Reticulated water supply, quality and network to be improved	developments near and around road shoulders of all access roads Enforce environmental safeguards where reclamations are proposed. Government and district to manage processes by requiring villagers to get the appropriate permits and consent *Responsibility: *LTA/MWTI/MNRE/District/Village/Families/CSSP** Extend the water supply to families inland with no access to water Procure rainwater harvesting systems for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district *Responsibility:SW* *A/MNRE/District/Village/CSSP**	Increase adaptation during drought periods Improve infrastructure resilience and rate of recovery Improve health and sanitation Reduce contamination of water supply Reduce impact from inland flooding	risk" zone with appropriate land use planning controls and restrictions Develop and register Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways Utilise Sui o Nu'u monthly meetings to monitor progress of village cleanup and awareness programmes Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes Implement SWA (2016)10year investment plan to improve water supply network to support all inland families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilise Hazard maps/models and Geomorphologist findings for planning purposes Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	CIM Strategy 2015 Water and Sanitation Sector Plan SWA 10 Year Investment Plan(2016) Community Engagement Plan Village Fono Act(Amendment Bill 2016)
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village pool located in high risk hazard zones	Village pool is currently in a poor	Increase adaptation during	Utilise Hazard Maps and Geomorphologist findings for	CIM Strategy 2015

(coastal erosion and flooding from fluvial	location with an assessment needed for	drought periods	planning purposes	Water and Sanitation Sector Plan
inundation, wave impacts and storm surges)	options to either rejuvenate or find a new site depending on the location of springs Test the quality of the	Improve health and sanitation Reduce contamination of water supply	MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention Update Village bylaws to	Community Engagement Plan
	water source before any further investment on the pool is undertaken (eg:	11 2	include managing and maintaining village natural resources	
	fence/repair works) Responsibility: CSSP/ NGOs/MNRE/Villages		Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	
Soft coastal protection measures needed for most vulnerable areas	along coastal areas to strengthen existing seawall and to reduce	Soft coastal protection measures will support and	Develop an integrated land management plan for Faasaleleaga 3 district with the aim of reducing any	Two Million Tree Planting Strategy 2015-2020
	coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural	strengthen existing and new infrastructure along the coast	unnecessary actions that may adversely affect the natural habitats and ecosystems of the area	Restoration Operational Plan 2016-2020 Forestry
	disasters and changing climate conditions To act as an effective	Reduce impact from coastal erosion and natural disasters	MAF to assist in establishment of pilot sites to trial climate ready plant varieties	Management Act 2011
	wave barrier, a minimum distance of 200m of vegetation is needed	Implements an Ecosystem Based Approach	MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops	
	Responsibility: MNRE/ MAF/Villages		•	
Catchment Areas	Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control	Sustains ecosystem services and functions	Develop an integrated land management plan with the aim of reducing any unnecessary actions that	Forestry for Sustainable Development Policy
	and regulate developments around the upland forest area	Reduce contamination of water supply	may adversely affect the natural habitats and ecosystems of the area	CIM Strategy 2015 Water and Sanitation Sector
	Regulate developments around catchment area, SWA intake and boreholes	Reduce impact from inland flooding	Develop and register District/Village bylaws to include penalizing illegal deforestation in district	Plan SWA 10 Year Investment
	in district Limit land clearance and agricultural development around	Improve preparedness and readiness response to natural disasters	lands Utilise Sui o Nu'u monthly meetings to monitor progress of district/village	Plan(2016) Community Engagement Plan
	SWA intake and boreholes	Safer villages, houses and roads	forestry programmes	
	Conduct campaign for public awareness and			

District upland forest	establish a "neighbourhood watch" agreement with district to monitor and report on illegal deforestation District and Village to support SWA water rationing programmes during times of drought District to support SWA efforts at exploratory intakes and boreholes in district Responsibility:MNR E/SWA/MWCSD/ District/Village/CSS P Adopt agro-forestry and community tree farming practices instead of clear felling as is practiced at present Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Fence domestic animals to protect young trees District/Village to help promote the development of the agro forestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes	Protects and enhance local species diversity	Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area	Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016-2020
	disputes Responsibility: MNRE/Village			
Wetland restoration and protection	Continue ban of destructive fishing practices including sand mining and	Maintains natural ecosystem connectivity	Develop an integrated land management plan with the aim of reducing any unnecessary actions that	NESP 2017-2021 Community Sector Plan

	on rubbish dumping in wetland and coastal areas Limit land clearance and agricultural developments around wetland areas Fence domestic animals to reduce contamination in wetlands Enforce Watershed Management Riparian Zone and regulate developments around the wetlands Conduct regular inspections of the swamp/wetland vegetation to monitor health of vegetation Increase buffer distance between wetland and sea to reduce potential for saltwater inundation Responsibility:MNRE/Village/MWCSD	Reduce overland flooding from river channels	natural habitats and ecosystems of the area MNRE Forestry to advice on appropriate species, depth and density of planting and provide seedlings for different vegetation types suitable to the habitats (coastal lowlands) and planting materials for village	
Marine Reserve and inshore fishery resources	Collect and dispose of crown-of-thorns (alamea) on a regular basis to prevent major outbreaks Continue to ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods including sand mining and extraction Enforce village bylaws on ban on rubbish dumping in coastal areas	Protect coral reefs and inshore fisheries Protect marine biodiversity Protects and enhance local species diversity Sustains ecosystem services and functions	MAF Fisheries to support implementation and provide technical backstopping and monitoring Develop Village Bylaws to include management of natural resources (spring pools, marine reserve, forest etc)	Agriculture Sector Plan 2016-2021

Sand mining (commercial) and	Responsibility: Village/MAF Identify alternative sustainable sources of sand for commercial	-	MNRE to continue to identify specific sites for inchero (inland quetainable)	Draft Soil Resource Management Bill
sand extraction (domestic)	sand for commercial and domestic use District and government to collaborate closely on designated areas for sand mining District and government to continue to collaborate closely on issuance of permits for sand mining/extraction Raise awareness and support of sustainable land use practices Research on the impacts of sand mining Village consultation on sand mining policy and regulation Responsibility: MNRE/ Village/Families	Safer villages, houses and roads Reduce impact from coastal erosion Economic benefit for village from sustainable sand mining activities	inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks Undertake assessments of identified sites Undertake consultation with villages affected by proposed sand/rock mining Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers	
Livelihood and Food Security	Best Solutions	Benefits	implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species	Implement an eradication programme to eradicate, contain or exclude invasive species Replant with climate resilient native species Implement an inventory of invasive species and include information on their past, present and potential future	Maintains natural ecosystem Builds resilience of community livelihood and food security Reduce forest loss and land clearance	Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management MAF to assist in establishment of pilot sites to trial climate ready plant varieties	Agriculture Sector Plan 2016-2021 Draft NESP 2017- 2021 Samoa's National Invasive Species Action Plan (NISAP)

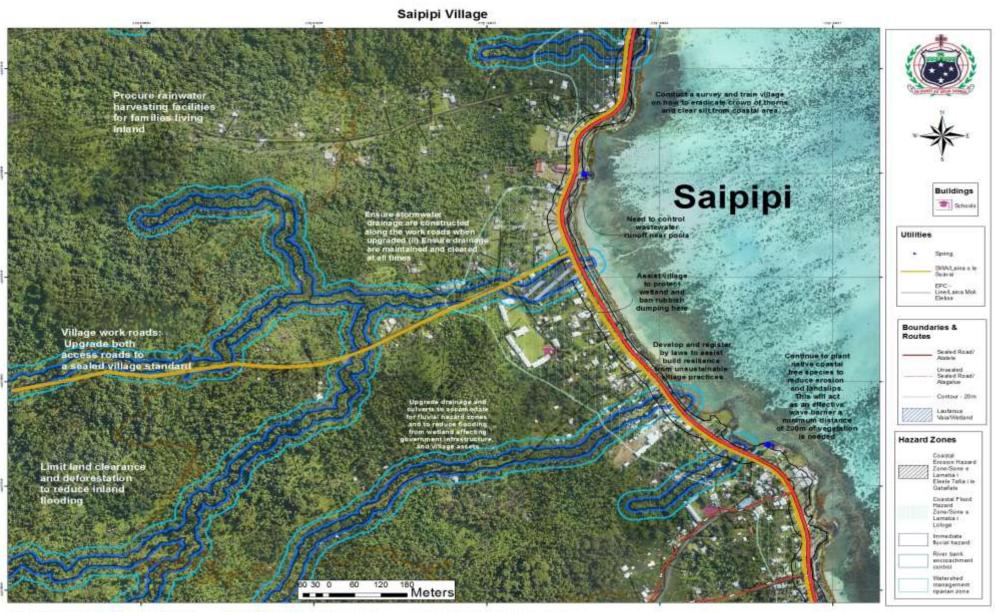
		T		<u> </u>
	distribution, as well as			
	impacts and possible		MNRE Forestry, DEC and	
	actions that can be		MAF to collaborate on	
	taken		supply of climate resilient	
			crops	
	Conduct education		-	
	and awareness		MNRE, MAF and SROS to	
	programmes on the		implement aggressive,	
	impacts of invasive		nationwide invasive species	
	species		eradication programme	
	Species		based on inventory of	
	Implement the		invasive species and conduct	
	Integrated Pest		campaign on public	
	Management		awareness accordingly	
	_		awareness accordingly	
	Programme		Villaga ta managa nig/aattla	
	T 1		Village to manage pig/cattle	
	Implement		population (compounds, in	
	Sustainable Land		particular around water	
	Management (SLM)		supplies)	
	practices		_	
			Training for farmers on	
	Build the capacity of		pests management	
	farmers to manage		particularly affecting fruit	
	stray animals (pigs,		trees and crops	
	cattle) that are			
	contaminating water			
	sources			
	Conduct pilot site			
	trials for climate			
	ready plant varieties			
	ready plant varieties			
	District to fence			
	domestic animals			
	domestic ammais			
	D			
	Responsibility:			
	Villages /District/			
	MNRE/MAF/ SROS			
Food security:	Promote and	Maintains natural	MAF to provide trainings,	AgricultureSectorPla
threatened by changes		ecosystem	awareness raising and	n2016-2021
in climate and	root		support in supply of nursery	
inadequate soil for	crops(i.eyams,sweet	Builds resilience of	trees, technology and	Community
planting	potato) which are	community	infrastructure	Engagement Plan
	more resilient to	livelihood and		
	cyclones, droughts	food security	MAF to provide trainings	Two Million Tree
	and floods		and awareness on crop	Strategy 2015-2020
		Improve	diversification to suit the	
		preparedness and	prolonged impacts of climate	Restoration
		readiness	change such as drought or	Operational Plan
	Implement the	response to	rainy seasons	2016-2020
	Integrated Pest	natural disasters		
	Management		MAF to assist in	
	Programme		establishment of pilot sites	
	i i ogi aillille		to trial climate ready plant	
	Imploment		varieties	
	Implement		varieties	
	Sustainable Land		Develop an integrated land	
	Management (SLM)			
	practices		management plan with the	

Governance	Conduct pilot site trials for climate ready plant varieties Responsibility: MAF/ MNRE/villages/CSSP Best Solutions	Benefits	aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes. Collaborate with Sui o Nuu to monitor the use of and impact on natural resources Facilitate continuous awareness raising programs with the villages Responsibility: MWCSD /Village	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability of communities to adapt, respond and recover quickly in the long term Improve accountability and enabling environment of communities	Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021





Saipipi Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

Data Source: Ministry of Natural Resource and Environment, Samoa Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

4.3 Salimu/Malae Village Interventions

CIM Plan Solutions

CIM Plan Soil				
Infrastructure	Best Solutions	Benefits	the implementation	Relevant National, Sector Plans and Strategies
Village houses,	Relocate outside of	Minimise	Develop an Integrated	National Building
				_
school, churches,	high risk hazard	expenditure on	Catchment and Flood	Code
government and	zones when	damaged	Management Strategy for	
other village assets	building/infrastruct	properties &	Faasaleleaga 3 District.	CIM Strategy 2015
in high risk hazard	ure requires	personal assets	MNRE to develop zonation	
zones	replacement		strategy for safe areas	
		Mitigate		
		potential	Utilise hazard maps and	
	Conduct awareness	damage from	Geomorphologist Drainage	
	raising campaign	coastal erosion	Infrastructure Database to	
	on flood resilient	and flooding	inform designs	
	building practices	accommodating	J	
	and designs for at	the hazard	Enforcement of National	
	risk communities		Building Code 2017	
	living in and near	Improve		
	high risk hazard	recovery to	Encourage insurance of	
	zones	create more	significant investments and	
	Zones	resilient villages	assets within hazard zones	
	Design	resilient villages	assets within hazard zones	
	infrastructure to	Improvo	Designation of the IEU7	
		Improve	Designation of the IFHZ, CEHZ and CFHZ as an "at	
	take into account	preparedness		
	the immediate	and readiness	risk" zone with	
	hazard zones; for	response to	appropriate land use	
	example, raise floor	natural disasters	planning controls and	
	levels of houses in		restrictions	
	flood prone areas	Safer villages,		
		houses and roads		
	Develop land use			
	planning and			
	development			
	controls to restrict			
	developments			
	within high risk			
	hazard zones such as			
	CEHZ and CFHZ			
	Families and village			
	to limit building			
	and developing on			
	natural overland			
	flow paths			
	exacerbating inland			
	flooding and storm			
	water surges			
	water surges			
				1

	Responsibility: Village / Families /MWTI/ MNRE			
Drainage systems require maintenance and upgrade in high risk areas	Upgrade drainage and culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendations Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance Responsibility: LTA /MWTI/MWCSD /Village/ Families	Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Encourages coastal families to relocate inland Minimises national disaster recovery expenditure on damaged properties, public and private assets	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)" Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 3 District Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways	CIM Strategy 2015 NISP2011 KESO 5 Community Sector Plan

Access / work roads	1	Improves	Use existing information	CIM Strategy
require	access roads in	climate	for guidance but not	2015Review of
maintenance and	accordance with	resilience of	limited to:	National Road
upgrade as it	Vulnerability	infrastructure	"Vulnerability	standards in Samoa
exacerbates flooding	Assessment of the Samoa Road	resilience and rate of response	Assessment of the Samoa Road Network (2017)";	(2016) MWTI
noounig	Network	and recovery to	"Review of National Road	TSP2014-2019
	recommendations	natural hazards	Standards in Samoa	Goal 2 KO 1
		and disasters	(2016)"; "Samoa Code of	
	Implement regular		Environmental Practice	Community Sector
	drainage inspection		(2007)"	Plan
	and maintenance	coastal families to	Undoutales a Coat Donofit	
	X7:11	relocate inland	Undertake a Cost Benefit Analysis to weigh options	
	Village to restrict	Minimiana	for funding	
	rubbish dumping into waterways and	Minimises national disaster	Tor running	
	conduct regular	recovery	Incorporate	
	clearance of rubbish		environmental and social	
	behind homes	damaged	safeguards concerns in	
		properties,	the design and undertake consultations with	
	Village to regulate	public and	affected communities	
	developments near	private assets	ancecca communicies	
	and around road shoulders of all		Apply for necessary	
	access roads		permits as required by	
	access roads		law	
	Responsibility: LTA/MWTI/		Utilise hazard maps and Geomorphologist Infrastructure Drainage	
	MNRE/ District/		Database to inform designs	
			Develop Integrated	
			Catchment Strategy and	
			Flood Management Plan	
			for Faasaleleaga 3 District	
			Develop and register	
			District/Village bylaws	
			to include maintenance	
			of drainages and illegal	
			rubbish dumping into waterways	
Electricity supply		Maintain	Monitor distribution	EPC Strategic Plan
	Install and connect	electricity	networks to avoid	
	power supply for	supply at all	overloading poles and	
	inland residents	times including	contributing to line	
		natural	failures	
		disasters		
	Install streetlights	Avoid accidents		
	along the roads	from fallen		
	where needed for	electricity posts		

	community safety			
	Install and connect to solar power supply if made available			
	Families to limit building and developments near electricity posts			
	Responsibility:E PC/ MWTI/ Village/ Families			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	Village pool is currently in a poor state with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs. Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works) Responsibility: CSSP/NGOS/MNRE/Villag es	Increase adaptation during drought periods Improve health and sanitation Reduce contamination of water supply	Utilise Hazard Maps and Geomorphologist findings for planning purposes MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention Update Village bylaws to include managing and maintaining village natural resources Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	CIM Strategy 2015 Water and Sanitation Sector Plan Community Engagement Plan Village Fono Act (Amendment Bill 2016)
Soft coastal protection measures needed for most vulnerable areas	Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast	Develop an integrated land management plan for Faasaleleaga 3 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites	Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011

Livelihood and Food Security	conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages Best Solutions	erosion and natural disasters Implements an Ecosystem Based Approach Benefits	the implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species	Implement an eradication programme to eradicate, contain or exclude invasive species Replant with climate resilient native species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices	Maintains natural ecosystem Builds resilience of community livelihood and food security Reduce forest loss and land clearance	Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly Village to manage pig/cattle population (compounds, in particular around water supplies) Training for farmers on	Agriculture Sector Plan 2016-2021 Draft NESP 2017-2021 Samoa's National Invasive Species Action Plan (NISAP)

	Build the capacity of		pests management	
	farmers to manage		particularly affecting	
	stray animals (pigs,		fruit trees and crops	
			if the trees and crops	
	cattle) that are			
	contaminating water sources			
	Sources			
	Conduct pilot site			
	trials for climate			
	ready plant			
	varieties			
	, un 100100			
	District to fence			
	domestic animals			
	Responsibility:			
	Villages /District/			
	MNRE/MAF/ SROS			
Food security:	Establish local	Improve health	Agriculture sector to	AgricultureSector
threatened by	market stall to sell	through access	provide best practice	Plan2016-2021
changes in climate	produce from agro	to clean water	management guidelines for	
and inadequate soil	forestry & mixed	and waste	the management of water	
for planting	planting project	management	that allows for levels of	
			contamination to be kept	
	Promote and	Improve	to minimum	
	facilitate planting	recovery to	MAE to provide trainings	
	of root crops	create more	MAF to provide trainings,	
	(i.eyams,sweet	resilient villages	awareness raising and	
	potato which are	_	support in supply of	
	more resilient to	Improve	nursery trees, technology and infrastructure to have	
	cyclones, droughts	preparedness	a sustainable mechanism	
	and floods	and readiness	for replanting	
	Duamata agua	response to	ioi replanting	
	Promote agro- forestry and mixed	natural disasters	MAF to provide trainings	
	_		and awareness on crop	
	planting including		diversification to suit the	
	fruit trees species		prolonged impacts of	
	to reduce crop vulnerability to		climate change such as	
			drought or rainy seasons	
	pests and diseases.		2 3 - 2 - 3 - 2 - 3 - 3 - 3 - 3 - 3 -	
	Encourage organic		MAF to assist in	
	farming and mixed		establishment of pilot	
	planting system to		sites to trial climate ready	
	promote ecological		plant varieties	
	stability and soil		-	
	protection		MAF to provide technical	
	r		advice, seedlings and	
	Conduct pilot site		planting material for	
	trials for climate		village and families as a	
	ready plant		trial	
	varieties			
	Implement			

Governance	Sustainable land management (SLM) practices Responsibility: MAF /villages/MNRE Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes. Collaborate with Sui o Nuu to monitor the use of and impact on natural resources Facilitate continuous awareness raising programs with the villages Responsibility: MWCSD /Village	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability of communities to adapt, respond and recover quickly in the long term Improve accountability and enabling environment of communities	Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021

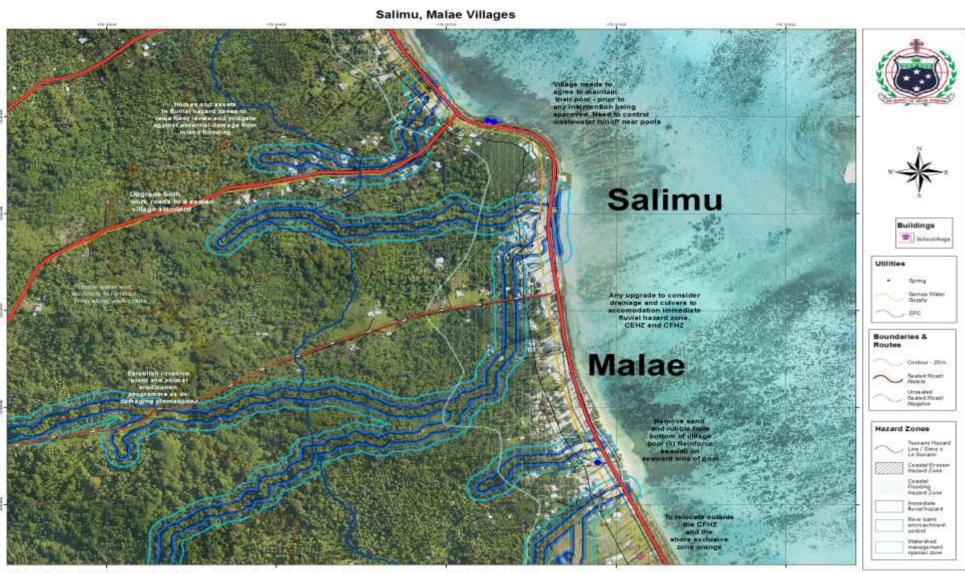








Salimu/Malae Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984 Units: Degree

Data Source: Ministry of Natural Resource and Environment, Samoa
Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

4.4 Sapini/Lu'ua Village Intervention

CIM Plan Solutions

Best Solutions	Benefits	Guideline to assist with the	
			Sector Plans and Strategies
Relocate outside of high risk hazard zones when building/infrastructure requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop land use planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from coastal erosion and flooding accommodating the hazard Improve recovery to create more resilient villages Improve preparedness and readiness response to natural disasters Safer villages, houses and roads	Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs Enforcement of National Building Code 2017 Encourage insurance of significant investments and assets within hazard zones Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions	National Building Code CIM Strategy 2015
/MWTI/ MNRE Upgrade drainage and	Improves climate	Use existing information for	CIM Strategy 2015
culverts in accordance with Vulnerability Assessment of the Samoa Road Network	resilience of infrastructure resilience and rate of response and	guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network	TSP2014-2019 Goal 2 KO 1
	Relocate outside of high risk hazard zones when building/infrastructure requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop land use planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families / MWTI / MNRE Upgrade drainage and culverts in accordance with Vulnerability	Relocate outside of high risk hazard zones when building/infrastructure e requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop land use planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families / MWTI/ MNRE Upgrade drainage and culverts in accordance with Vulnerability Minimise expenditure on damaged properties & personal assets Mitigate potential damage from coastal erosion and flooding accommodating the hazard Improve recovery to create more resilient villages response to natural disasters Safer villages, houses and roads Safer villages, houses and roads Improve preparedness and readiness response to natural disasters Safer villages, houses and roads Improve preparedness and readiness response to natural disasters Improve preparedness and readiness response to natural disasters	Relocate outside of high risk hazard zones when building/infrastructure requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure the immediate hazard zones; for example, raise flood revels of houses in flood prone areas Develop land use planning and developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and developing on natural overland flow paths exacerbating inland flooding and storm water surges Mitigate potential damage from coastal erosion and flooding and flooding and storm water surges Mitigate potential damage from coastal erosion and flooding and flooding and storm water surges Mitigate potential damage made coexious damagement Strategy for Fasaaleleaga 3 District. MRRE to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage Improve recovery to create more resilient villages significant investments and assets within hazard zones preparedness and readiness response to natural disasters shouses and roads Develop land use planning and developments within high risk hazard zones such as CEHZ and CFHZ families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families MWTI/ MNRE Upgrade drainage and culverts in a coordance with Vulnerability improve preparedness and readiness response to natural disasters and readiness. The planning controls and readiness are surged and readiness response to natural disasters and readiness. The planting formation for guidance but not limited to: "Vulnerability Assessment of the provided pro

Road especially at junctions with access roads	recommendations Implement national	recovery to natural hazards and disasters	Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice	Community Sector Plan
	standards for culverts and drains to facilitate	Minimises national	(2007)"	
	the overland flow of storm water and reduce flooding	disaster recovery expenditure on damaged properties, public	Undertake a Cost Benefit Analysis to weigh options for funding	
	Implement regular drainage inspection and maintenance	and private assets	Incorporate environmental and social safeguards concerns in the design and	
	Responsibility: LTA /MWTI/MWCSD		undertake consultations with affected communities	
	/Village/ Families		Apply for necessary permits as required by law	
			Utilise hazard maps and Geomorphologist Infrastructure Drainage	
			Database to inform designs Develop Integrated Catchment	
			Strategy and Flood Management Plan for Faasaleleaga 3 District	
			Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish	
			dumping into waterways	
Access / work roads require maintenance	Upgrade approved access roads in accordance with	Improves climate resilience of infrastructure	Use existing information for guidance but not limited to:	CIM Strategy 2015Review of National Road
and upgrade as it exacerbates flooding	Vulnerability Assessment of the	resilience and rate of response and	"Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National	standards in Samoa (2016) MWTI
	Samoa Road Network recommendations	recovery to natural hazards and disasters	Road Standards in Samoa (2016)"; "Samoa Code of	TSP2014-2019 Goal 2 KO 1
	Implement regular drainage inspection and maintenance	Encourages coastal families to relocate	Environmental Practice (2007)"	Community Sector Plan
	Village to restrict rubbish dumping into	inland Minimises national	Undertake a Cost Benefit Analysis to weigh options for funding	
	waterways and conduct regular clearance of rubbish	disaster recovery expenditure on damaged	Incorporate environmental and social safeguards	
	behind homes Village to regulate	properties, public and private assets	concerns in the design and undertake consultations with affected communities	
	developments near and around road shoulders of all access		Apply for necessary permits as required by law	
	roads		Utilise hazard maps and Geomorphologist	

		1	T. C	1
	Responsibility: LTA/		Infrastructure Drainage	
	MWTI/MNRE/ District/		Database to inform designs	
	District/		Develop Integrated Catchment	
			Strategy and Flood	
			Management Plan for	
			Faasaleleaga 3 District	
			S	
			Develop and register	
			District/Village bylaws to	
			include maintenance of	
			drainages and illegal	
			rubbish dumping into waterways	
Evacuation Shelter	Assess and/or select	Improve resilience	Enforcement of National	National Disaster
and a connected	location for either an	of public	Building Code 2017	Management Plan
escape route needed	existing or new	infrastructure	8	2017-2021
for emergency	evacuation shelter,	iiii asti ucture	Utilise hazard maps and	National Building
preparedness and	including safe access	Improve	Geomorphologist findings to	Code
response	routes to the shelter	preparedness	inform location and designs	Matianal D. P. C
		and readiness		National Policy for People with
	Conduct evacuationshelterasse	response to natural		Disabilities
	ssment and mark on	disasters		Disabilities
	CIM Plan hazard maps			
	Cita i ian nazara maps			
	Conduct trainings for			
	People With			
	Disabilities (PWDs) on			
	emergency and disaster response			
	strategies			
	Strategres			
	Implement CDCRM			
	program			
	Install relevant signs to			
	guide the community			
	on emergency response procedures and to			
	locations of evacuation			
	shelters			
	Where no suitable			
	houses exist, build			
	emergency shelter(s)			
	outside the hazard zones			
	Retrofit identified and			
	approved schools or			
	churches outside			
	hazard zones and			
	designate as			
	evacuation shelter			

	Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	Village pools are currently in a poor location/state with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs. Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works) Responsibility: CSSP/ NGOS/MNRE/Villages	Increase adaptation during drought periods Improve health and sanitation Reduce contamination of water supply	Utilise Hazard Maps and Geomorphologist findings for planning purposes MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention Update Village bylaws to include managing and maintaining village natural resources Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	CIM Strategy 2015 Water and Sanitation Sector Plan Community Engagement Plan Village Fono Act (Amendment Bill 2016)
Soft coastal protection measures needed for most vulnerable areas	Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/MAF/Villages	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops	Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Forestry Management Act 2011
Marine Protected Area and inshore fishery resources	Village to restock marine reserve with suitable species Collect and dispose of crown-of-thorns (alamea) on a regular	Protect coral reefs and inshore fisheries Protect marine biodiversity	MAF Fisheries to support implementation and provide technical backstopping and monitoring Develop Village Bylaws to include management of	Agriculture Sector Plan 2016-2021 Community Engagement Plan

	basis to prevent major outbreaks Continue to ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods including sand mining and extraction Enforce village bylaws on ban on rubbish dumping in coastal areas Responsibility: Village/ MAF/ CSSP	Protects and enhance local species diversity Sustains ecosystem services and functions	natural resources (spring pools, marine reserve, forest etc)	
Livelihood and Food Security	Best Solutions	Benefits	•	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species	Implement an eradication programme to eradicate, contain or exclude invasive species Replant with climate resilient native species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices	Maintains natural ecosystem Builds resilience of community livelihood and food security Reduce forest loss and land clearance	Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management MAF to assist in establishment of pilot sites to trial climate ready plant varieties MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly Village to manage pig/cattle population (compounds, in particular around water supplies)	Agriculture Sector Plan 2016-2021 Draft NESP 2017- 2021 Samoa's National Invasive Species Action Plan (NISAP)

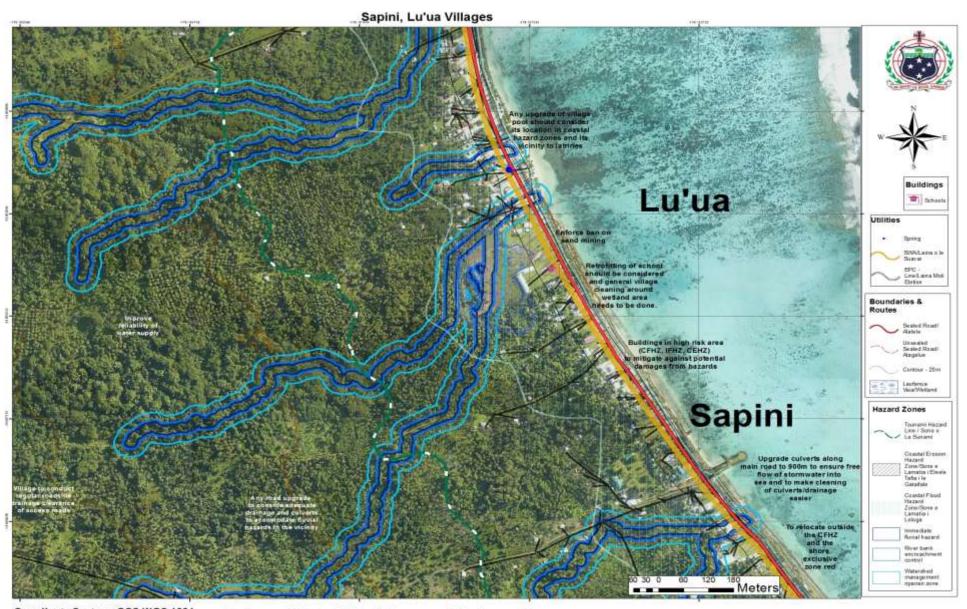
governance of natural resources and land use through Bylaws	develop bylaws to manage the use of natural resources, and to control land use	implementation of all national sector	district/village bylaw to protect all district/ village and government assets, environment, livelihood and	(Amendment Bill 2016)
Governance Strengthen the	Best Solutions Update and/or	Benefits Strengthen	Guideline to assist with the implementation Develop and register	Relevant Sector Plans, National Strategies & Policies Village Fono Act
Food security: threatened by changes in climate and inadequate soil for planting	contaminating water sources Conduct pilot site trials for climate ready plant varieties District to fence domestic animals Responsibility: Villages / District / MNRE/MAF / SROS Promote and facilitate planting of root crops (i.eyams, sweet potato which are more resilient to cyclones, droughts and floods Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases. Encourage organic farming and mixed planting system to promote ecological stability and soil protection Conduct pilot site trials for climate ready plant varieties Implement Sustainable land management (SLM) practices Responsibility: MAF / villages / MNRE	Improve health through access to clean water and waste management Improve recovery to create more resilient villages Improve preparedness and readiness response to natural disasters	Agriculture sector to provide best practice management guidelines for the management of water that allows for levels of contamination to be kept to minimum MAF to provide trainings, awareness raising and support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons MAF to assist in establishment of pilot sites to trial climate ready plant varieties MAF to provide technical advice, seedlings and planting material for village and families as a trial	
	farmers to manage stray animals (pigs, cattle) that are		Training for farmers on pests management particularly affecting fruit	

im	npacts; such as	Strengthen	food security especially	Sector Plan
dr	rainage maintenance,	monitoring of all	activities affecting water	
ru	ıbbish dumping,	National Acts,	catchment areas and	Community
sa	and mining, stray	Regulation,	coastline	Development Plan
an	nimals and	Strategies, Plans		2016-2021
un	nregulated	and Policies	Utilise Sui o Nu'u monthly	
de	evelopments in		meetings to monitor progress	
Wa	ater catchment	Improve ability of	of district/village bylaws	
are	eas and near	communities to		
bo	oreholes.	adapt, respond		
		and recover		
Col	ollaborate with Sui o	quickly in the long		
Nu	uu to monitor the	term		
	se of and impact on			
nat	itural resources	Improve		
		accountability and		
Fa	acilitate continuous	enabling		
aw	wareness raising	environment of		
pr	rograms with the	communities		
vil	llages			
	esponsibility:			
M	WCSD /Village			





Sapini/Lu'ua Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Datum: WGS 1984 Units: Degree Data Source: Ministry of Natural Resource and Environment, Samoa

Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

4.5 Siufaga Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits		Relevant National,
			-	Sector Plans and Strategies
Village houses, Churches, tourist facilities and other village assets located in high risk hazard zones	Relocate outside of high risk hazard zones when building/infras tructure requires replacement Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop land use planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and	Minimise expenditure on damaged properties and personal assets Safer villages, houses and roads Increases awareness for insurance	Planning provisions to be guided by the Planning and Urban Management Act 2004 Enforcement of National Building Code 2017 Encourage insurance of significant investments and assets within hazard zones Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to determine safe areas for relocation purposes Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions	CIM Strategy 2015 Draft NESP 2017-2021 National Building Code

building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families / MWTI/ MNRE/ MWCSD Drainage systems require maintenance drainage and resilience of resilience of resilience but not					
and upgrade in high risk areas of main road where it meets with access roads Assessment of the Samoa Road Network recommendati ons Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance Responsibility: LTA /MWTI/MWCS D /Village/Families Instance access of main road with with with access of main road with with access of main road with with with access roads Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Responsibility: LTA /MWTI/MWCS D /Village/Families Instance of response and recovery to natural hazards and disasters relocate inland Implement regular drainage inspection and maintenance Responsibility: LTA /MWTI/MWCS D J /Village/Families Instance of response and recovery to natural hazards and recovery to natural hazards and disasters relocate inland Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance Responsibility: LTA /MWTI/MWCS D J /Village/Families Instance of response and recovery to natural hazards and disasters for all of Upolu Indertake a Cost Benefit Analysis to weigh options for funding concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into	require maintenance and upgrade in high risk areas of main road where it meets with	developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families / MWTI / MNRE / MWCSD Upgrade drainage and culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendati ons Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance Responsibility: LTA / MWTI / MWCS D / Village /	resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Encourages coastal families to relocate inland Maintains lifeline access for all of Upolu Minimises national disaster recovery expenditure on damaged properties, public	for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)" Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District Develop and register District/Village bylaws to include maintenance of drainages and illegal	Community Sector

			waterwaye	
	****		waterways	ant a
Upgrade access/ work roads to facilitate relocation of houses away from hazard zones and as an emergency access route for Tuasivi Hospital ambulance	Village to resolve land issues Implement regular drainage inspection and maintenance Responsibility: LTA/ MWTI/ MNRE/ District	Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Minimises national disaster recovery expenditure on damaged properties, public and private assets	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)" Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs	CIM Strategy 2015 National Disaster Management Plan 2017-2021 Community Sector Plan
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter Conduct evacuation shelter assessment and mark on CIM Plan hazard maps Develop a Village Climate Disaster Management Plan (VCDMP)	Improve resilience of public infrastructure Improve preparedness and readiness response to natural disasters	Enforcement of National Building Code 2017 Utilise hazard maps and Geomorphologist findings to inform location and designs	National Disaster Management Plan 2017-2021 National Building Code National Policy for People with Disabilities

Conduct	
trainings for	
People With	
Disabilities	
(PWDs) on	
emergency and	
disaster	
response	
strategies	
Implement	
CDCRM	
program	
k- 20. mm	
Install relevant	
signs to guide	
the community	
on emergency	
response	
procedures and	
to locations of	
evacuation	
shelters	
Where no	
suitable houses	
exist, build	
emergency	
shelter(s)	
outside the	
hazard zones	
Retrofit	
identified and	
approved	
schools or	
churches	
outside hazard	
zones and	
designate as	
evacuation	
shelter	
Posponsibility	
Responsibility	
: MNRE	
/DMO/	
/ DATE //	
MWTI/Village	
/CSSP/Council	
of	
Churches/MW	
CSD	
502	

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Reticulated water	Extend the	Increase	Develop/Update and	CIM Strategy 2015
supply, quality and network to be	water supply to families inland	adaptation during	register District/Village bylaws to include	Water and
improved	with no access	drought periods	regulating developments	Sanitation Sector
Improveu	to water	Improve	around catchment areas	Plan
	to water	infrastructure	and boreholes	1 Idii
	Procure	resilience and	and borenoies	SWA 10 Year
	rainwater	rate of recovery	Implement SWA (2016)	Investment
	harvesting	, and the second se	10 year investment plan to	Plan(2016)
	rainwater	Improve health	improve water supply	
	harvesting	and sanitation	network to support all	Community
	systems for		inland families without	Engagement Plan
	vulnerable	Reduce	access to drinking water	
	families as a	contamination	Include in hudget	
	short term solution	of water supply	Include in budget programming design, and	
	Solution	Reduce impact	extension costs of water	
	District and	from inland	supply and procurement of	
	villages to	flooding	rainwater harvesting	
	support SWA	8	systems	
	water		•	
	rationing		Utilize Hazard Maps and	
	programs		Geomorphologist findings to	
	during times of		inform location and design	
	drought		Utilize Sui o Nu'u monthly	
	District to		meetings to monitor	
	support SWA		progress of village programs	
	efforts at		and responsibilities	
	exploratory			
	boreholes in			
	district			
	Responsibilit			
	y: SWA			
	/MNRE/			
	District /Villages/			
	CSSP			
	0001			
Natural Resources	Best Solutions	Benefits	Guideline to assist with	Relevant Sector
and Environment	Dest Solutions	Delicitio	the implementation	Plans, National
				Strategies &
				Policies
Soft coastal protection	Plant native	Soft coastal	Develop an integrated land	Two Million Tree
measures needed for	species along	protection	management plan for	Planting Strategy
most vulnerable areas	coastal areas to	measures will	Faasaleleaga 2 district with	2015-2020
	strengthen	support and	the aim of reducing any	D
	existing seawall	strengthen	unnecessary actions that	Restoration
	and to reduce coastal erosion	existing and new infrastructure	may adversely affect the natural habitats and	Operational Plan 2016-2020
	and landslips;	along the coast	ecosystems of the area	4010 - 4040
	Talie, Fetau,	along the toast	ccosystems of the area	Forestry
	Toa, Togatogo	Reduce impact	MAF to assist in	Management Act
	are known to	from coastal	establishment of pilot sites	2011
				-

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	have greater	erosion and	to trial climate ready plant	
	resilience to	natural disasters	varieties	
	natural		10/22	
	disasters and	Implements an	MNRE Forestry, DEC and	
	changing	Ecosystem Based	MAF to collaborate on	
	climate	Approach	supply of climate resilient	
	conditions		crops	
	To act as an			
	effective wave			
	barrier, a			
	minimum			
	distance of			
	200m of			
	vegetation is			
	needed			
	Responsibility:			
	MNRE/			
	MAF/Villages			
Marine Protected Area	Villago to	Protect coral	MAF Fisheries to support	Agriculture Sector
and inshore fishery	restock marine	reefs and inshore	implementation and	Plan 2016-2021
resources	reserve with	fisheries	provide technical	Flaii 2010-2021
resources	suitable species	Histieries	backstopping and	Community
	suitable species	Protect marine	monitoring	Engagement Plan
	Collect and	biodiversity		88
	dispose of	bloarversity	Develop Village Bylaws to	
	crown-of-thorns	Protects and	include management of	
	(alamea) on a	enhance local	natural resources (spring	
	regular basis to	species diversity	pools, marine reserve,	
	prevent major	ı	forest etc)	
	outbreaks	Sustains		
		ecosystem		
	Continue to ban	services and		
	the use of	functions		
	dynamites,			
	herbal poisons			
	(avaniukini),			
	chemicals and other			
	unsustainable			
	fishing methods			
	including sand			
	mining and			
	extraction			
	_			
	Responsibility:			
	Village, MAF/			
	CSSP			
Wetland restoration		Maintains natural	Develop an integrated	NESP 2017-2021
and protection	destructive	ecosystem	land management plan	0 1: 6
	fishing practices	connectivity	with the aim of reducing	Community Sector
	including sand	Doduce inland 0	any unnecessary actions	Plan
	mining and	Reduce inland &	that may adversely affect	

	introduce	wetland flooding	the natural habitats and	
	village ban on		ecosystems of the area	
	rubbish	Reduce overland		
	dumping in	flooding from	MNRE Forestry to advice	
	wetland and	river channels	on appropriate species,	
	coastal areas	Tiver chamicis	depth and density of	
	coastai ai cas		planting and provide	
	Limit land		seedlings for different	
	clearance and		vegetation types suitable to	
	agricultural		the habitats (coastal	
	developments		lowlands) and planting	
	around wetland		materials for village	
	areas		materials for vinage	
	areas			
	Fence domestic			
	animals to			
	reduce			
	contamination			
	in wetlands			
	iii wedallus			
	Enforce			
	Watershed			
	Management			
	Riparian Zone			
	and regulate			
	developments			
	around the			
	wetlands			
	Wettanus			
	Conduct regular			
	inspections of			
	the			
	swamp/wetlan			
	d vegetation to			
	monitor health			
	of vegetation			
	or vegetation			
	Increase buffer			
	distance			
	between			
	wetland and sea			
	to reduce			
	potential for			
	saltwater			
	inundation			
	Responsibility:			
	MNRE/			
	Village/MWCS			
	D			_
Livelihood and Food	Best Solutions	Benefits		Relevant Sector
Security				Plans, National
D .	T 1 .	3.6		Strategies & Policies
Pest management;	Implement an	Maintains	Develop an integrated land	
invasive species	eradication	natural	management plan with the	Plan 2016-2021
	programme to	ecosystem	aim of reducing any	

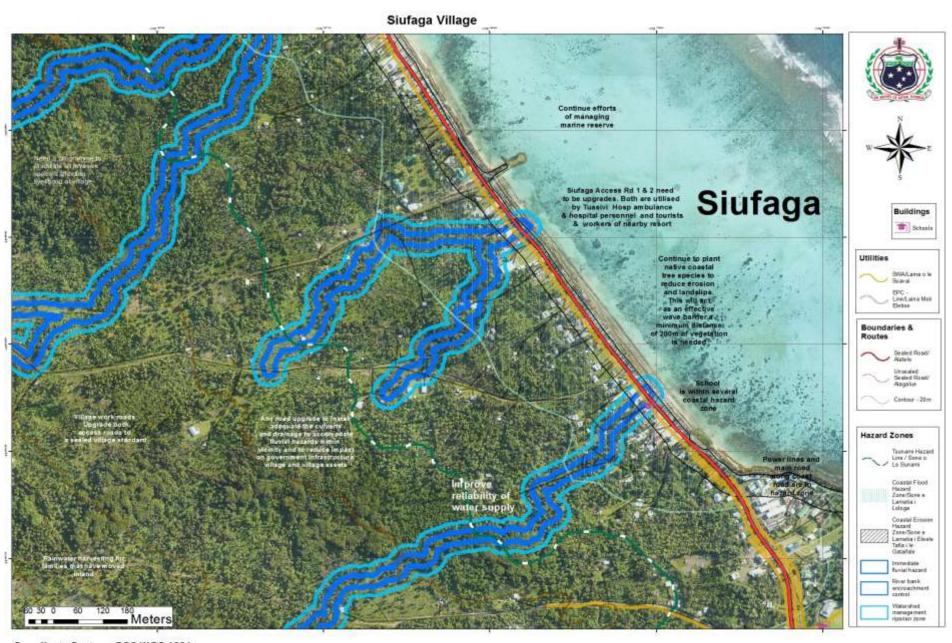
	1!t-			D 6: NECD 2017
	eradicate,	B 11.1 11.	unnecessary actions that	Draft NESP 2017-
	contain or	Builds resilience	may adversely affect the	2021
	exclude	of community	natural habitats and	
	invasive	livelihood and	ecosystems of the area	Samoa's National
	species	food security		Invasive Species
			MAF to raise awareness of	Action Plan (NISAP)
	Replant with	Reduce forest	farmers on impacts to water	
	climate	loss and land	flows from poor livestock	
	resilient native	clearance	management	
	species		S	
	op source		MAF to assist in	
	Implement an		establishment of pilot sites	
	inventory of		to trial climate ready plant	
	•		varieties	
	invasive species		varieties	
	and include		MNDC Compton DCC and	
	information on		MNRE Forestry, DEC and	
	their past,		MAF to collaborate on	
	present and		supply of climate resilient	
	potential future		crops	
	distribution, as			
	well as impacts		MNRE, MAF and SROS to	
	and possible		implement aggressive,	
	actions that can		nationwide invasive	
	be taken		species eradication	
			programme based on	
	Conduct		inventory of invasive	
	education and		species and conduct	
	awareness		campaign on public	
	programmes on		awareness accordingly	
	the impacts of		8,9	
	invasive species		Village to manage	
	m, doi, o op colos		pig/cattle population	
	Implement the		(compounds, in particular	
	Integrated Pest		around water supplies)	
	Management		around water supplies)	
	_		Training for farmors on	
	Programme		Training for farmers on	
	Il		pests management	
	Implement		particularly affecting fruit	
	Sustainable		trees and crops	
	Land			
	Management			
	(SLM) practices			
	D 41.3			
	Build the			
	capacity of			
	farmers to			
	manage stray			
	animals (pigs,			
	cattle) that are			
	contaminating			
	water sources			
	Conduct pilot			
	site trials for			
	climate ready			
	plant varieties			
	plant varieties			

Governance	District to fence domestic animals Responsibility: Villages /District/ MNRE/MAF/ SROS Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes. Collaborate with Sui o Nuu to monitor the use of and impact on natural resources Facilitate continuous awareness raising programs with the villages Responsibility: MWCSD /Village	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability of communities to adapt, respond and recover quickly in the long term Improve accountability and enabling environment of communities	Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021





Siufaga Village Map



Coordinate System: GCS WGS 1984 Datum: WGS 1984

Units: Degree

Data Source: Ministry of Natural Resource and Environment, Samoa
Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

Savaii AF Districts Overview Map of Coastal Inundation Zones

