

# 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.

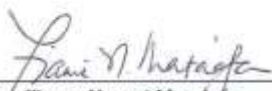
We wish to acknowledge the significant contributions of our District and Village communities and our key government partner stakeholders and implementing agencies, in particular:

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

  
 Hon. Fiamē 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:** 15<sup>th</sup> June 2018


**Representative:**


**Signature:**

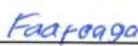
### Sa'asa'ai Village


- Uga Saneri Vaafusuaga
- Toalua Meli
- Vai Aivale
- Tuilata Faatoaga
- Sauafiafi Pule

  
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### Sapini/Luua Village

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

  
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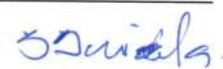

**Salimu/Malae Village**

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

  
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**Saipipi Village**

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

  
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**Siufaga Village**

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

  
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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 Erosion Hazard Zone
CFHZ	Coastal Flooding Hazard Zone
CIM	Community Integrated Management (Plan) or (Strategy)
CLHZ	Coastal Landslip Hazard Zone
COEP	Code of Environmental Practice
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
LTO	Long Term Output
MAF	Ministry of Agriculture and Fisheries
MET Office	Meteorological Office
MoH	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 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.
Lifeline infrastructure	Infrastructure that contributes directly to the survival of the community and its ability to respond and recover at the time of extreme events.
Secondary infrastructure	Infrastructure that contributes to the every-day development of the community.
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.
Land and Resource Use	The use of land and resources by the community for social, economic or other 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.



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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 3 District 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/Luuu and Siufaga. The coastline itself is a mixture of 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 is made up of mainly wet climate including small areas with moderate dry season on the coastal fringe. Alluvium<sup>1</sup> 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 *vaotuanuu*. 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 seven<sup>2</sup> access roads within this district<sup>3</sup>.

<sup>1</sup>Consists of silt, sand, clay and gravel as well as much organic matter

<sup>2</sup>Sa'asa'ai Access Road 1, Sa'asa'ai Access Road 2, Sa'asa'ai Uta Road, Saipipi Access Road, Salimu Access Road, Si'ufaga Access Road 1 and Siufaga Access Road 2

<sup>3</sup>LTA 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'ai 526, Saipipi 689, Salimu/Malae 476, Sapini/Luua 461 and Siufaga 695. Of the total 2,847 total male 1,495, female 1,352<sup>4</sup>. 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 \$34,06<sup>5</sup> 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 Schools<sup>6</sup>, 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. About 81% 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.

<sup>4</sup> SBS Village Directory Census 2016 preliminary count

<sup>5</sup> Community Disaster and Climate Risk Management household survey: final report

<sup>6</sup> 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	<p>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</p> <p>Implement beach replenishment at critical locations along the beach to protect coastal road and infrastructure against inundation and coastal erosion</p> <p><b>Responsibility:</b> <b>LTA/MWTI/ MNRE/ Villages/Families</b></p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Reduce impact from coastal erosion and natural disasters</p> <p>Maintain lifeline access for all of Savaii</p> <p>Safer villages, houses and roads</p> <p>Minimise national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>Utilise Hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and design</p> <p>Utilize the environmental and social safeguards including EIAs in screening and designing infrastructure facilities</p> <p>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</p> <p>Designation of the CEHZ and CFHZ as an "at risk" zone with appropriate land use planning controls and restrictions</p> <p>Strengthen monitoring and enforcement of Development Consent process to stop structures from being built in the defined overland flow paths</p>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>Community Sector Plan</p> <p>Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA</p>
Drainage systems require maintenance and upgrade in high risk areas of main North West Coast Road	<p>Upgrade drainage and culverts in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>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)"</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards</p>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>



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

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

	<p>Implement CDCRM program</p> <p>Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters</p> <p>Where no suitable houses exist, build emergency shelter(s) outside the hazard zones</p> <p>Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter</p> <p><b>Responsibility:</b>  <b>MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</b></p>			
<b>Natural Resources and Environment</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Soft coastal protection measures needed for most vulnerable areas	<p>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</p> <p>To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed</p> <p><b>Responsibility:</b>  <b>MNRE/ MAF/Villages</b></p>	<p>Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast</p> <p>Reduce impact from coastal erosion and natural disasters</p> <p>Implements an Ecosystem Based Approach</p>	<p>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</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p>	<p>Two Million Tree Planting Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p> <p>Forestry Management Act 2011</p>
Rubbish dumping in wetlands	<p>Implement village awareness and cleanup programme to reduce illegal rubbish dumping</p> <p>Implement</p>	<p>Improve health and sanitation</p> <p>Reduce leachate into environment and water supply</p>	<p>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</p>	<p>National Waste Management Strategy</p> <p>National Waste Management Policy</p>

	<p>district/village drainage cleanup and awareness programme</p> <p>Produce posters and village signs for public awareness</p> <p>Introduce ban on illegal rubbish dumping in district especially around fluvial hazard zones</p> <p>Conduct campaign for public awareness of district ban and establish a “neighbourhood watch” agreement with district to monitor and report on illegal dumping activities</p> <p>Government, district and villages to monitor, report and apply penalty on offenders</p> <p><b>Responsibility:</b> <b>MNRE/ District/ Village</b></p>	<p>Reduce contaminant from overland flooding entering sea</p>	<p>Utilise Waste Management Act/Legislation to guide process of effecting the ‘polluter pays’ principle</p> <p>Develop and register District/Village bylaws to include penalizing illegal rubbish dumping in district lands</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of village programmes on waste management</p>	<p>Draft NESP 2017-2021</p> <p>Village Fono Act(Amendment Bill 2016)</p>
<b>Governance</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>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.</p> <p>Collaborate with Sui o Nu’u to monitor the use of and impact on</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve</p>	<p>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</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>

	<p>natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p><b>Responsibility:</b> <b>MWCSD /Village</b></p>	<p>accountability and enabling environment of communities</p>		
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# Fa'asalele'aga 3 District Map

## Faasaleleaga III District



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



	<b>Responsibility: LTA /MWTI/MWCSD /Village/ Families</b>		<p>affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 3 District</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	
Reticulated water supply, quality and network to be improved	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p><b>Responsibility: SWA/ MNRE/ District /Villages / CSSP</b></p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform location and design</p> <p>Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p> <p>Village Fono Act(Amendment Bill 2016)</p>
EFKS Church hall, Pre-School and other village assets in high risk hazard zones	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Conduct awareness</p>	<p>Minimise expenditure on damaged properties &amp; personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding</p>	<p>Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

	<p>raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas</p> <p>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</p> <p><b>Responsibility: Village / Families /MWTI/ MNRE</b></p>	<p>accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate land use planning controls and restrictions</p>	
<b>Natural Resource &amp; Environment</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plan, National Strategies &amp; Policies</b>
<p>Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)</p>	<p>Village pool is currently in a poor location 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)</p> <p><b>Responsibility: CSSP/ NGOs/MNRE/Villages</b></p>	<p>Increase adaptation during drought periods</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>Utilise Hazard Maps and Geomorphologist findings for planning purposes</p> <p>MNRE Water &amp; Sanitation to conduct water testing and analysis of village pool prior to any intervention</p> <p>Update Village bylaws to include managing and maintaining village natural resources</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of village programmes and responsibilities</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>Community Engagement Plan</p> <p>Village Fono Act (Amendment Bill 2016)</p>

<p>Soft coastal protection measures needed for most vulnerable areas</p>	<p>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</p> <p>To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed</p> <p><b>Responsibility: MNRE/MAF/Villages</b></p>	<p>Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast</p> <p>Reduce impact from coastal erosion and natural disasters</p> <p>Implements an Ecosystem Based Approach</p>	<p>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</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p>	<p>Two Million Tree Planting Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p> <p>NESP 2017-2021</p>
<p><b>Governance</b></p>	<p><b>Best Solutions</b></p>	<p><b>Benefits</b></p>	<p><b>Guideline to assist with the implementation</b></p>	<p><b>Relevant Sector Plan, National Strategies &amp; Policies</b></p>
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>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.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p><b>Responsibility: MWCS D /Village</b></p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>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</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>



Village pool: alternative water source



# Sa'asa'ai Village Map

## Sa'asa'ai Village



## 4.2 Saipipi Village Interventions

### CIM Plan Solutions

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



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



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

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

	<p>establish a “neighbourhood watch” agreement with district to monitor and report on illegal deforestation</p> <p>District and Village to support SWA water rationing programmes during times of drought</p> <p>District to support SWA efforts at exploratory intakes and boreholes in district</p> <p><b>Responsibility: MNR E/ SWA/ MWCS D/ District/ Village/ CSS P</b></p>			
District upland forest	<p>Adopt agro-forestry and community tree farming practices instead of clear felling as is practiced at present</p> <p>Encourage planting of indigenous species in conjunction with engineered water land drainage action plans</p> <p>Fence domestic animals to protect young trees</p> <p>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</p> <p><b>Responsibility: MNRE/Village</b></p>	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	<p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>
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	<p>NESP 2017-2021</p> <p>Community Sector Plan</p>

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

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

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

	<p>Conduct pilot site trials for climate ready plant varieties</p> <p><b>Responsibility: MAF/MNRE/villages/CSSP</b></p>		<p>aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p>	
<b>Governance</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>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.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p><b>Responsibility: MWCSO /Village</b></p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>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</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>





Village pool prone to strong waves

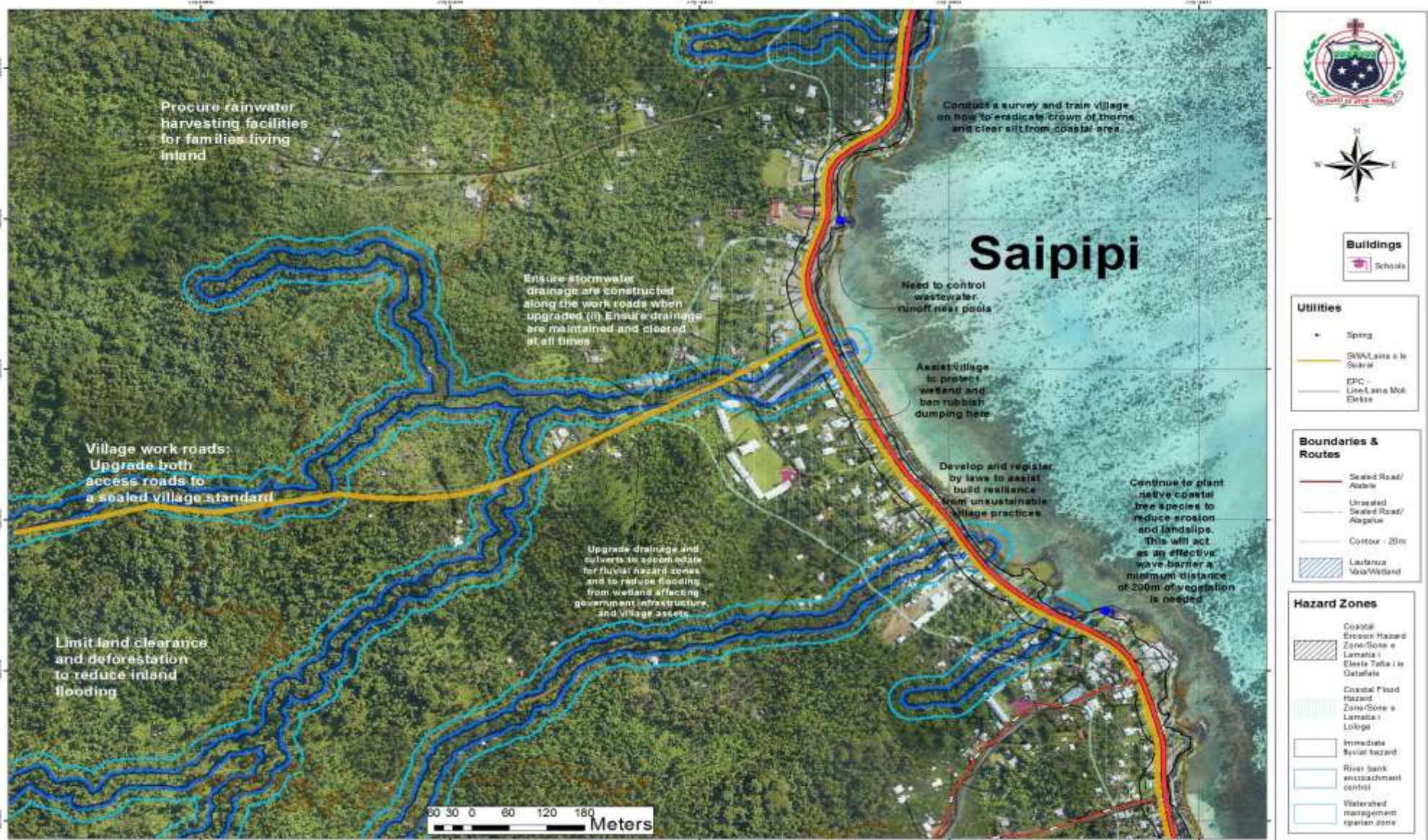


blocked culverts from wetland debri



# Saipipi Village Map

## Saipipi Village



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

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant National, Sector Plans and Strategies
Village houses, school, churches, government and other village assets in high risk hazard zones	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas</p> <p>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</p>	<p>Minimise expenditure on damaged properties &amp; personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate land use planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

	<b>Responsibility: Village / Families /MWTI/ MNRE</b>			
Drainage systems require maintenance and upgrade in high risk areas	<p>Upgrade drainage and culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p><b>Responsibility: LTA /MWTI/MWCSD /Village/ Families</b></p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Encourages coastal families to relocate inland</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>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)”</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 3 District</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>Community Sector Plan</p>

<p>Access / work roads require maintenance and upgrade as it exacerbates flooding</p>	<p>Upgrade approved access roads in accordance with Vulnerability Assessment of the Samoa Road Network recommendations</p> <p>Implement regular drainage inspection and maintenance</p> <p>Village to restrict rubbish dumping into waterways and conduct regular clearance of rubbish behind homes</p> <p>Village to regulate developments near and around road shoulders of all access roads</p> <p><b>Responsibility:</b> LTA/MWTI/ MNRE/ District/</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Encourages coastal families to relocate inland</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>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)”</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 3 District</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	<p>CIM Strategy 2015 Review of National Road standards in Samoa (2016) MWTI</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
<p>Electricity supply</p>	<p>Install and connect power supply for inland residents</p> <p>Install streetlights along the roads where needed for</p>	<p>Maintain electricity supply at all times including natural disasters</p> <p>Avoid accidents from fallen electricity posts</p>	<p>Monitor distribution networks to avoid overloading poles and contributing to line failures</p>	<p>EPC Strategic Plan</p>



	<p>community safety</p> <p>Install and connect to solar power supply if made available</p> <p>Families to limit building and developments near electricity posts</p> <p><b>Responsibility: E PC/ MWTI/ Village/ Families</b></p>			
<b>Natural Resources and Environment</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	<p>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.</p> <p>Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works)</p> <p><b>Responsibility: CSSP/ NGOs/MNRE/Villages</b></p>	<p>Increase adaptation during drought periods</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>Utilise Hazard Maps and Geomorphologist findings for planning purposes</p> <p>MNRE Water &amp; Sanitation to conduct water testing and analysis of village pool prior to any intervention</p> <p>Update Village bylaws to include managing and maintaining village natural resources</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>Community Engagement Plan</p> <p>Village Fono Act (Amendment Bill 2016)</p>
Soft coastal protection measures needed for most vulnerable areas	<p>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</p>	<p>Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast</p> <p>Reduce impact from coastal</p>	<p>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</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant</p>	<p>Two Million Tree Planting Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p> <p>Forestry Management Act 2011</p>

	<p>conditions</p> <p>To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed</p> <p><b>Responsibility:</b> MNRE/ MAF/Villages</p>	<p>erosion and natural disasters</p> <p>Implements an Ecosystem Based Approach</p>	<p>varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p>	
<b>Livelihood and Food Security</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Pest management; invasive species	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>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</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>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</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>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</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2017-2021</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

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

	<p>Sustainable land management (SLM) practices</p> <p><b>Responsibility:</b> MAF /villages/MNRE</p>			
<b>Governance</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Strengthen the governance of natural resources and land use through Bylaws	<p>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.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p><b>Responsibility:</b> MWCS D /Village</p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>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</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>





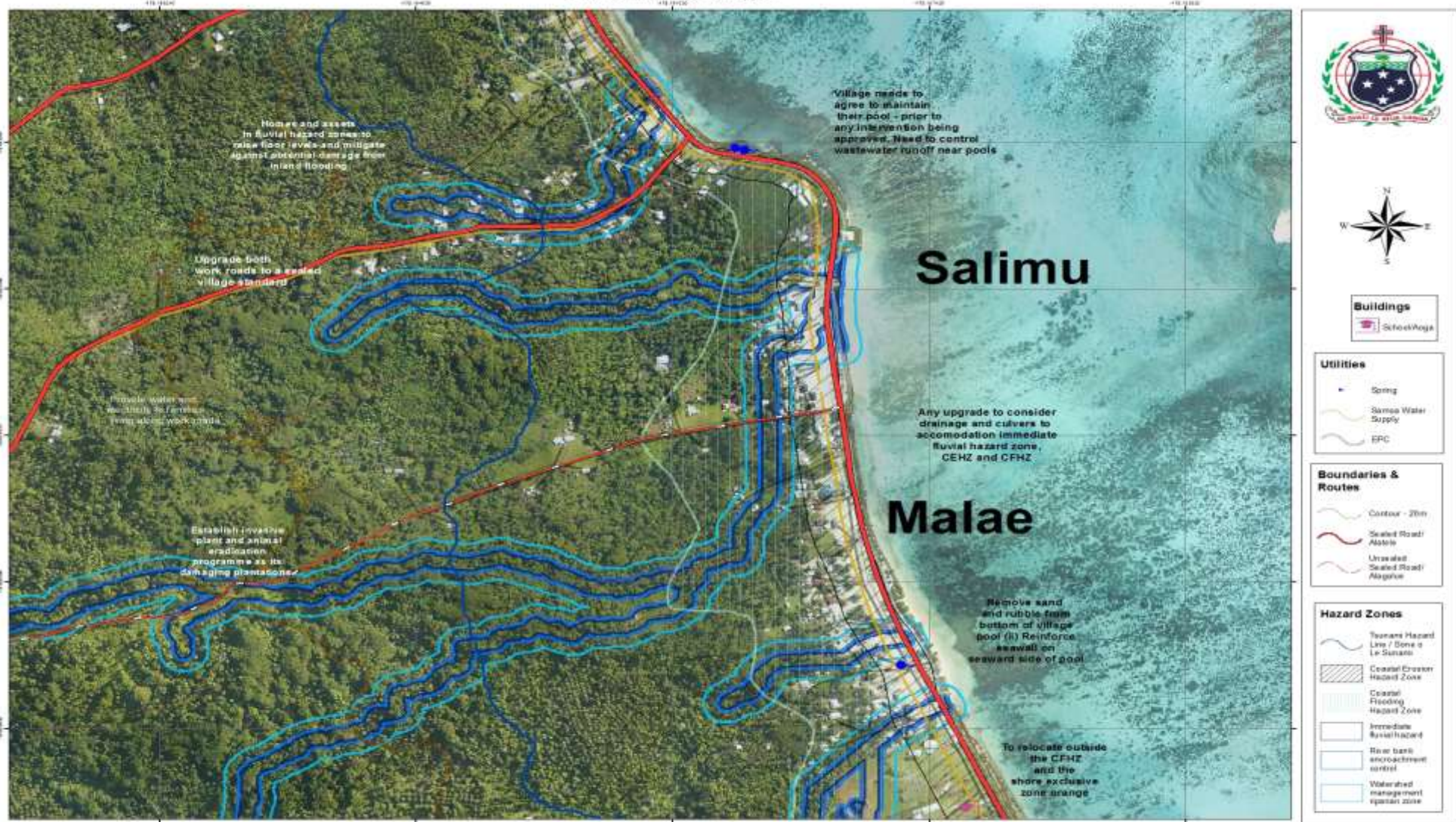






# Salimu/Malae Village Map

## Salimu, Malae Villages



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

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant National, Sector Plans and Strategies
<p>Village houses, school, tourist facilities, churches and other village assets located in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones</p> <p>Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas</p> <p>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</p> <p><b>Responsibility: Village / Families /MWTI/ MNRE</b></p>	<p>Minimise expenditure on damaged properties &amp; personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p> <p>Safer villages, houses and roads</p>	<p>Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 3 District. MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</p> <p>Enforcement of National Building Code 2017</p> <p>Encourage insurance of significant investments and assets within hazard zones</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate land use planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>
<p>Drainage systems require maintenance and upgrade in high risk areas of main North West Coast</p>	<p>Upgrade drainage and culverts in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i></p>	<p>Improves climate resilience of infrastructure resilience and rate of response and</p>	<p>Use existing information for guidance but not limited to: <i>“Vulnerability Assessment of the Samoa Road Network (2017)”</i>; <i>“Review of National</i></p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p>



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

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



	<b>Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</b>			
<b>Natural Resources and Environment</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
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) <b>Responsibility: CSSP/NGOs/MNRE/Villages</b>	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  <b>Responsibility: MNRE/MAF/Villages</b>	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	Develop an integrated land management plan for Faasaleleaga 2 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	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

	<p>basis to prevent major outbreaks</p> <p>Continue to ban the use of dynamites, herbal poisons (avaniukini), chemicals and other unsustainable fishing methods including sand mining and extraction</p> <p>Enforce village bylaws on ban on rubbish dumping in coastal areas</p> <p><b>Responsibility:</b> <b>Village/ MAF/ CSSP</b></p>	<p>Protects and enhance local species diversity</p> <p>Sustains ecosystem services and functions</p>	<p>natural resources (spring pools, marine reserve, forest etc)</p>	
<b>Livelihood and Food Security</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Pest management; invasive species	<p>Implement an eradication programme to eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>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</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Build the capacity of</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>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</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>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</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>Draft NESP 2017-2021</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>District to fence domestic animals</p> <p><b>Responsibility: Villages /District/ MNRE/MAF/ SROS</b></p>		<p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	
<p>Food security: threatened by changes in climate and inadequate soil for planting</p>	<p>Promote and facilitate planting of root crops (i.e.yams, sweet potato which are more resilient to cyclones, droughts and floods</p> <p>Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases.</p> <p>Encourage organic farming and mixed planting system to promote ecological stability and soil protection</p> <p>Conduct pilot site trials for climate ready plant varieties</p> <p>Implement Sustainable land management (SLM) practices</p> <p><b>Responsibility: MAF /villages/MNRE</b></p>	<p>Improve health through access to clean water and waste management</p> <p>Improve recovery to create more resilient villages</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>Agriculture sector to provide best practice management guidelines for the management of water that allows for levels of contamination to be kept to minimum</p> <p>MAF to provide trainings, awareness raising and support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting</p> <p>MAF to provide trainings and awareness on crop diversification to suit the prolonged impacts of climate change such as drought or rainy seasons</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MAF to provide technical advice, seedlings and planting material for village and families as a trial</p>	<p>Agriculture Sector Plan 2016-2021</p>
<b>Governance</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
<p>Strengthen the governance of natural resources and land use through Bylaws</p>	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use</p>	<p>Strengthen implementation of all national sector plans</p>	<p>Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community</p>

	<p>impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p><b>Responsibility:</b> <b>MWCSD /Village</b></p>	<p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>food security especially activities affecting water catchment areas and coastline</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Sector Plan</p> <p>Community Development Plan 2016-2021</p>
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# Sapini/Lu'ua Village Map



## 4.5 Siufaga Village Interventions

### CIM Plan Solutions

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



	<p>village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p><b>Responsibility : Village / Families /MWTI/ MNRE/ MWCS D</b></p>			
<p>Drainage systems require maintenance and upgrade in high risk areas of main road where it meets with access roads</p>	<p>Upgrade drainage and culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendations</p> <p>Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding</p> <p>Implement regular drainage inspection and maintenance</p> <p><b>Responsibility : LTA /MWTI/MWCS D /Village/ Families</b></p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Encourages coastal families to relocate inland</p> <p>Maintains lifeline access for all of Upolu</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>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)”</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p> <p>Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>

<p>Upgrade access/ work roads to facilitate relocation of houses away from hazard zones and as an emergency access route for Tuasivi Hospital ambulance</p>	<p>Village to resolve land issues</p> <p>Implement regular drainage inspection and maintenance</p> <p><b>Responsibility : LTA/ MWTI/ MNRE/ District</b></p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p> <p>Minimises national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>waterways</p> <p>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)”</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities</p> <p>Apply for necessary permits as required by law</p> <p>Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs</p>	<p>CIM Strategy 2015</p> <p>National Disaster Management Plan 2017-2021</p> <p>Community Sector Plan</p>
<p>Evacuation Shelter and a connected escape route needed for emergency preparedness and response</p>	<p>Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter</p> <p>Conduct evacuation shelter assessment and mark on CIM Plan hazard maps</p> <p>Develop a Village Climate Disaster Management Plan (VCDMP)</p>	<p>Improve resilience of public infrastructure</p> <p>Improve preparedness and readiness response to natural disasters</p>	<p>Enforcement of National Building Code 2017</p> <p>Utilise hazard maps and Geomorphologist findings to inform location and designs</p>	<p>National Disaster Management Plan 2017-2021</p> <p>National Building Code</p> <p>National Policy for People with Disabilities</p>



	<p>Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies</p> <p>Implement CDCRM program</p> <p>Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters</p> <p>Where no suitable houses exist, build emergency shelter(s) outside the hazard zones</p> <p>Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter</p> <p><b>Responsibility : MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MW CSD</b></p>			
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<p>Reticulated water supply, quality and network to be improved</p>	<p>Extend the water supply to families inland with no access to water</p> <p>Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution</p> <p>District and villages to support SWA water rationing programs during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p><b>Responsibility: SWA /MNRE/ District /Villages/ CSSP</b></p>	<p>Increase adaptation during drought periods</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>Develop/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water</p> <p>Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilize Hazard Maps and Geomorphologist findings to inform location and design</p> <p>Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p>
<p><b>Natural Resources and Environment</b></p>	<p><b>Best Solutions</b></p>	<p><b>Benefits</b></p>	<p><b>Guideline to assist with the implementation</b></p>	<p><b>Relevant Sector Plans, National Strategies &amp; Policies</b></p>
<p>Soft coastal protection measures needed for most vulnerable areas</p>	<p>Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to</p>	<p>Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast</p> <p>Reduce impact from coastal</p>	<p>Develop an integrated land management plan for Faasaleleaga 2 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to assist in establishment of pilot sites</p>	<p>Two Million Tree Planting Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p> <p>Forestry Management Act 2011</p>

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

	<p>introduce village ban on rubbish dumping in wetland and coastal areas</p> <p>Limit land clearance and agricultural developments around wetland areas</p> <p>Fence domestic animals to reduce contamination in wetlands</p> <p>Enforce Watershed Management Riparian Zone and regulate developments around the wetlands</p> <p>Conduct regular inspections of the swamp/wetland vegetation to monitor health of vegetation</p> <p>Increase buffer distance between wetland and sea to reduce potential for saltwater inundation</p> <p><b>Responsibility: MNRE/ Village/MWCS D</b></p>	<p>wetland flooding</p> <p>Reduce overland flooding from river channels</p>	<p>the natural habitats and ecosystems of the area</p> <p>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</p>	
<b>Livelihood and Food Security</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Pest management; invasive species	Implement an eradication programme to	Maintains natural ecosystem	Develop an integrated land management plan with the aim of reducing any	Agriculture Sector Plan 2016-2021



	<p>eradicate, contain or exclude invasive species</p> <p>Replant with climate resilient native species</p> <p>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</p> <p>Conduct education and awareness programmes on the impacts of invasive species</p> <p>Implement the Integrated Pest Management Programme</p> <p>Implement Sustainable Land Management (SLM) practices</p> <p>Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources</p> <p>Conduct pilot site trials for climate ready plant varieties</p>	<p>Builds resilience of community livelihood and food security</p> <p>Reduce forest loss and land clearance</p>	<p>unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MAF to raise awareness of farmers on impacts to water flows from poor livestock management</p> <p>MAF to assist in establishment of pilot sites to trial climate ready plant varieties</p> <p>MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops</p> <p>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</p> <p>Village to manage pig/cattle population (compounds, in particular around water supplies)</p> <p>Training for farmers on pests management particularly affecting fruit trees and crops</p>	<p>Draft NESP 2017-2021</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>
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	<p>District to fence domestic animals</p> <p><b>Responsibility : Villages /District/ MNRE/MAF/ SROS</b></p>			
<b>Governance</b>	<b>Best Solutions</b>	<b>Benefits</b>	<b>Guideline to assist with the implementation</b>	<b>Relevant Sector Plans, National Strategies &amp; Policies</b>
Strengthen the governance of natural resources and land use through Bylaws	<p>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.</p> <p>Collaborate with Sui o Nuu to monitor the use of and impact on natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p><b>Responsibility : MWCS D /Village</b></p>	<p>Strengthen implementation of all national sector plans</p> <p>Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies</p> <p>Improve ability of communities to adapt, respond and recover quickly in the long term</p> <p>Improve accountability and enabling environment of communities</p>	<p>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</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector Plan</p> <p>Community Development Plan 2016-2021</p>



Eroded rockwall protection



Poor waste water management



# 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

