

Community Integrated Management Plan

Fa'asalele'aga 1 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. Fiame Naomi Mata'afa
Minister of Natural Resources and Environment

Participants in the Plan

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

This Plan incorporates the Faipule District of Fa'asalele'aga 1 (Salelologa, Salelavalu, 'Iva, Vai'afai, Vaisaulu, Lalomalava and Safua villages).

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

Date of Signing: 15th June 2018

Representatives

Signatures

Salelologa Village

- Matamua Maa
- Touli Fagaese
- Seumanu Sione
- Fiu Lomata II
- Elisapeta Taotua

Handwritten signatures for Salelologa Village representatives on lined paper. The signatures are: Matamua Maa, Touli Fagaese, Seumanu Sione, Fiu Lomata II, and Elisapeta Taotua.

Salelavalu Village

- Pese Ulali
- Telefoni Mariner
- Tuita Talalelei
- Lotolelei Amani
- Miriama Pese

Handwritten signatures for Salelavalu Village representatives on lined paper. The signatures are: Pese Ulali, Telefoni Mariner, Tuita Talalelei, Lotolelei Amani, and Miriama Pese.

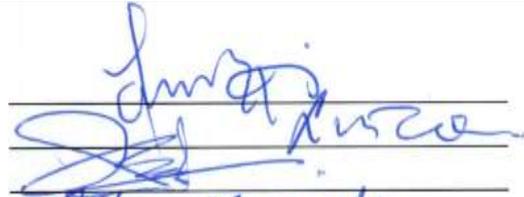
'Iva Village

- Seve Luki
- Taua Ioaia Ionatana
- Au Asi
- Sarona Leauanae
- Losivale Leauanae

Handwritten signatures for 'Iva Village representatives on lined paper. The signatures are: Seve Luki, Taua Ioaia Ionatana, Au Asi, Sarona Leauanae, and Losivale Leauanae.

Vai'afai Village

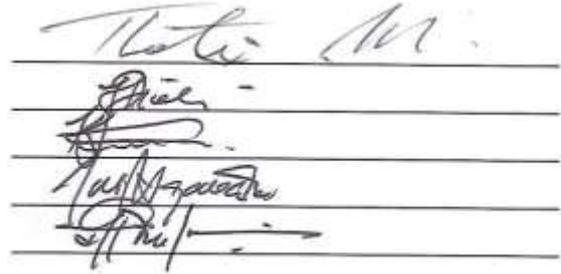
- Moemai Kome
- Lealiiie Vaeagi
- I'amua Simati
- Fata Tamotu
- Emele Lealiiie



Fata Tamotu.
emele lele

Vaisa'ulu Village

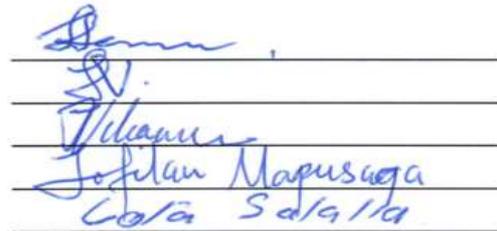
- Leuo Taugauli Tuioti
- Logo Fasitau Piula
- Tia Kalena L. Toleafoa
- Lauoa Tui Agavale
- Tupuivao J. Iakopo



Tia Kalena L. Toleafoa

Lalomalava Village

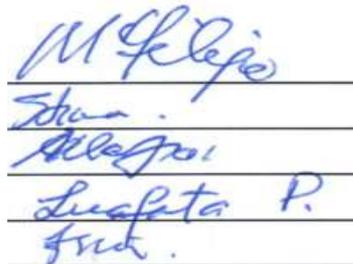
- Vaelua Taunuu
- Lina Veve Faaolataga
- Talimao Viliamu
- Tofilau Mapusaga
- Lotumalii Sakaria



Tofilau Mapusaga
Lota Satafa

Safua Village

- Moeiatoto Filipino
- Sufia Lua
- Tuleto'a Alofa
- Luafata Puuaoalo
- Leleo Fiu



Luafata P.
Fiu

The Government of Samoa adopts the Community Integrated Management Plan for the Faipule District of Fa'asalele'aga 1as 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
SOER	State of Environment Report
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.
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.

Introduction to the CIM Plan

The Strategic Vision

The District Community Integrated Management (CIM) Plan for Fa'asalele'aga 1 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).***

The Aim of the CIM Plan

The aim of the CIM Plan is to help communities and 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.

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.

Implementation Guidelines

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 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.

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.

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).

1. Description of Fa'asalele'aga 1 District

Physical and Natural Resource Setting

The District of Fa'asalele'aga 1 is located on the eastern coast of Savai'i between the districts of Palauli Sasa'e and Fa'asalele'aga 2. It consists of 7 villages; Salelologa Village, Safua, Vai'afai, Lalomalava, Vaisaulu, Iva and Salelavalu. Salelologa Township is included in the CIM Plan as although not a specific village it is the main commercial and government centre of Savaii and is located within Salelologa village.

The district is characterized by a broad plain sloping down to the coast from steep inland mounts. The main mountains within the area are volcanic cones including Mt Valusia, Mt Ologae and Mt Uliva'a. Along the coast a series of rocky headlands have formed as the base rock meets the edge of the lagoon. The most prominent of these is at Salelavalu. There is little sand along the shoreline with most shore areas composed of fragmented rock remnants presenting a hard coast eroding at an average rate of 0-0.2 m per year. The lagoon is generally wide (2-3 km) and shallow but there is a wide break in the reef opposite Salelavalu and a channel serving the ferry wharf at Salelologa. The coastal plateau is described as mainly wet climate including small areas with moderate dry season near the coast. Inland from the coastal plateau is a landscape dominated by gently rolling hills but without deep gorges.

The underlying geology of the district is composed of volcanic basaltic rock with a porous nature. Due to its absorbent factor it allows free draining of water to the extent that river and stream valleys run dry much of the year. Although estuaries are waterless for the majority of the time, flash floods still occur, flooding areas adjacent to the Safua Stream approximately twice a year.

There are small areas of mangrove established in the rocky bays along the coast. Plantation and agricultural areas dominate the inland regions. Most of these are located inland from the main North East Road but suitable area between the road and the sea are also planted particularly the Salelavalu headland. To the south-west is the Tafua peninsula and conservation area of lowland forest. Lowland forests at Salelologa can be observed from the main road. The area supports vegetation types where tavai (*Rhustaitensis*), maota (*Dysoxylummaota*), asitua (*Syzygiuminophylloides*), launinii (*Cryptocaryaelegans*), magau (*Garuga floribunda*) and toi (*Alphitoniaasyzyphoides*) appear to be the dominant species. Other opportunistic species such as the pulumamoe, puluvao, tamaligi and lusina are present and appear to be spreading.

The Salelologa wharf by its nature is located within both the CEHZ and CFHZ, it is also considered to be a lifeline infrastructure. However, it is a substantial structure designed and built to withstand cyclones; susceptibility and risk are therefore considered to be low. The entire district is comprised of customary land and has a total of 20 roads¹ which includes the main South East Coast Road running through the district. The roads are in various levels of condition; some good whilst others require a complete face lift showing signs of structural damage or failure. Sand mining is not a major problem as there is a lack of sandy beaches in this particular district.

A number of villages have established marine protected areas with help from the Fisheries Division of the MAF with dual objectives of allowing corals and reefs to recuperate and to help reduce the impact of wave action on the foreshores. Villages have also been provided by the Fisheries Division with young giant clams for planting in their safeguarded areas as an additional incentive for participation in the activity.

The Main Road is generally outside both the CEHZ and CFHZ however there are some sections that run through very high risk areas where four hazards combine. For example, parts of the road in Foua, Papalao, Saletagaloa, 'Iva, Vaiafai and Safua sit in the Immediate Fluvial Hazard Zone, Coastal Flooding Hazard Zone, Coastal Erosion Hazard Zone and the Tsunami Shore Exclusion Zone (or red zone).

Local overhead electricity and telecommunication lines are located along coastal access roads and between houses. Where these lines fall within the CEHZ and CFHZ they are at high risk and susceptibility. These overhead lines are at threat as they are exposed to strong wind effects and providing underground lines is likely to increase the resilience of communities in these areas. The main high voltage electricity and telephone lines follow the Main South Coast Road and are safely situated outside of the hazard zones. Some parts of the main telephone distribution networks are underground and phone

¹Salelologa Rd, Foua Rd, Iva Access Rd, Iva Park Rd, Iva Rd, Lalomalava Rd, Salelavalu Access Rd 1, Salelavalu Access Rd 2, Salelavalu Coastal Rd, Salelavalu Rd, Satalafai Rd, Salelologa Access Rd, Vaiafai Access Rd, Vaisaulu Access Rd, Safua Access Rd, South East Coast Rd, LTA Rd, Saletagaloa Rd, Township Rd and Township Rd 2. LTA Samoa Infrastructure Asset Management Database

coverage within the district is provided by Bluesky and Digicel. The EU funded rural water supply project is working on replacing the galvanized pipe water network by a PVC network. The galvanized network runs along the inland side of the Main South Coast Road and is in many areas exposed. The line from the Salelavalu borehole is also exposed.

Invasive species that are most common in this district include the common fa'apasi (*Spathodiacampanulata*) and fuelautetele (*merremiapeltata*). These species have eventually suppressed and killed off the native trees and plants within the Salelologa forests.

Social and Economic Setting

The Fa'asalele'aga 1 District currently has a population of 3,059²; Salelavalu 1,102, Iva 749, Vaiafai 438, Vaisaulu 147, Lalomalava 307 and Safua 316. Of the total 3,059, total male is 1,502, female 1,557. Total number of households is 649.

There are 9 schools³ located within the district and are either owned privately or run by the government or churches. Only three have been considered as potential evacuation shelters (Salelavalu Primary School, Lalomalava Primary School and Salelologa Primary School) because they are not within any critical hazard zones. The district has 4 tourist accommodations⁴ and 15 churches divided between Salelavalu⁵, Iva⁶, Vaiafai⁷, Vaisaulu⁸, Lalomalava⁹ and Salelologa¹⁰. The closest hospital¹¹ is located at Tuasivi.

Salelologa is the main commercial and government center for Savai'i. Almost all government ministries now have offices in Salelologa. There are also several wholesale, retail shops, supermarkets and hardware shops. All 4 trading banks (ANZ, National Bank of Samoa, Samoa Commercial and BSP) have branches located in Salelologa. The main Market is also located at Salelologa Township area.

The wharf is a terminus for the island's bus services and also has a taxi stand servicing passengers travelling between Salelologa Wharf and Mulifanua Wharf on Upolu. Outside of the Township area the Salelologa sub-villages and those closer to the commercial center provide residential areas for workers.

The districts livelihood is mostly cattle, plantation, fishing and household gardens. The amount of product for sale is influenced by the proximity to established local markets. There is a range of livelihoods with small mixed farming on small household plots. Crops include fruit, vegetable and small livestock for family consumption and to supply local hotels and supermarkets. Although the Fa'asalele'aga 1 District is cultivated with various crops, the soil type at the locale is not suitable to all harvest, with banana having the highest suitability, coconuts, cocoa and breadfruit being moderate and taro-moderately low.

Fa'asalele'aga 1 is the 4th ranked district with the highest percentage (31.3%) of their income sourced from salaries. It is ranked as the highest to receive the most income per person weekly at \$60.27 and also the highest ranked with most of the income received through business activities. The surplus income received by a Fa'asalele'aga 1 individual equals \$27.36. The figures do not translate to everyday life situations when Fa'asalele'aga 1 is second highest in ranking with poor water supply and 3rd highest in ranking with the number of families (14) living without electricity. This survey¹² assessed 12 districts in Savaii which included all districts within Fa'asalele'aga.

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 Fa'asalele'aga 1. The immediate risks for some areas of

²SBS Village Directory Census 2016 preliminary count

³Salelologa Primary School, Manumalo Primary School, Manumalo Baptist Pre-School, Salelavalu Primary School, Salelavalu Pre-School, Iva Primary School, Mataaeveve College, Lalomalava Primary School and Lalomalava Pre-School

⁴Jet Over Hotel, Lusia's Lagoon Chalets, Salafai Backpackers Inn and Safua Hotel

⁵Methodist, SDA, CCCS, Roman Catholic

⁶CCCS,

⁷AOG

⁸LDS

⁹CCCS

¹⁰Methodist, Roman Catholic, LDS, AOG, SDA, Church of Nazarene

¹¹Malietao Tanumafili II Hospital

¹²Community Disaster and Climate Risk Management household survey: final report

Fa'asalele'aga 1 are from coastal inundation and fluvial hazards. Some areas are located within the tsunami red and orange zones.

For the entire district there is about 7,967 hectares of land. About 85.79 hectare is in the Tsunami shore exclusion zone (Red zone) and 312 buildings are in this zone. There are approximately 1,773 buildings in the district; about 312 are located in both the Tsunami shore exclusive zone and the Coastal Flood Hazard Zone. The watershed management riparian buffer covers 1,432 hectares of 7,967 hectares, therefore leaving about **6449** hectares in the "safe" zone. The Watershed Management Riparian Zone is a 20m buffer on either side of the river banks. Healthy riparian areas are vital to the health of stream ecosystems and the entire watershed as well. Many of the threats to the rivers and streams are directly related to loss of vegetation as well as human and physical changes such as land clearing for agricultural developments. It is therefore recommended that a topographic and geomorphological assessment be carried out first if construction of any infrastructure is proposed within this buffer zone.

The CEHZ and CFHZ extend along the eastern side of the road to the wharf. Rocky outcrops form the coast in that area and the land zones are about 5 m above the mean sea level. The CEHZ ranges from about 10m in width near the ferry wharf to about 80m in width further to the north. The CFHZ follows the indented coastline and extends to the western side of the road in low-lying areas to the north of the market, just south of the SWA depot and north of the MIA offices.

Facilities need to be provided at the Salelologa Township for the disposal of waste from commercial and industrial activities. It was verified by site assessments that companies and people still dump rubbish behind the Salelologa Township. The issues within the Salelologa Township should not be held as a MNRE only responsibility. It needs to be incorporated into government wide development programs and projects and also needs the aid of village by-laws so policies and plans by the government are actually implemented, monitored and regulated through village bylaws. Villages have attempted replanting but failed as the geology of the district comprises mostly of lava rock.

Existing culverts and drainage should be improved on village roads as a way to minimize flooding around the area. However, when designing the size of culverts a number of elements should be taken into account (i.e. size of the drainage area, surrounding terrain type, rainfall intensity, etc). Electricity and water supply along the inland work road must be upgraded so as to facilitate relocation. The intensity of recent cyclones and the tsunami of 2009 had convinced some residents to move further inland which has actually contributed to the number of land clearance and tree felling in the upland forests and watershed areas of this district.

Reticulated water has been improved in addition with SWA conducting water tests at a regular basis though it still does not reach families inland as the water pressure is not adequate to travel uphill. Rainwater harvesting systems should be constructed for vulnerable families only. Extension of sea wall to protect all village assets was not recommended by site assessments, instead villages were advised to replant around coastal areas utilizing Climate Resilient trees such as the fetau and other native trees.

2. Fa'asalele'aga 1 District Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Drainage systems require maintenance and upgrade in high risk areas of main South East Coast Road	<p>Assess and upgrade culverts on main South-East Coast Road especially at junctions with access roads (Salelologa Inland Road, Salelologa Road, Township Road, Sapulu Road, Sakalafai Road, Foua Road, Saletagaloa Access Road, Vaiafai Access Road, Vaisaulu Access Road and Lalomalava Road) exacerbating inland flooding and storm water surges affecting infrastructure, village homes and other asset – 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>Responsibility: LTA /MWTI/MWCSD /Village/ Families</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 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 1 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>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
Upgrade access/work roads to facilitate relocation of houses away from hazard zones	<p>Assess and upgrade access/work roads to reduce inland flooding</p> <p>Upgrades 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>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,</p>	<p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs</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>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate</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>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>Enforce environmental safeguards where reclamations are proposed</p> <p>Promote and support village and district afforestation in the upper and mid-catchment areas to reduce riverbank failures especially in flood prone areas</p> <p>Responsibility: LTA/ MWTI/ MNRE/ Villages/Families</p>	<p>houses and roads</p> <p>Minimise national disaster recovery expenditure on damaged properties and public assets</p>	<p>landuse planning controls and restrictions</p> <p>Utilise environmental and social safeguards including EIAs in screening and designing built environment infrastructure projects for Safata district</p>	
<p>Village houses, businesses, tourist facilities, village pool, churches and government assets located in high risk hazard zones</p>	<p>Relocate outside of high risk hazard zones when building/infrastructure requires replacement</p> <p>Investments within the hazard zones to adopt appropriate mitigation measures</p> <p>Develop landuse planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ</p> <p>Design infrastructure appropriately to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas</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>Families and village to limit building and developing on natural</p>	<p>Minimise expenditure on damaged properties and personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p> <p>Safer villages, houses and roads</p>	<p>Planning provisions to be guided by the PUMA 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 updated hazard maps and Geomorphologist Drainage Infrastructure Database to inform policy development and possible relocation of assets</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>CIM Strategy 2015</p> <p>National Building Code</p>

	<p>overland flow paths exacerbating inland flooding and storm water surges</p> <p>Government and Village to liaise and collaborate on processes needed to protect riverbanks and coastline from land clearing and developments</p> <p>Responsibility: Village / Families/MWTI/ MNRE/ MWCSD</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>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>

	<p>Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD</p>			
Electricity supply	<p>Provide underground lines in the long term</p> <p>Install and connect power supply for inland residents</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for 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>Responsibility: EPC/ MWTI/ Village/ Families</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>	EPC Strategic Plan
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 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>Responsibility: SWA/ MNRE/ District/Villages/ CSSP</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>Health Sector Plan</p> <p>Village Fono Act (Amendment Bill 2016)</p>
Effluent and wastewater	<p>Provide a network sewage collection and</p>	<p>Increase adaptation during</p>	<p>Develop an integrated land management plan with the</p>	National Waste

<p>management systems</p>	<p>treatment system for district</p> <p>Introduce ban on latrines established in and around fluvial hazard zones</p> <p>Families in fluvial hazard zones to install proper septic waste disposal systems</p> <p>Families to fence domestic animals</p> <p>Implement village awareness and cleanup programme to reduce illegal rubbish dumping</p> <p>Implement district/village drainage cleanup and awareness programme</p> <p>Produce posters and village signs for public awareness</p> <p>Responsibility: MNRE/ MWCS/ District/ Village</p>	<p>extreme weather events</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>Review wastewater strategy/ legislation to include role of Village/District bylaws</p> <p>Develop/Update and register District/Village bylaws to include regulating developments and latrines around catchment areas and areas susceptible to flooding</p> <p>Utilise Hazard maps and Geomorphologist findings to inform location</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes on waste management</p>	<p>Management Strategy</p> <p>Village Fono Act(Amendment Bill 2016)</p>
<p>Natural Resources and Environment</p>	<p>Best Solutions</p>	<p>Benefits</p>	<p>Guideline to assist with the Implementation</p>	<p>Relevant Sector Plans, National Strategies & Policies</p>
<p>District Upland Forest and Catchment Areas</p>	<p>Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area</p> <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>Regulate developments around catchment area, SWA intake and boreholes in district</p> <p>Limit land clearance and agricultural development around SWA intake and</p>	<p>Protects and enhance local species diversity</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,</p>	<p>Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 1 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>MNRE Forestry to advice on appropriate species, depth and density of planting and provide seedlings for different vegetation types suitable to the habitats and planting materials for village</p>	<p>Two Million Tree Planting Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p> <p>Village Fono Act (Amendment Bill 2016)</p> <p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p> <p>Community Engagement Plan</p>

	<p>boreholes</p> <p>Conduct campaign for public awareness and establish a “neighbourhood watch” agreement with district to monitor and report on illegal deforestation</p> <p>District/village to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes</p> <p>District to support SWA efforts at exploratory intakes and boreholes in district</p> <p>Continue ban of destructive fishing practices including sand mining and introduce village ban on rubbish dumping in waterways and watercourses (immediate fluvial hazard zones)</p> <p>Fence domestic and invasive animals to protect young trees</p> <p>Responsibility: MNRE/ SWA/MWCSD/ District /Village /CSSP</p>	<p>houses and roads</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>Sand/rock extraction (domestic): coastline, rivers and riverbanks</p>	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p> <p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable</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 sandmining 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>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>

	land use practices Responsibility: MNRE/ Village/Families		Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities	
Mangrove area conservation	<p>Protect ridge-top habitats and forests from indiscriminate cultivate and other developments</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>Discourage large scale agricultural ventures and other developments that threaten catchment areas, upland native forests and sensitive habitats</p> <p>Village to collect and dispose of crown-of-thorns (alamea) on a regular basis to prevent major outbreaks</p> <p>Responsibility: MNRE /MAF/ Village /CSSP/ UNDP-GEF SGP</p>	<p>Protects and enhance local species diversity</p> <p>Sustains ecosystem services and functions</p> <p>Reduce contamination of water supply</p> <p>Reduce impact from inland flooding</p>	<p>MNRE DEC to continue to provide technical assistance and backstopping for wetland and mangrove conservation programmes</p> <p>MAF to continue to support community-based fisheries reserve</p>	<p>NESP 2018 -2022</p> <p>Community Engagement Plan</p>
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species (african snails, crown-of-thorns, and worms affecting plantations and vegetable gardens)	<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</p>	<p>Maintains natural ecosystem</p> <p>Builds resilience of community livelihood and food security</p>	<p>Develop an integrated land management plan for Faasaleleaga 1 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 raise awareness of farmers on impacts to water flows from poor livestock management</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>NESP 2018 -2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>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>Responsibility: Villages /District/ MNRE/MAF/ SROS</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>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>Replanting of native forestry species of the upland forests to restore resilience and ecological function</p> <p>Conduct pilot site trials for climate ready plant varieties</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 aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area</p> <p>MNRE Forestry to advice on appropriate species,</p>	<p>AgricultureSectorPlan2016-2021</p> <p>Community Engagement Plan</p> <p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>

	Responsibility: MAF/ MNRE/villages/CSSP		depth and density of planting and provide seedlings for different vegetation types suitable to the habitats and planting materials for village	
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	<p>Update and/or develop by laws 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>Responsibility: 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>



Faasaleleaga I District



ADAPTATION FUND



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3. Salelologa Township and Salelologa Village Interventions

CIM Plan Solutions

Salelologa Township

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Government infrastructure and other assets located in high risk hazard zones (immediate fluvial, inundation and tsunami shore exclusive 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 landuse planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families, government, businesses and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges</p> <p>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & 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 1 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 landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

<p>Drainage systems to be improved in high risk hazard zones areas</p>	<p>Assess and upgrade culverts on main Salelologa Road, LTA Road, Township Road, main Palauli South Coast Road and junction of Salelologa Inland Road and South-East Coast Road exacerbating inland flooding and storm water surges affecting government infrastructure, CBD and other assets- 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>Responsibility: LTA/ MWTI/MWCSD /Village / Families</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</p> <p>Minimise 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 1 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>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
<p>Upgrade access/ work roads to reduce storm water overflow and run off into Salelologa Township area</p>	<p>Assess and upgrade all relevant access roads as potential escape routes and to reduce flooding affecting main Salelologa township</p> <p>Upgrade to include adequate sized culverts to facilitate the</p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness and readiness response to</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 1 District. MNRE to</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>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 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>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</p>	<p>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>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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	<p>Village Fono Act (Amendment Bill 2016)</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</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>Management Plan (VCD MP)</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>Responsibility: MNRE / DMO / MWTI / Village / CSSP / Council of Churches / MWCS</p>			
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<p>Electricity supply</p>	<p>Provide underground lines in the long term</p> <p>Install and connect power supply for inland residents</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for 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>Responsibility: EPC/ MWTI/ Village/ Families</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>Effluent and wastewater management systems</p>	<p>Provide a network sewage collection and treatment system for Salelologa</p> <p>Introduce ban on latrines established in and around fluvial hazard zones</p> <p>Families in fluvial hazard zones to install proper septic waste disposal systems</p> <p>Families to fence domestic animals</p> <p>Implement village awareness and cleanup programme to reduce illegal rubbish dumping</p> <p>Implement district/village drainage cleanup and awareness programme</p>	<p>Increase adaptation during extreme weather events</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of 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>Review wastewater strategy/ legislation to include role of Village/District bylaws</p> <p>Develop/Update and register District/Village bylaws to include regulating developments and latrines around catchment areas and areas susceptible to flooding</p> <p>Utilise Hazard maps and Geomorphologist findings to inform location</p> <p>Utilise Sui o Nu'u monthly</p>	<p>National Waste Management Strategy</p> <p>Village Fono Act (Amendment Bill 2016)</p>

	<p>Produce posters and village signs for public awareness</p> <p>Responsibility: MNRE/ MWCSO/ District/ Village</p>		<p>meetings to monitor progress of village programmes on waste management</p>	
Natural Resources and Environment	Best Solutions	Other Benefits	Implementation Guideline	Relevant Sector Plans National Strategies & Policies
<p>Sand/rock extraction (domestic): coastline, rivers and riverbanks</p>	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p> <p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable land use practices Responsibility: MNRE/ Village/Families</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 sandmining 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> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>

Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	<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>Responsibility: MWCSO /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>

SalelologaVillage

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Upgrade access/ work roads of Salelologa village to reduce storm water overflow and run off into Salelologa Township area	<p>Assess and upgrade all relevant access roads as potential escape routes and to reduce flooding affecting main Salelologa township</p> <p>Assess feasibility of connecting access roads Sapulu, Vaimauga and Salelologa Inland Road as potential</p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness and readiness response to natural disasters</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 1 District. MNRE to develop zonation strategy for safe areas</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>connectivity road if township roads are impassable during extreme events</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 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>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</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>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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	<p>Village Fono Act (Amendment Bill 2016)</p>
<p>Village houses, school, 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</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from coastal erosion and flooding</p>	<p>Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 1 District. MNRE to develop zonation strategy for safe areas</p> <p>Utilise hazard maps and Geomorphologist Drainage Infrastructure</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>

	<p>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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE</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>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 landuse 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 (VCD</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>MP)</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>Responsibility: MNRE / DMO/ MWTI/ Village /CSSP/Council of Churches/MWCSD</p>			
<p>Electricity supply</p>	<p>Provide underground lines in the long term</p> <p>Install and connect power supply for inland residents</p> <p>Relocate overhead lines to a more resilient location when being replaced</p> <p>Install streetlights along the roads where needed for community safety</p> <p>Install and connect to solar power supply if</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>made available</p> <p>Families to limit building and developments near electricity posts</p> <p>Responsibility: EPC/ MWTI/ Village/ Families</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 systems for vulnerable families as a short term solution</p> <p>Procure rainwater harvesting systems for identified evacuation shelter(s)</p> <p>District and village to support SWA water rationing programmes during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas</p> <p>Responsibility: SWA/ MWCSP/ MNRE / District/ Village/ CSSP</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 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>Utilise hazard maps and Geomorphologist findings to inform designs</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>Community Sector Plan</p>

<p>Effluent and wastewater management systems</p>	<p>Provide a network sewage collection and treatment system for district</p> <p>Introduce ban on latrines established in and around fluvial hazard zones</p> <p>Conduct campaign for public awareness of district ban and establish a “neighborhood watch” agreement with district to monitor and manage introduced policies</p> <p>Government, district and villages to monitor, report and apply penalty on offenders</p> <p>Government to monitor waste collection contractors and apply penalties according to relevant legislation</p> <p>Responsibility:MNRE /MWCS D/District/Villages</p>	<p>Increase adaptation during extreme weather events</p> <p>Improve infrastructure resilience and rate of recovery</p> <p>Improve health and sanitation</p> <p>Reduce contamination of water supply</p>	<p>Develop an integrated land management plan for Faasaleleaga 1 District</p> <p>Utilize Waste Management Act/Legislation to guide process of effecting the ‘polluter pays’ principle</p> <p>Review wastewater strategy/ legislation to include role of Village/District bylaws</p> <p>Develop/Update and register District/Village bylaws to include regulating developments and latrines around catchment areas and areas susceptible to flooding</p> <p>Include in budget programming design, and installment of sewage and treatment systems</p> <p>Utilize Hazard Maps and Geomorphologist findings for planning purposes</p> <p>Utilize Sui o Nu’u monthly meetings to monitor progress of village programs on waste management</p>	<p>National Waste Management Strategy</p> <p>National Waste Management Policy</p> <p>NESP 2017-2021</p> <p>Village Fono Act(Amendment Bill 2016)</p>
<p>Natural Resources and Environment</p>	<p>Best Solutions</p>	<p>Benefits</p>	<p>Guideline to assist with the Implementation</p>	<p>Relevant Sector Plans, National Strategies & Policies</p>
<p>Sand/rock extraction (domestic): coastline, rivers and riverbanks</p>	<p>Identify alternative sustainable sources of sand/rocks for domestic use</p> <p>Research the impacts of sand mining</p>	<p>Mitigate potential damage from coastal erosion and flooding accommodating the hazard</p>	<p>MNRE to continue to identify specific sites for inshore/inland sustainable sand/rock mining to meet demand without compromising riverbanks</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Draft Soil Resource Management Bill</p>

	<p>Village consultation on sand mining policy and regulation</p> <p>Village and government to collaborate closely on designated areas for sand/rock mining</p> <p>Raise awareness and support of sustainable land use practices</p> <p>Responsibility: MNRE/ Village/Families</p>	<p>Safer villages, houses and roads</p> <p>Reduce impact from coastal erosion</p> <p>Economic benefit for village from sustainable sandmining activities</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> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities</p>	
<p>Illegal rubbish dumping</p>	<p>Implement village awareness and cleanup programme to reduce illegal rubbish dumping</p> <p>Implement 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</p>	<p>Improve health and sanitation</p> <p>Reduce leachate into environment and water supply</p> <p>Reduce contaminant from overland flooding entering sea</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>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>National Waste Management Strategy</p> <p>National Waste Management Policy</p> <p>NESP 2018 -2022</p> <p>Village Fono Act(Amendment Bill 2016)</p>

	<p>on offenders</p> <p>Responsibility: MNRE/ District/ Village</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>Responsibility: MNRE/ MAF/Villages</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 1 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>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 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>Responsibility: CSSP/ NGOs/MNRE/Villages</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 & 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>

Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<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>Responsibility: MWCSD /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>



Salelologa Township Map

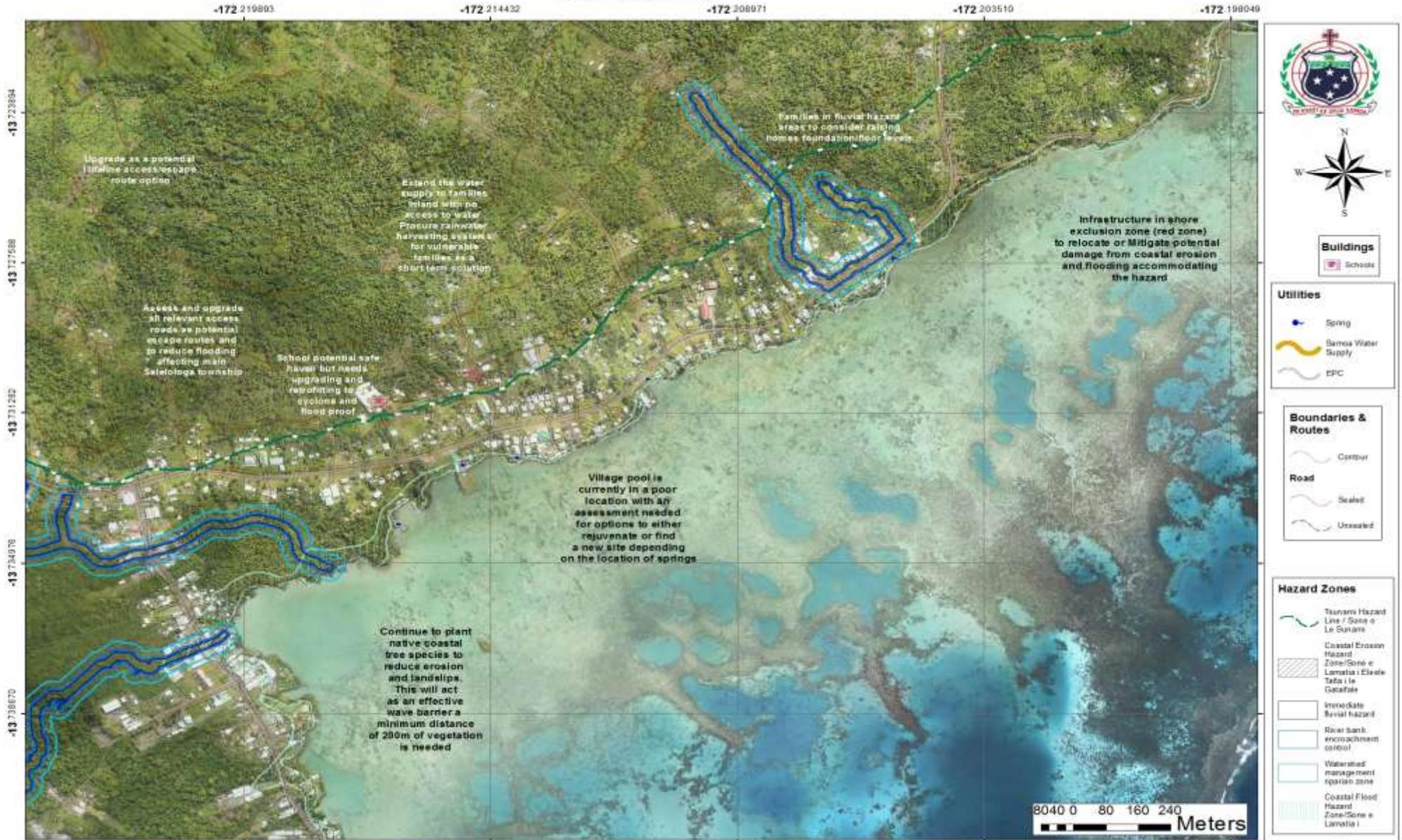


Coordinate System: GCS WGS 1984
 Datum: WGS 1984
 Units: Degree

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

Salelologa Village Map

Salelologa 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. Salelavalu 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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE/ MWCS</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 landuse planning controls and restrictions</p>	<p>CIM Strategy 2015</p> <p>NESP 2018 -2022</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>[Draft] Samoa Relocation Strategy 2016</p>

<p>Upgrade access/work roads to reduce storm water overflow and run off into South East Coast Road</p>	<p>Upgrade Salelavalu Access Road 1, Access Road 2 and Salelavalu Road to facilitate the overland flow of storm water and reduce flooding onto main South East Coast road and further downhill into school grounds and neighboring houses</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 restrict rubbish dumping into waterways and conduct regular clearance of rubbish behind homes</p> <p>Village to regulate developments near and around road shoulders o all access roads</p> <p>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</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 1 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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</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 systems for vulnerable families as a short term solution</p> <p>Procure rainwater harvesting systems for identified evacuation shelter(s)</p> <p>District and village to support SWA water rationing programmes during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas</p> <p>Responsibility:SWA/ MWCSPP/ MNRE / District/ Village/ CSSP</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 and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>ImplementSWA(2016) 10year investmentplantoimprovewatersupplynetworkto support allinlandfamilieswithout access todrinkingwater</p> <p>Include in budget programming design, andextension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilise hazard maps and Geomorphologist findings to inform designs</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of village programmes and responsibilities</p>	<p>CIM Strategy 2015</p> <p>WaterandSanitationSectorPlan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p> <p>Community Sector Plan</p>
<p>Electricity supply</p>	<p>Provide underground lines in the long term</p> <p>Install and connect power supply for inland residents</p> <p>Relocateoverheadlinesto amore resilientlocationwhen being replaced</p> <p>Install streetlights along the roads where needed for 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>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>

	<i>Responsibility: EPC/ MWTI/ Village/ Families</i>			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Coral reefs, lagoons and inshore fishery reserve	Collect and dispose of crown-of-thorns (alamea) on a regular basis to prevent major outbreaks Responsibility: MAF/ Villages	Protect coral reefs and inshore fisheries Protect marine biodiversity	MAF Fisheries to support implementation and provide technical backstopping and monitoring	Agriculture Sector Plan 2016-2021
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	Village pool is currently in a poor 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) Village to remove latrines upstream from village pools <i>Responsibility: CSSP/ NGOs/MNRE/Villages</i>	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	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 1 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

Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
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 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>Responsibility: Villages /District/ MNRE/MAF/ SROS</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 pests management particularly affecting fruit trees and crops</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>NESP 2018 -2022</p> <p>Samoa’s National Invasive Species Action Plan (NISAP)</p>

Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<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>Responsibility: 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>



Salelavalu Village Map

Salelavalu 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

5. Iva Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Village houses, Churches, School and private residences 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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE/ MWCS D</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 landuse planning controls and restrictions</p>	<p>CIM Strategy 2015</p> <p>NESP 2018 -2022</p> <p>National Building Code</p>

<p>Upgrade access/work roads to reduce storm water overflow and run off into South East Coast Road and school grounds</p>	<p>Upgrade Iva Access Road, Iva Road and Iva Park Road to include adequate to facilitate the overland flow of storm water and reduce flooding onto main South East Coast road, school grounds and neighboring houses</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 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>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</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 1 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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>
<p>Extend Iva Access Road to facilitate relocation inland</p>	<p>Assess feasibility of extending Iva Access Road</p> <p>Enforce environmental</p>	<p>Improve preparedness and readiness response to natural disasters</p>	<p>Utilize Hazard Maps/models and Geomorphologist Drainage Infrastructure Database to inform location</p> <p>Utilize the environmental</p>	<p>CIM Strategy 2015</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>Community Sector Plan</p>

	<p>safeguards</p> <p>Village to resolve land issues</p> <p>Responsibility: Village / MWTI</p>	<p>Safer villages, houses and roads</p>	<p>and social safeguards including EIAs in screening and designing infrastructure facilities</p> <p>Undertake a Cost Benefit Analysis to weigh options for funding</p> <p>Designation of the CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	
<p>Reticulated water supply, quality and network to be improved</p>	<p>Assess old pump in village whether fit for reuse (borehole)</p> <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>Procure rainwater harvesting systems for identified evacuation shelter(s)</p> <p>District and village to support SWA water rationing programmes during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas</p> <p>Responsibility:SWA / MWCSP/ MNRE / District/ Village/ CSSP</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 and register District/Village bylaws to include regulating developments around catchment areas and boreholes</p> <p>ImplementSWA(2016) 10year investmentplantoimprove watersupplynetworkto support allinlandfamilieswithout access todrinkingwater</p> <p>Include in budget programming design, andextension costs of water supply and procurement of rainwater harvesting systems</p> <p>Utilise hazard maps and Geomorphologist findings to inform designs</p> <p>Utilise Sui o Nu’u monthly meetings to monitor progress of village programmes and responsibilities</p>	<p>CIM Strategy 2015</p> <p>WaterandSanitationSectorPlan</p> <p>SWA 10 Year Investment Plan(2016)</p> <p>Community Engagement Plan</p> <p>Community Sector Plan</p>

Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Village pool (Vaifou) 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.</p> <p>Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works)</p> <p>Village/women's committee to remove latrines near village pool(s)</p> <p>Responsibility: CSSP/NGOs/MNRE/Villages</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 & 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>Responsibility: MNRE/MAF/Villages</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 1 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>Rubbish behind rivers and homes</p>	<p>Implement village awareness and cleanup programme to reduce illegal rubbish dumping</p> <p>Implement district/village</p>	<p>Improve health and sanitation</p> <p>Reduce leachate into environment and water supply</p> <p>Reduce</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</p>

	<p>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>Responsibility: MNRE / District/ Village</p>	<p>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>Management Policy</p> <p>NESP 2018 -2022</p> <p>Village Fono Act(Amendment Bill 2016)</p>
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
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</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>Agriculture Sector Plan 2016-2021</p> <p>NESP 2018 -2022</p> <p>Samoa’s National Invasive Species Action Plan (NISAP)</p>

	<p>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>Responsibility: Villages /District/ MNRE/MAF/ SROS</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>	
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<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 natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</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>

	Responsibility: <i>MWCSD /Village</i>			
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Non-CR issues raised during consultations	Proposed Solution	Comments
School grounds Responsibility: <i>Village/MESC</i>	Raise level of school grounds to avoid ponding from inland flooding	Indirectly related to CR however school is located in hazard zone (CEHZ, CFHZ) and is also affected from inland flooding due to inadequate drainage and culverts on roads. Recommendation of school relocation away from hazard zones still applies



Iva Village Map

'Iva Village



6. Vaiafai Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, school and other village assets 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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & 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 1 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 landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>
Drainage systems to be improved in high risk areas on main South-East Coast Road especially at junctions with Vaiafai Access	<p>Assess and upgrade culverts on main South East Coast road especially at junctions with access roads (Vaiafai Access Rd)– in accordance with <i>Vulnerability Assessment of the Samoa Road Network</i> recommendations</p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters</p>	<p>Use existing information for guidance but not limited to:</p> <p>“Vulnerability Assessment of the Samoa Road Network (2017)”; “Review of National Road Standards in Samoa (2016)”; “Samoa</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>road</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>Responsibility: LTA/ MWTI/MWCSD /Village / Families</p>	<p>Encourages coastal families to relocate inland</p> <p>Maintains lifeline access</p> <p>Minimise national disaster recovery expenditure on damaged properties, public and private assets</p>	<p>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 1 District</p> <p>Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways</p>	
<p>Upgrade access/work roads to reduce storm water overflow and run off into South East Coast Road and family/ village homes</p>	<p>Assess and upgrade Vaiafai Access roads to reduce inland flooding</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 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</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</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 1 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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ,</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>all access roads</p> <p>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</p>	<p>public assets</p>	<p>CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<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.</p> <p>Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works)</p> <p>Responsibility: CSSP/ NGOs/MNRE/Villages</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 & 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>Mangrove area replanting</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>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 1 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>

	Responsibility: MNRE/ MAF/Villages			
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive species	<p>Implement an eradication programme to eradicate, contain or exclude invasive species 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>District to fence domestic animals</p> <p>Responsibility: Villages /District/ MNRE/MAF/ SROS</p>	<p>Maintains natural ecosystem 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 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>Agriculture Sector Plan 2016-2021</p> <p>NESP 2018 -2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage	Strengthen implementation of all national sector plans	Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector</p>

<p>land use through Bylaws</p>	<p>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 natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCSO /Village</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>Plan</p> <p>Community Development Plan 2016-2021</p>
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Vaiafai Village Map

Vai'afai 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

7. Vaisa'ulu Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE/ MWCS D</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 landuse planning controls and restrictions</p>	<p>CIM Strategy 2015</p> <p>NESP 2018 -2022</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2 KO 1</p> <p>[Draft] Samoa Relocation Strategy 2016</p>
Upgrade Vaisaulu access/ work road to reduce storm water overflow and run off into South East Coast Road and family/ village homes	Upgrade to include adequate sized culverts to facilitate the overland flow of storm water exacerbating river overruns, and to reduce flooding onto	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness</p>	<p>Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and designs</p> <p>Develop an Integrated Flood Management Plan for</p>	<p>CIM Strategy 2015</p> <p>Community Sector Plan</p> <p>Village Fono Act (Amendment Bill)</p>

	<p>main roads and village lands</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>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</p>	<p>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>Faasaleleaga 1 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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	<p>2016)</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 systems for vulnerable families as a short term solution</p> <p>Procure rainwater harvesting systems for identified evacuation shelter(s)</p> <p>District and village to support SWA water rationing programmes during times of drought</p> <p>District to support SWA</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 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>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>Community Sector Plan</p>

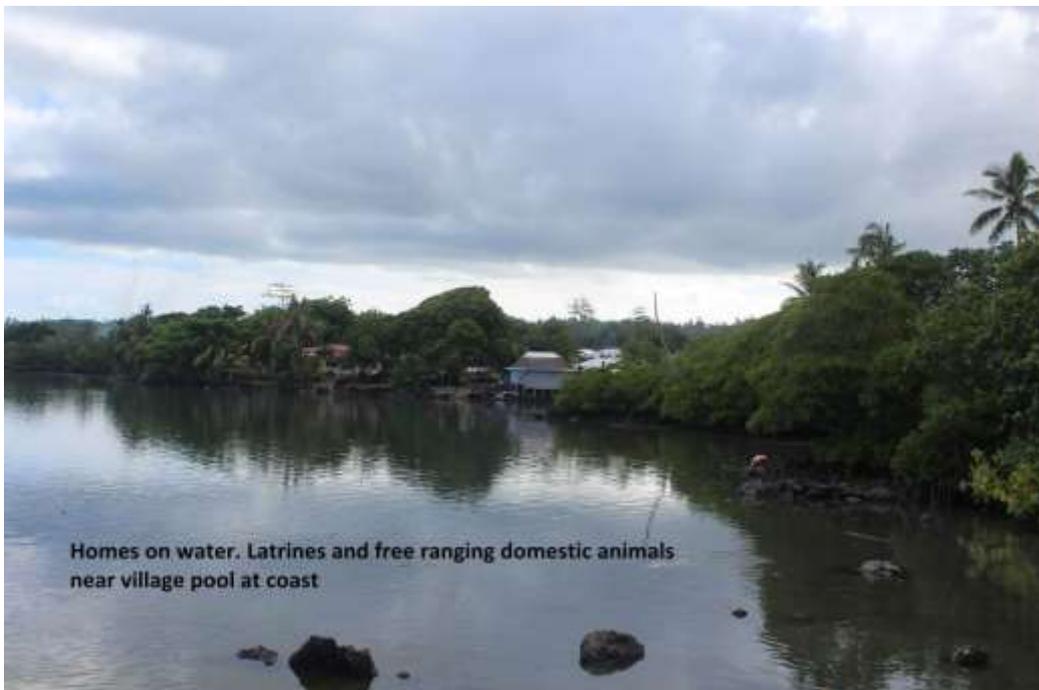
	<p>efforts at exploratory boreholes in district</p> <p>District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas</p> <p>Responsibility:SWA/ IWS/MWCSD/ MNRE / District/ Village/ CSSP</p>		<p>Utilise hazard maps and Geomorphologist findings to inform designs</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities</p>	
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<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 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>Responsibility: CSSP/ NGOs/MNRE/Villages</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 & 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>Coral reefs, lagoons and inshore fishery</p>	<p>Collect and dispose of crown-of-thorns (alamea) on a regular basis to prevent major outbreaks</p> <p>Responsibility: MAF/ Village</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>MNRE DEC to provide technical assistance and backstopping to support re-growth of coral reefs</p> <p>MAF Fisheries to support implementation and provide technical backstopping to re-stock marine resources</p> <p>Identify funding/budget requirements and implementation programme for establishment of protected areas in village</p>	<p>NESP 2017-2021</p> <p>Community Engagement Plan</p> <p>Agriculture Sector Plan 2016-2021</p>

Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Pest management; invasive species</p>	<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 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>Responsibility: Villages /District/ MNRE/MAF/ SROS</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 pests management particularly affecting fruit trees and crops</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>NESP 2018 -2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<p>Strengthen the governance of natural resources and land use</p>	<p>Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as</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</p>	<p>Village Fono Act (Amendment Bill 2016)</p> <p>Community Sector</p>

<p>through Bylaws</p>	<p>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 natural resources</p> <p>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCSO /Village</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>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>Plan</p> <p>Community Development Plan 2016-2021</p>
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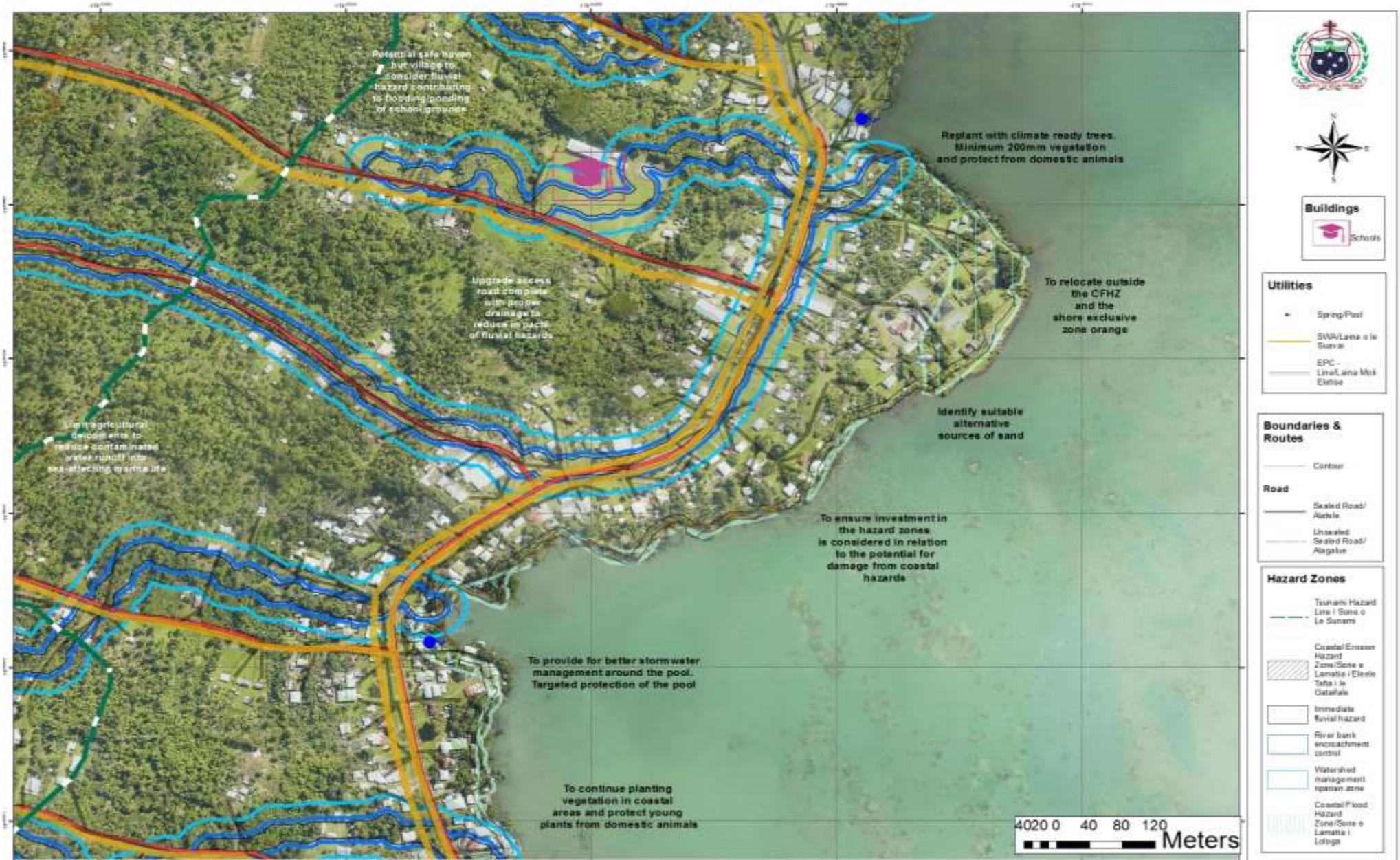
village well for drinking



Homes on water. Latrines and free ranging domestic animals near village pool at coast

Vaisa'ulu Village Map

Vaisaulu 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

8. Lalomalava Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE/ MWCS D</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 landuse planning controls and restrictions</p>	<p>CIM Strategy 2015</p> <p>National Building Code</p>
Upgrade Lalomalava Access road to reduce storm water overflow and run off into South East Coast Road and family/ village homes	<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</p>	<p>Improve infrastructure resilience and rate of recovery</p> <p>Improve preparedness and readiness</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 1 District.</p>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2</p>

	<p>lands</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>Enforce environmental safeguards</p> <p>Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families/CSSP</p>	<p>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>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. Road design standard to take account of forecast increased rainfall intensity</p> <p>Designation of the IFHZ, CEHZ and CFHZ as an “at risk” zone with appropriate landuse 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>	<p>KO 1</p> <p>Community Sector Plan</p>
<p>Upgrade causeway: potential escape route</p>	<p>Assess feasibility of upgrading causeway</p> <p>Upgrade or repair riverine embankment protection work upstream of Lalomalava</p> <p>Ensure river channel upstream is cleared and maintained regularly</p> <p>Conduct riparian replanting along river channels and watercourses</p> <p>Encourage planting of indigenous species in conjunction with engineered water land drainage action plans</p>	<p>Minimise expenditure on damaged properties & personal assets</p> <p>Mitigate potential damage from inland flooding</p> <p>Reduce flooding of built up areas</p> <p>Safer villages, houses and roads</p>	<p>Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities</p> <p>MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation</p> <p>Designation of the CEHZ and CFHZ as an “at risk” zone with appropriate landuse planning controls and restrictions</p>	<p>CIM Strategy 2015</p> <p>Two Million Tree Strategy 2015-2020</p> <p>Restoration Operational Plan 2016-2020</p>

	<p>Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments</p> <p>Responsibility: MNRE/ District/ Village</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>Procure rainwater harvesting systems for identified evacuation shelter(s)</p> <p>District and village to support SWA water rationing programmes during times of drought</p> <p>District to support SWA efforts at exploratory boreholes in district</p> <p>District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas</p> <p>Responsibility: SWA/ IWS/MWCSD/ MNRE / District/ Village/ CSSP</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 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 and Geomorphologist findings to inform designs</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>Health Sector Plan</p> <p>Community Sector Plan</p>
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village pool (Tufu, Agape, Pumoomoo and Puna) located in high risk hazard	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	<p>Increase adaptation during drought periods</p> <p>Improve health and sanitation</p>	<p>Utilise Hazard Maps and Geomorphologist findings for planning purposes</p> <p>MNRE Water & Sanitation to conduct water testing</p>	<p>CIM Strategy 2015</p> <p>Water and Sanitation Sector Plan</p>

<p>zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)</p>	<p>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>Responsibility: CSSP/NGOs/MNRE/Villages</p>	<p>Reduce contamination of water supply</p>	<p>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>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>Responsibility: MNRE/MAF/Villages</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 1 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>Livelihood and Food Security</p>	<p>Best Solutions</p>	<p>Benefits</p>	<p>Guideline to assist with the implementation</p>	<p>Relevant Sector Plans, National Strategies & Policies</p>
<p>Pest management; invasive species</p>	<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</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</p>	<p>Agriculture Sector Plan 2016-2021</p> <p>NESP 2018 -2022</p> <p>Samoa's National Invasive Species Action Plan (NISAP)</p>

	<p>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>Responsibility: Villages /District/ MNRE/MAF/ SROS</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>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>	
Governance	Best Solutions	Other Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
<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 natural resources</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</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>Facilitate continuous awareness raising programs with the villages</p> <p>Responsibility: MWCSO /Village</p>	<p>term</p> <p>Improve accountability and enabling environment of communities</p>		
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Lalomalava 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

9. Safua Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, school and government assets located in IFHZ	<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 landuse 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>Responsibility: Village / Families /MWTI/ MNRE</p>	<p>Minimise expenditure on damaged properties & 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 1 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 landuse planning controls and restrictions</p>	<p>National Building Code</p> <p>CIM Strategy 2015</p>
Drainage systems require maintenance and upgrade in high risk areas of main South East Coast Road	<p>Assess and upgrade culverts on main South West Coast road especially at junction with Safua Access Road -in accordance with <i>Vulnerability</i></p>	<p>Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and</p>	<p>Use existing information for guidance but not limited to:</p> <p>“Vulnerability Assessment of the Samoa Road</p>	<p>CIM Strategy 2015</p> <p>NISP2011 KESO 5</p> <p>TSP2014-2019 Goal 2 KO 1</p>

	<p><i>Assessment of the Samoa Road Network recommendations</i></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>Responsibility: LTA /MWTI/MWCSD /Village/ Families</p>	<p>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>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 1 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>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 systems for vulnerable families as a short term solution</p> <p>Procure rainwater harvesting systems for identified evacuation shelter(s)</p> <p>District and village to support SWA water rationing programmes during times of drought</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 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</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>Community Sector Plan</p>

	<p>District to support SWA efforts at exploratory boreholes in district</p> <p>District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas</p> <p>Responsibility:SWA / MWCSP/ MNRE / District/ Village/ CSSP</p>		<p>harvesting systems</p> <p>Utilise hazard maps and Geomorphologist findings to inform designs</p> <p>Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities</p>	
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Coral reefs, lagoons and inshore fishery	<p>Collect and dispose of crown-of-thorns (alamea) on a regular basis to prevent major outbreaks</p> <p>Responsibility: MAF /Villages</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>MNRE DEC to provide technical assistance and backstopping to support re-growth of coral reefs</p> <p>MAF Fisheries to support implementation and provide technical backstopping to re-stock marine resources</p> <p>Identify funding/budget requirements and implementation programme for establishment of protected areas in village</p>	<p>Community Engagement Plan</p> <p>Agriculture Sector Plan 2016-2021</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 conditions</p> <p>To act as an effective wave barrier, a minimum distance of 200m of vegetation is</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 Palauli le Falefa 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>

	needed Responsibility: MNRE/ MAF/Villages			
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	<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>Responsibility: 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>



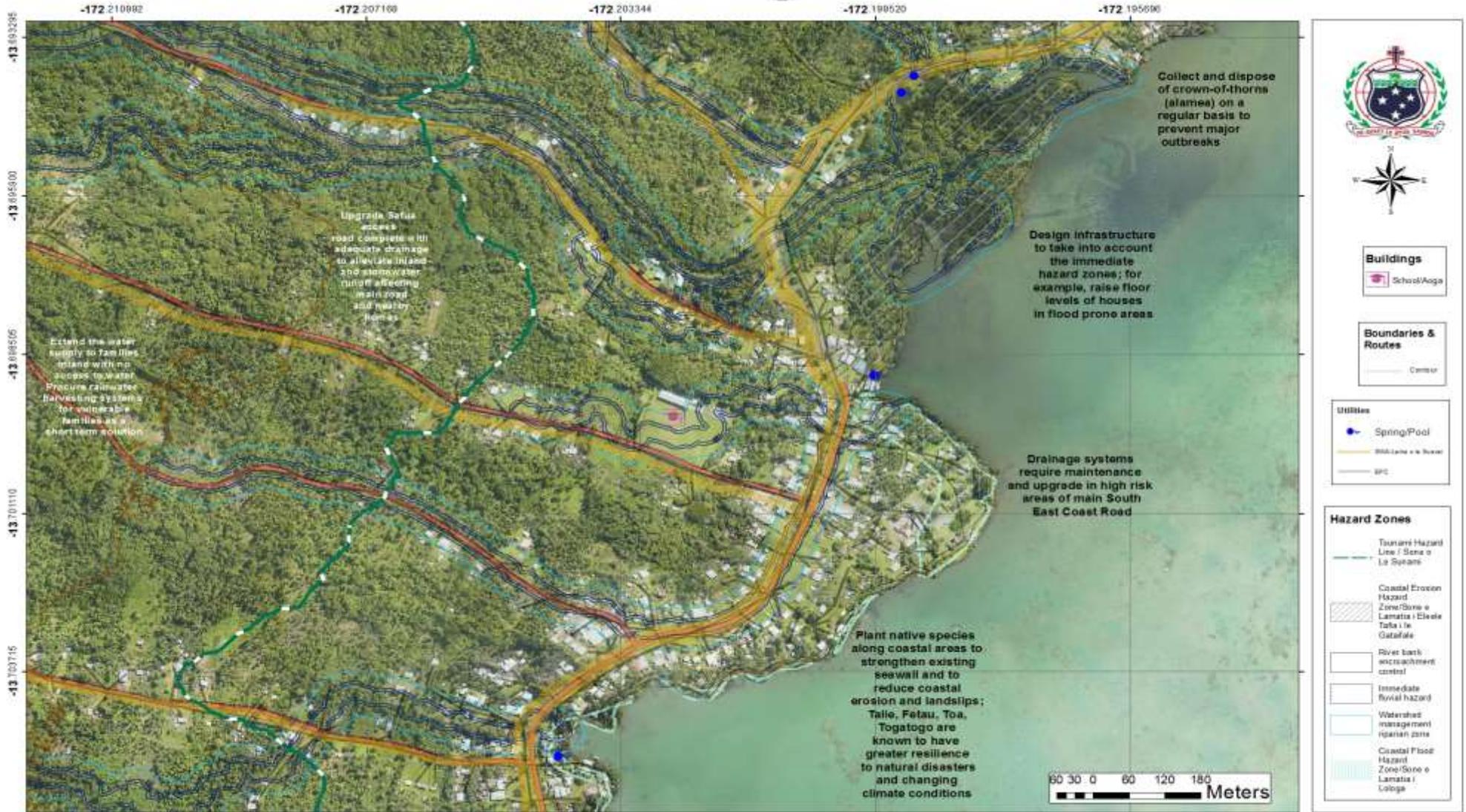
Natural protection (wetland)



Septic tank over the water

Safua Village Map

Safua Village



Savaii AF Districts Overview Map of Coastal Inundation Zones

