Community Integrated Management Plan

Va'a o Fonoti District - Upolu



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

Hop. 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 Va'a o Fonoti (Faleapuna, Lona, Ma'asina, Saletele, Sauano, Salimu/Musumusu, Samamea, Taelefaga and Uafato villages).

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

Date of Signing 22 June 2018

Representative:

Signature:

Faleapuna Village

- Lemalu Sau Lemalu
- Pa Isaia
- Limutau Kirisimasi
- Lenuu Faamoana
- Fonoti Menefata

Lona Village

- Logo Vaelua Lavasii
- Magele Some
- Iosefa Brown
- Puna Oeti
- Kalolo Mika

Deti LING

Ma'asina Village

- Togia Ieremia
- Peati Ieremia
- Felagonai Lava
- Alofaaga Key
- Eli Konelio

Saletele Village

- Faleola Tavaseu
- Taputapu Taito
- Taito Pafelio

Sauano Village

- Tiavatia Konelio
- Saegaese Fuauli
- Fausia Sinei Tama
- Utaimalie Leuluaialii
- Tolua Limutau

Salimu/Musumusu Village

- Ifopo Lio
- Siatuolo Peni
- Fea
- Tauiliili
- Lagi

Tagia latine

Prati Lecomia

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Epitopo Taito

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Solua J ..

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Samamea Village

- Fofoga Fiafia
- Anna Tafaoialii
- Leiataua Pulemaituaaiga
- Peter Peterson
- Tofiau Puepuemai

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Rela

Japina. P

Taelefaga Village

- Leuta Siala Valeaga
- Anovale Masani
- Sialafau Leuta
- Pisi Atiifale
- Samuelu Fasi

Uafato Village

- Talalelei Tuimalatu
- Leau Onosai
- Alaifue Iupeli
- Tiaseu Viliata
- Alaifue Roni

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ARom :

The Government of Samoa adopts the Community Integrated Management Plan for the Faipule District of Vaa o Fonoti as 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
ССА	Climate Change Adaptation
CDCRM	Community Disaster & Climate Risk Management
СЕР	Community Engagement Plan
CHZ	Coastal Hazard Zone
СЕНZ	Coastal Erosion Hazard Zone
0000	
CFHZ	Coastal Flooding Hazard Zone
	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
МоН	Ministry of Health
MNRF	Ministry of Natural Resources and Environment
MWCSD	Ministry of Women Community and Social Development
MWTI	Ministry of Work Transport and Infrastructure
NAD	National Action Programme
	National Rediversity Action Dan
NDMD	National DioutverSity Action Flan
	National Disaster Management Flam
NED	National Environment Sector Plan
NISP	
	Non-Revenue water
PA - KU	Priority Area - Key Outcome
PUMA	Planning Urban Management Agency
PPCR	Pilot Programme Climate Resilience
R2R	Ridge to Reet
SIAM	Samoa Intrastructure 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

A Management option that involves continuing with the present maintenance and upgrading programme on and when required basis.
To provide communities with skills, facilities and materials so that they may adapt, respond and recover more quickly in the event of emergencies.
Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life
Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as these to fall 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)
The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid)
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 in security). The concept of stability can therefore refer to both the availability and access dimensions of food security.
Utilization of food through adequate diet, clean water, sanitation and healthcare 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
A source of potential harm or a situation with a potential to cause loss.
Defined areas 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 six hazard zones:
ASCHs (areas sensitive to coastal hazards);
CEHZs (coastal erosion hazard zones);
CFHZs (coastal flood hazard zones) and
 <i>CLHZs</i> (coastal landslip hazard zones) <i>CIHZ</i> (coastal inundation hazard zones) Coastal Inundation 0 to 15mASL – immediate coastal inundation hazard zone Coastal Inundation 15 to 20mASL – 5-metre uncertainty buffer on the immediate coastal inundation hazard zone (due to potential LiDAR inaccuracies) Coastal Inundation 20 to 50mASL – additional hazard zone for the purpose of assessing/planning the location of tsunami protection infrastructure beyond the 0-20mAMSL contour. Please note tsunami risk includes 0-20mASL, so tsunami hazard zones need to include the 0-15mASL and 15-20mASL polygons as well as the 20-50mASL polygon Coastal Inundation 50 to 55mASL – 5-metre uncertainty buffer on the tsunami infrastructure hazard zone (due to potential LiDAR inaccuracies) <i>IFHZ</i> (immediate fluvial hazard zone) within the steep banks of the river gorges

- Watershed management riparian zone – 20m buffer on either side of the river banks

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 Guideline	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. landuse includes areas used for villages or crops, resource use includes activities such as sand mining, gravel extraction or fishing).
Livelihood	Livelihood refers to a person or group's "means of securing the necessities -food, water, shelter and clothing- of life".
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

1. Introduction to the CIM Plan

1.1 The Strategic Vision

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

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

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

1.2 The Aim of the CIM Plan

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

The CIM Plan will:

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

1.3 Structure of the Plan

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

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

2. Implementation Guidelines

2.1 Purpose of the Implementation Guidelines

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

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

2.2 Duration of the Plan

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

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

2.3 Financing of the Plan

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

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

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

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

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

3. Description of Va'a o Fonoti District

3.3 Physical and Natural Resource Setting

The Vaa o Fonoti district and Saletele and Sauano in the District of Anoama'a East, are located on the northern eastern side of Upolu. It includes the villages of Uafato, Samamea, Ma'asina, Lona, Taelefaga, Salimu, Musumusu, Saletele, Sauano and Faleapuna. The District of Vaa o Fonoti and the villages of Saletele and Sauano comprise two main landscape types. The larger part of the district, to the east, is mountainous and geographically isolated, whereas that associated with the village of Faleapuna is predominately gently sloping coastal plain. Faleapuna is surrounded by the district of Anoamaa East and has more in common with that district, than the remainder of the Vaa o Fonoti District.

The larger part of the District is characterised by a series of bays backdropped by steep hills, the highest of which is Mt Fao which rises to 754metres within a kilometre of the coast. The remaining hills rise to over 500m, also within a kilometre of the coast. The largest bay, Fagaloa Bay, is bounded by Utuloa Point and East Point, and contains the settlements of Musumusu (a sub-village of Salimu), Salimu, Taelefaga, Maasina, Lona and Samamea. The smaller bay of Sauano contains Sauano and Salatele, whereas further east, the bay of Uafato contains Uafato village. Each of the bays is separated by clearly defined headlands and points, which limit the movement of tidal currents, and consequently sand, between each of the bays. A number of rivers and their tributaries pass down the hillsides into the bays. Many of the rivers contain waterfalls in their upper catchments on account of the steep topography. Towards the coast the rivers are contained by incised river valleys and drainage ditches, however heavy rainfall often results in flash flooding. The steep topography of the district is a key contributing factor to the conservation of the ecosystems and biodiversity of the district to date although the lower parts of these mountains are now under threat from land clearing activities (Reti, 2017). The narrow flat coastal plateau has small areas of houses positioned close to the coast main road and short set back from the coastline. Mainly wet climate includes small areas with moderate dry season near the coast (Dews, 2017)

Va'a o Fonoti is a relatively isolated district with a significant amount of customary land, rugged landform and difficult access. While some protection to sea level rise/storm waves is offered by offshore reefs, further erosion of the coastline and inundation by sea level rise is to be expected as climate change progresses (Townsend, 2017). Its topographic features limit opportunities for development. Landslips are frequent in this part of the district, and are particularly hazardous in the vicinity of the Fagaloa Bay Road.

The rainforest in the upper catchments to the east and west of Uafato are designated as Uafato Conservation Area mainly for the conservation of the ifilele (*Intsia bijuga*) tree species believed to have disappeared from other parts of Upolu. The steep nature of the topography provides much needed protection for the upland forest vegetation from human activity but leaves the areas vulnerable to strong winds. Wetland areas along the coast at Faleapuna and Taelefaga are susceptible to a variety of hazards including erosion, reclamation and contamination from adjacent land-use activities. These wetlands provide a buffer between the land and coastal environment and serve to protect community assets. They also contribute to the maintenance of the natural ecosystems along the coast and the maintenance of biodiversity in the area. The wetland at Taelefaga is important although its quality has been adversely affected by the construction of a ford in the late 1960's. This ford is blocking tidal flow, and disrupting the health of the wetland. Likewise the wetlands at Faleapuna are under threat from commercial sand mining limiting the transfer of sediment to and from these areas. Although commercial sand mining was banned by the village in 2001, there still remains pressure to sell sand for commercial as well as domestic supply (Reti, 2017).

The Vaipu swamp forest (within the Afulilo hydro power project area)¹ is a globally recognised critical ecological site but could be seriously threatened by any future plans to expand the Afulilo dam. Wetland areas along the coast at Faleapuna² and Taelefaga are susceptible to a variety of hazards including erosion, reclamation and contamination from adjacent land-use activities. These wetlands provide a buffer between the land and coastal environment and serve to protect community assets. They also contribute to the maintenance of the natural ecosystems along the coast and the maintenance of biodiversity in the area. The wetland at Taelefaga is important although its quality has been adversely affected by the construction of a ford in the late 1960's. This ford is blocking tidal flow, and disrupting the health of the wetland. Likewise the wetlands at Faleapuna these wetlands are under threat from commercial sand mining limiting the transfer of sediment to and from these areas. Although

¹ Note: Although the Afulilo dam is physically located in the Aleipata district, any major break in the dam will have a life-threatening effect on the communities of the Vaa-o-fonoti district

² Note: Although Faleapuna village is located within the Anoamaa east district and has common features with that district, it is in fact part of the Faipule district of Vaa-o-fonoti.

commercial sand mining was banned by the village in 2001, there still remains pressure to sell sand for commercial as well as domestic supply.

The coast-line is variously hard rocky outcrops interspersed with short stretches of soft, sandy beach. The longest length of beach, at Uafato, Fagaloa and Sauano Bays are approximately 150m. Where a reef has formed, it is reasonably close to the coast, ranging from 500m at Ma'asina to less than 100m at Uafato. Further west at Faleapuna, the coastline is markedly different and is instead characterised by a broad plain sloping gently down to the coast. The majority of Faleapuna has now relocated inland with the introduction of access roads enabling the movement of residents. The beachfront is formed from a combination of Falefa River deposits and coastal sand. The plain behind Faleapuna forms part of the Falefa River catchment, before the river enters the sea further east at Falefa. This plain also contains the settlements of Falefa, Lufilufi and Saluafata in Anoamaa East District. As a consequence activities in adjacent villages also impact on the coastal environment of Faleapuna.

Invasive species is a lesser problem for the ecosystems of Va'a o Fonoti as compared to its neighbouring distrists of Anoama'a East and Aleipata. This is due largely to the isolated location of the district from other settlement areas and away from the main invasive pathways/vectors (Reti, 2017).

3.2 Social and Economic Setting

The Va'a o Fonoti district currently has a population of 1,636. Total male 850, female 786³. The villages vary in size. The largest village is Faleapuna with a recorded population of 600. There are five primary schools⁴ in the district.

Economic circumstances of each village are also influenced by physical and social isolation. The district is dominated by fishing and areas of plantation crops including 'ava and mixed cropping on the hill sides. The three livelihood zones that occur in Va'a o Fonoti District are (i) coral reef and lagoon system that supports fisheries including mangroves (ii) small household farming plots close to the houses along the narrow coastal areas and (iii) upland forest area used for plantations including 'ava and selective timber products mainly for carving or artifacts. A recent survey⁵ of 25 districts in Upolu and Savaii showed only 4.1% of the population of Va'a o Fonoti earn income from taro plantations which means the majority of plantations are for subsistence living. Va'a o Fonoti was recorded as the highest of all 25 districts surveyed earning income from other types of plantations ('ava plantations). The other major source of income for Va'a o Fonoti came from remittances. Although considered isolated, Va'a o Fonoti was actually the lowest of all 25 districts surveyed on access to water. The district recorded only 4.5% of households with no, or poor access to water.

A number of small stores are also located throughout the District in each of the villages. The village of Faleapuna is less isolated being located on the Main East Coast Road. Development in this village is spread across the coastal plain, with much of the settlement being located inland on work roads or other access roads. The provision of good vehicle access results in large numbers of people being employed in Apia, and commuting daily to Faleapuna. This increases the extent of social interaction between the city and village. Economic activities in Faleapuna are dominated by cash incomes provided by those employed in Apia. Plantation work and fishing also contribute significantly to the local economy.

With the exception of Faleapuna, Sauano and Saletele, the larger part of the district is isolated as a result of its location and low standard of vehicle access. Infrastructure is also less developed than other areas. There are only two 'major' roads into the bays; Fagaloa Road which connects from the East Coast Road and runs through Sauano and Saletele and the Fagaloa Bay Road which links from the Lemafa Pass, linking up with the Fagaloa Road at Taelefaga and then meanders through the coastal villages of Lano, Ma'asina, Samamea all the way to Uafato. Both Fagaloa Road and Fagaloa Bay Road are in the Samoa Road Network. District development in this area is ribbon-like along the Coastal Road, with almost no development being more than a few minutes walk from this road. Most of the villages in this area are experiencing net migration loss, as villagers move to areas where infrastructure, including television coverage, is more reliable.

The EPC Taelefaga Power Station provides electricity for the larger part of the district, and is served by Afuilo Dam in the headwaters of the district catchment. The dam is connected to Taelefaga Power Station by a 3.5km pipe which passes down the hillside behind Taelefaga. Telephone lines connect the larger part of the district as far as Samamea, with a break in the line between Samamea and Uafato restricting coverage to Uafato. The telephone lines follow the

³ SBS 2016 Village profile: census preliminary count 2016

⁴ Faleapuna Primary, Sauano Primary, Taelefaga Primary, Lona Primary and Uafato Primary schools

⁵ Community Disaster and Climate Risk Management Household Survey - Final Report 2017

coastal road which makes it susceptible to extreme events. However, the majority of the district now rely on cellular phones with good coverage provided by BlueSky mobile network. The villages of Sauano and Saletele, although physically isolated, can be accessed via a sealed coastal road (Fagaloa Road), which reduces vehicle travelling times to the Main East Coast Road and Apia considerably. Consequently these communities are not under the same pressures as the villages in Fagaloa and Uafato Bays and the basic level of infrastructure is higher, primarily as a result of improved access to the villages. Telephone lines, power and water supply all follow the coastal road. Television coverage is also better in this area.

3.3 Climate Risk and Resilience

The use of LiDar mapping data, hydrologist and geomorphologist data and findings for this district has helped determine inland and coastal hazard zones and high risk areas for Va'a o Fonoti.

The district has about 3,168 hectare in area. There are **285 buildings** in the district that are both in the Coastal Flood Hazard Zone and Coastal Erosion Hazard Zone. Saletele has 35 buildings located in the tsunami shore exclusive zone which makes this village particularly vulnerable. 103 buildings in the district sit in the watershed management riparian zone. The maps show approximately 21 rivers and streams running through Sauano, Saletele, Fagaloa Bay and Uafato Bay which makes this part of the district particularly vulnerable to inland flooding and storm water runoff. For Faleapuna, 86 buildings lie in the tsunami shore exclusive zone. This 86 includes the Faleapuna Primary school. There is rapid erosion in the coastal area and relocation of these houses and buildings is highly recommended. If the buildings are to remain in this high risk hazard zone with a combination of CFHZ, CEHZ, IFHZ and red zone, then floors must be elevated, anchored and protected against flooding (Tokalauvere, 2018).

Landslides and landslips are frequent in the Vaa-o-fonoti district, and are particularly hazardous in the vicinity of the Fagaloa Bay Road especially during heavy downpour (Reti, 2017). Discoloration of the coastal waters at Taelefaga could mean that the marine environment is under considerable pressure from land based activities, in particular the EPC Hydopower Scheme. Current predictions of higher frequency and intensity of cyclones do not bode well for ecosystem conservation in this region. This is of great concern as some of Samoa's critically endangered native bird species (e.g. tooth-billed pigeon and mao) are believed to be found in the Uafato forest area. Opening up of previously inaccessible interior lands especially for access roads is an open invitation to the degradation of important ecosystems which is critical to community resilience.

The district of Vaa o Fonoti has a variety of adaptation challenges due to the steep terrain and narrow coastal plateau. Resilience is achieved by maximizing crop and livestock production while not impacting on the natural ecosystem and the environmental serves derived from the ecosystem. The utilization of a variety of crops allows for diversification and reduces the risk of community's livelihoods and food security being compromised from hazards and climate change impacts (Dews, 2017).

4. Va'a o Fonoti District Interventions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National
				Strategies & Policies
Coastline protection: upgrade and extend seawalls at most high risk hazard zones	Assess, strengthen and extend seawalls in most high risk areas of Fagaloa and Uafato Bay to reduce vulnerability of road and other critical village assets in accordance with <i>Vulnerability</i> <i>Assessment of the</i> <i>Samoa Road Network</i> recommendations Clear debris from existing culverts near seawalls to enable free outflow of storm water and streams Research the impacts of sand mining Village consultation on sand mining policy and regulation Enforce environmental social safeguards where reclamations, sand mining, extraction or other major coastal works are proposed. Government and village to manage processes by requiring villagers to get the appropriate permits and consent <i>Responsibility: LTA/</i> <i>Village /MNRE/MWTI</i>	Improve infrastructure resilience and rate of recovery Reduce impact from coastal erosion Safer villages, houses and roads Minimise expenditure on damaged properties & personal assets	Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and design Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways	CIM Strategy 2015 TSP2014-2019 Goal 2 KO 1 Draft Soil Resource Management Bill
Part of Fagaloa Road serving Sauano, Salimu/ Musumusu, Taelefaga and Fagaloa Bay Road exposed to	Investigate relocating road inland in most vulnerable parts of coastline Continue to upgrade roads, upsize ocean outfalls and improve	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters	Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the
risk ⁶ hazard	drainage systems to		Undertake a Cost Benefit	Network (2016)

⁶ Extremely high risk is where there is a combination of 4 hazard zones. High risk areas is where there is a combination of 2 or 3

zones	increase regulation of water flow and reduce flooding onto roads in extremely high risk hazard zones in accordance with Vulnerability Assessment of the Samoa Road Network recommendations Enforce environmental safeguards where reclamations are proposed. Government and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families	Reduce impact from coastal erosion and natural disasters Maintains lifeline access for all of Upolu Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	Analysis to weigh options for funding Implement Va'a o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and	and Road Network Adaptation Strategy, LTA
Flood protection measures for fords and bridges	Upgrade waterways Upgrade all crossings Upgrade or repair riverine embankment protection work Ensure river channel upstream is cleared and maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Install advisory edge markers and depth markers to warn vehicle and pedestrians at all crossings Government and	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from inland flooding Reduce flooding of built up areas Maintains lifeline access for all of Upolu Safer villages, houses and roads	Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs Implement Va'a o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA

	Villages to liaise and		habitats and ecosystems of	
	collaborate on		the area	
	processes needed to			
	protect riverbanks		Include in budget	
	from land clearing and		programming CBA design and	
	developments		construction	
	uevelopilients			
	Responsibility MWTI/		Designation of the IFHZ as an	
	I TA /MNRF / District /		"at risk" zone with appropriate	
	Villago		landuse planning controls and	
	Vinuge		restrictions	
Drainago	Access and ungrade	Improvos	Use existing information for	CIM Stratogy 2015
Dialitage	aulyerts and gross	infrastructure	guidance but not limited to	CIM Strategy 2015
systems require			guiuance but not minteu to:	TCD2014 2010 C 1
		resilience and rate of	vulnerability Assessment of	13P2014-2019 Goal
upgrade in high	sitting within combined	response and recovery	the Samoa Road Network	2 KO 1
risk areas of	hazard zones- in	to natural hazards and	(2017)"; "Review of National	
main East Coast	accordance with	disasters	Road Standards in Samoa	Community Sector
Road, Fagaloa	Vulnerability		(2016)" [.] "Samoa Code of	Plan
Road and	Assessment of the Samoa	Encourages coastal	Environmental Practice	
Fagaloa Bay	Road Network	families to relocate	(2007)"	
Road	recommendations	inland	(2007)	
			Undontalia a Coat Danafit	
	Introduce new and	Maintains lifeline		
	widen existing	access for all of Upolu	Analysis to weigh options for	
	culverts in wetland	L.	funding	
	areas to improve tidal	Minimises national		
	flow and fish passage in	disaster recovery	Incorporate environmental	
	the wetland area	expenditure on	and social safeguards	
		damaged properties	concerns in the design and	
	Implement national	nublic and private	undertake consultations with	
	standards for culverts		affected communities	
	and drains to facilitate	assets		
	the overland flow of		Apply for necessary permits	
	storm water and		as required by law	
	roduce flooding			
	reduce hooding		Utilise hazard maps and	
	Implant and acquiler		Geomorphologist Infrastructure	
			Drainage Database to inform	
	drainage inspection		designs	
	and maintenance		-	
	District		Develop Integrated Catchment	
	District to regulate		Strategy and Flood	
	developments near		Management Plan for Va'a o	
	and around waterways		Fonoti District	
	and drainage			
	connecting to main		Develop and register	
	East Coast Road		District/Village hylaws to	
			include maintenance of	
	Responsibility: LTA		drainages and illegal rubbish	
	/MWTI/MWCSD/		dumning into waterways	
	District/Village/		dumping into water ways	
	Families			
Village houses,	Relocate assets	Minimise expenditure	Planning provisions to be	CIM Strategy 2015
schools,	outside of high risk	on damaged properties	guided by the Planning and	
churches and	hazard zones when re-	and personal assets	Urban Management Act 2004	National Building
government	building	*	5	Code
assets in	5	Safer villages, houses	Enforcement of National	
extremely high	Develop landuse	and roads	Building Code 2017	
risk hazard	planning and	-	0	
zones	development controls	Increases awareness	Encourage insurance of	
	to restrict	for insurance	significant investments and	
	developments within		assets within hazard zones	
	····			

	high risk hazard zones such as CEHZ and CFHZ Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families /MWTI/ MNRE/ MWCSD		Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to determine safe areas for relocation purposes Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	
Reticulated water supply, quality and network to be improved	 Procure rainwater harvesting systems for vulnerable families as a short term solution District and village to support SWA water rationing programmes during times of drought District to support SWA efforts at exploratory boreholes in district District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas 	Increase adaptation during drought periods Improve infrastructure resilience and rate of recovery Improve health and sanitation Reduce contamination of water supply Reduce impact from inland flooding	Develop and register District/Village bylaws to include regulating developments around catchment areas and boreholes Implement SWA (2016)10 year investment plan to improve water supply network to support all inland families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilise hazard maps and Geomorphologist findings to inform location and designs	CIM Strategy 2015 Water and Sanitation Sector Plan SWA 10 Year Investment Plan (2016) Community Engagement Plan

		[[
	Responsibility: SWA/ MWCSD/ MNRE / District/ Village/ CSSP			
connectivity and lifeline access to Fagaloa and Uafato Bay during extreme events	Investigate Improving access to Fagaloa and Uafato Bay via Fagaloa Road coastal path which passes through Sauano and Saletele Bay <i>Responsibility: LTA/ MWTI/ District/ Villages</i>	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters Reduce impact from coastal erosion and natural disasters Maintains lifeline access for Fagaloa and Uafato Bay Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	 Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs Implement Va'a o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and 	TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA
Access/work roads require maintenance and upgrade as it exacerbates flooding onto main East Coast Road	Construct roadside drainage ditches where needed Implement routine maintenance of the roads and clear any debris obstructing the free flow of surface water runoff Village to regulate developments near and around road shoulders of all access roads Enforce environmental safeguards where reclamations are	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	restrictionsUtilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and designsDevelop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the areaDesignation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	National Disaster Management Plan 2017-2021 CIM Strategy 2015 NISP 2011 KESO 5 TSP 2014-2019 Goal 2 KO 1 Community Sector Plan

	proposed. Government			
	processes by requiring		Utilise environmental and	
	villagers to get the		social safeguards including	
	appropriate permits		EIAs in screening and	
	and consent		designing built environment infrastructure projects for	
	Responsibility: LTA/		district	
	MWTI/ MNRE/			
Electricity cupply	Provide underground	Maintain alactricity	Monitor distribution	EDC Stratogic Dlan
Electricity supply	lines in the long term	supply at all times	networks to avoid	EFC Strategic Flair
	where feasible	including natural	overloading poles and	
	In stall and some set	disasters	contributing to line failures	
	Install and connect	Avoid accidents from		
	residents	fallen electricity posts		
	Relocate overhead lines			
	to a more resilient			
	location when being replaced			
	Install streetlights			
	along the roads where			
	needed for community			
	Survey			
	Install and connect to			
	solar power supply if made available			
	Families to limit			
	building and			
	developments near			
	electricity posts			
	Responsibility: EPC/			
	MWTI/			
	Village/Families			
Natural Becourses and	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector
Environment			Implementation	Strategies & Policies
Restoration and	Protect ridge-top	Sustains ecosystem	Develop Integrated	Community
conservation of	habitats and forests	services and functions	Watershed/Catchment	Engagement Plan
upland forest	from indiscriminate		Strategy and Flood	
	cultivate and other	Reduced risk of slips	Management Plan for Va'a o	Two Million Tree
	developments	and erosion	Fonoti District	Planting Strategy 2015-2020
	Enforce Watershed	Reduce contamination	MNRE Forestry to advice on	
	Management Riparian	of water supply	appropriate species, depth	Restoration
	Zone and Riverbank		and density of planting and	Operational Plan
	Encroachment Control	Reduce impact from	provide seedlings for	2016-2020
	and regulate	inland flooding	anterent vegetation types	
	the unland area	Improve preparedness	nlanting materials for village	
	ane aprana ar ca	and readiness response	pranting materials for vinage	
	District/village to help	to natural disasters	Develop and register	
	promote the		District/Village bylaws to	
	development of the	Safer villages, houses and	include penalizing illegal	
	agrotorestry sector by	roads	deforestation in district lands	

Protection of catchment areas	encouraging relevant land use practice and where possible resolve any associated land disputes Responsibility: MNRE//MWCSD/ District /Village/CSSP Promote and support agroforestry and other cropping systems that combine trees and crops, especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Replant catchment areas with local species such as tava, and poumuli Responsibility: MNRE/	Reduced risk of slips and erosion Improve resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Utilise Sui o Nu'u monthly meetings to monitor progress of district/village forestry programmes Develop Integrated Watershed/Catchment Strategy and Flood Management Plan for Va'a o Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas	Water Sector Plan Community Engagement Plan Restoration Operational Plan 2016-2020
	Responsibility: MNRE/ /SWA/District/Villag e/ CSSP/GEF-SGP			
Soft coastal protection	Plant native species along coastal areas to	Soft coastal protection measures will support	Develop an integrated land management plan for Va'a o	NESP 2017-2021
measures needed for most vulnerable areas	strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau,	and strengthen existing and new infrastructure along the coast	Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and	Two Million Tree Planting Strategy 2015-2020
	Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions	Reduce impact from coastal erosion and natural disasters	ecosystems of the area MAF to assist in establishment of pilot sites to trial climate resilient plant varieties	Restoration Operational Plan 2016-2020
	conunions	Ecosystem Based	MNRE Forestry, DEC and MAF	

	To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/	Approach	to collaborate on supply of climate resilient crops	
Flood protection measures (soft solution to support flood protection measures for infrastructure)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Promote and support village and district afforestation in the upper and mid- catchment areas to reduce riverbank failures especially in flood prone areas Responsibility: MNRE/	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Integrated Watershed/Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation	Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016-2020
Wetland and mangrove area conservation	Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and developments adjacent to wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals <i>Responsibility: MNRE /</i> <i>Village /CSSP/ UNDP-</i> <i>GEF SGP/ MWTI</i>	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	Develop an integrated land management plan for Va'a o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area Implement wetland and mangrove protection programme Identify funding /budget requirements and implementation programme for establishment of protected areas in district	Draft NESP 2017- 2021 Community Engagement Plan
Illegal rubbish dumping in wetlands, coastal	Produce posters and village signs for public awareness	Improve health and sanitation	Develop an integrated land management plan with the aim of reducing any	National Waste Management Strategy

areas, riverbanks		Reduce leachate into	unnecessary actions that may	National Waste
and roadsides	Introduce ban on illegal	environment and water	adversely affect the natural	Management Policy
within fluvial	rubbish dumping in	supply	habitats and ecosystems of	D C NEGD 0045
hazard zones	district especially	Dodugo contominant	the area	Draft NESP 2017-
		from overland flooding	Utiliza Wasta Managament	2021
	zones	entering sea	Act/Legislation to guide	Community
	Conduct campaign for	entering sea	process of effecting the	Engagement Plan
	public awareness of		'polluter pays' principle	
	district ban and			
	establish a		Develop and register	
	"neighbourhood		District/Village bylaws to	
	watch" agreement		include penalizing illegal	
	with district to		rubbish dumping in district	
	illegal dumping		lanus	
	activities		IItilise Sui o Nu'u monthly	
	activities		meetings to monitor progress	
	Government, district		of village programmes on	
	and villages to monitor,		waste management	
	report and apply			
	penalty on offenders			
	Posnonsihility			
	MNRE/			
	District/Village/CSSP			
Sand mining	Identify alternative	Mitigate potential	MNRE to continue to identify	Draft Soil Resource
	sustainable sources of	damage from coastal	specific sites for inshore/	Management Bill
	sand for domestic use	erosion and flooding	inland sustainable sand/rock	
		accommodating the	mining to meet demand	
	Research the impacts	hazard	without compromising	
	of salid mining	Safer villages houses and	Tiverballks	
	Village consultation on	roads	Undertake assessments of	
	sand mining policy and		identified sites	
	regulation	Reduce impact from		
		coastal erosion	Undertake consultation with	
	Village and		villages affected by proposed	
	government to	Economic benefit for	sand/rock mining	
	collaborate closely on	village from	Develop and register District	
	sand /rock mining	sustainable sand	bylaws to include managing	
	sanu/rock mining	mining activities	and monitoring domestic	
	Raise awareness and		sand/rock mining of rivers	
	support of sustainable			
	land use practices		Utilise Sui o Nu'u monthly	
	Demonsthilite MNDE (meetings to monitor progress	
	Responsibility: MNRE/ Village/Families		of CIM Plan activities	
Effluent and	Conduct a thorough	Improve health and	Review wastewater strategy/	National Waste
wastewater	assessment of effects of	sanitation	legislation to include role of	Management Strategy
management	discharge from Afulilo		Village/District bylaws	6 67
systems	Dam on marine life	Reduce contamination		Draft NESP 2017-
		of water supply	Develop/Update and register	2021
	Introduce ban on		District/Village bylaws to	
	latrines established in		include regulating	
	and around fluvial		developments and latrines in	
	nazaru zones		flooding	
	Families in fluvial		nooung	
	hazard zones to install		Utilise Hazard maps and	

	proper septic waste		Geomorphologist findings to	
	disposal systems		inform location	
	Implement district (Utiliza Sui a Nu'u monthly	
	village drainage		meetings to monitor progress	
	cleanun and awareness		of village programmes on	
	nrogramme		waste management	
	programme		waste management	
	Produce posters and			
	village signs for public			
	awareness			
	Responsibility:			
	MNRE/ MWCSD/			
	District/Village			
Livelihood and	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans
Food Security			Implementation	National Strategies &
		T 1 1/1 / 1		Policies
Plantations, crops	Promote and facilitate	Improve nealth through	Agriculture sector to provide	Agriculture Sector
throatoned by	(i a vama sweet	access to clean water	guidelines for the management	Plail 2010-2021
changes in	(I.e yallis, sweet	and waste management	of water that allows for levels	Two Million Troo
climate inland	more resilient to	Improve recovery to	of contamination to be kent to	Strategy 2015-2020
flooding and	cyclones, droughts	create more resilient	minimum	Strategy 2015 2020
inadequate soil	and floods	villages		Restoration
for planting		-	MNRE Forestry, DEC and MAF	Operational Plan
1 0	Promote agroforestry	Improve preparedness	to collaborate on supply of	2016-2020
	and mixed planting	and readiness response	climate resilient crops and	
	including fruit trees	to natural disasters	plants	
	species to promote			
	ecological stability, soil		MAF to provide trainings,	
	protection and reduce		awareness raising on crop	
	crop vulnerability to		uiversification to suit	
	pests and diseases		change and support in supply	
	Imploment the		of nursery trees technology	
	Integrated Pest		and infrastructure to have a	
	Management		sustainable mechanism for	
	Programme		replanting	
	Implement Sustainable		MAF to assist in	
	Land Management		establishment of pilot sites to	
	(SLM) practices		trial climate ready plant	
			varieties and provide advice,	
	Conduct pilot site		seedlings and planting	
	trials for climate		material for village/families	
	ready plant varieties		as a triai	
			Develop an integrated land	
			management plan with the	
	Responsibility: MAF/		aim of reducing any	
	MNRE/village		unnecessary actions that may	
			adversely affect the natural	
			habitats and ecosystems of	
			the area	
			MNRF Forestry to advice on	
			annronriate species denth	
			and density of planting and	
			provide seedlings for	
			different vegetation types	

			suitable to the habitats and	
Pest	Implement an	Maintains natural	Develop an integrated land	Agriculture Sector
management;	eradication	ecosystem	management plan for Va'a o	Plan 2016-2021
invasive plants	programme to	-	Fonoti district with the aim of	
and animals	eradicate, contain or	Builds resilience of	reducing any unnecessary	Samoa's National
	exclude invasive	community livelinood	actions that may adversely	Invasive Species
	species	and food security	ecosystems of the area	Action Fian (MISAL)
	Implement an			
	inventory of invasive		MAF to raise awareness of	
	species and include		farmers on impacts to water	
	past, present and		management	
	potential future			
	distribution, as well as		MNRE, MAF and SROS to	
	impacts and possible		implement aggressive,	
	taken		eradication programme based	
	taken		on inventory of invasive	
	Conduct education and		species and conduct	
	awareness		campaign on public	
	programmes on the		awareness accordingly	
	species		Training for farmers on pests	
	•		management particularly	
	Implement the		affecting fruit trees and crops	
	Integrated Pest			
	Programme			
	Implement Sustainable			
	(SLM) practices			
	(our) practices			
	Build the capacity of			
	farmers to manage			
	stray animais (pigs,			
	contaminating water			
	sources			
	District to former			
	domestic animals			
	asinestic animals			
	Responsibility:			
	Villages/District/			
Governance	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector
			Implementation	Plans, National
				Strategies & Policies
Strengthen the	Update and/or	Strengthen	Develop and register	Village Fono Act
natural	manage the use of	national sector plans	protect all district/ village	2016)
resources and	natural resources, and	r	and government assets,	,
land use through	to control land use	Strengthen monitoring	environment, livelihood and	Community
Bylaws	impacts; such as	ot all National Acts,	tood security especially	Sector Plan
	rubbish dumping, sand	Plans and Policies	catchment areas and coastline	Community
	mining, stray animals			Development Plan
	and unregulated	Improve ability of	Utilise Sui o Nu'u monthly	2016-2021

developments in water catchment areas and near boreholes.	communities to adapt, respond and recover quickly in the long term	meetings to monitor progress of district/village bylaws	
Collaborate with Sui o Nuu to monitor the use of and impact on natural resources	Improve accountability and enabling environment of communities		
Facilitate continuous awareness raising programs with the villages			
Obtain necessary permits required by law before developments take place			
Responsibility: MWCSD /MNRE /Village			

Non-CR issues raised during	Proposed Solution	Comments
consultations		
Reopen Health clinics	Village to seek assistance from	Not a CR issue
Responsibility: Village	МОН	
/NGOs		

Va'a o Fonoti District Map

-171 559543 -171 575996 -171 552000 -1715-0022 -171535238 471021048 -171.500001 Sauano 13 313470 Saletele Buildings = School Utilities. critical read for whi 1000 Strengthen the governmence of natural resources and land use through by laws 1000-114 Belger Ty 2 Boundaries & Routes Cantour - 20m usumusu Mangrove Monitor effect of Afulito Hydro on marine life Road Type Salimu Sealed LIS TO D NETUP Samamea - LOCAL international and a second second Laufinua Vala/Wetland was study is door Lona Hazard Zones Taelefaga Maasina 12 Tourianti Hadard Line / Sote o Le Sucard immerikate Fluvial Hazard Zone 8 Riverbank Engraactument Uafato Reparan Zone ę Cardon I Watershed Management Ripatan Zone Constat Landshidu Hazard Zone Canstal Flood Hazard Zone 310155 0 Gamilal Erosion 310 620 Meters Hazard Zone . .

VAA O FONOTI DISTRICT

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

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

4.1 Faleapuna Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Drainage	Continue to assess and	Improves climate	Utilise hazard maps and	CIM Strategy 2015
systems to be	upgrade culverts on main	resilience of	Geomorphologist Drainage	
improved in	and access roads in district	infrastructure	Infrastructure Database to	NISP 2011 KESO 5
high risk areas	to facilitate the overland	resilience and rate	inform design	
especially at	flow of storm water and	of response and	Has aviating information for	TSP 2014-2019 Goal
Junctions of East	accordance with	natural hazards	guidance but not limited to:	2 KU 1
access	Vulnerability Assessment of	and disasters	"Vulnerability Assessment of the	Community Sector
roads/tracks	the Samoa Road Network	En acuração acostal	Samoa Road Network (2017)";	Plan
	recommendations	Encourages coastal	"Review of National Road	
	Introduce culverts in	inland	Standards in Samoa (2016)";	
	wetland areas to improve	Innanu	"Samoa Code of Environmental	
	tidal flow and fish passage	Maintains lifeline	Practice (2007)"	
	in the wetland area	access for all of		
		Upolu	Strategy and Flood Management	
	Implement regular		Plan for Va'a o Fonoti District	
	drainage inspection and	Minimises national		
	maintenance	disaster recovery	Undertake a Cost Benefit	
	Village to conduct regular	expenditure on	Analysis to weigh options for	
	drainage and waterway	damaged	funding	
	clearance behind homes	and private assets		
		and private assets	Utilise environmental and	
	Government to regulate		FLAs in screening and	
	developments and illegal		designing huilt environment	
	rubbish dumping near and		infrastructure projects for Va'a	
	around waterways and		o Fonoti district	
	East Coast Road			
	East Coast Road		Develop and register	
	Responsibility: LTA/		District/Village bylaws to	
	MWTI/MNRE/MWCSD		include maintenance of	
	/Village/ Families		drainages and megal rubbish	
Village houses	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
School, church	high risk hazard zones	expenditure on	guided by the Planning and	diff bildingy 2015
and other	when re-building	damaged	Urban Management Act 2004	National Building
village assets in		properties and	<u> </u>	Code
extremely high	Develop landuse planning	personal assets	Enforcement of National	
risk hazard	and development controls		Building Code 2017	
zones	to restrict developments	Safer villages,		
	within high risk hazard	nouses and roads	Encourage insurance of	
		Increases	significant investments and	
		awareness for	assets within hazaru zunes	
	Conduct awareness raising	insurance	Utilise hazard maps and	
	campaign on flood resilient		Geomorphologist Drainage	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for	
	communities living in and		relocation purposes	
	near high risk hazard zones			
			Designation of the IFHZ, CEHZ	

	Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges		and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	
	Responsibility: Village / Families /MWTI/ MNRE/ MWCSD			
Upgrade Loop	Upgrade to include	Improve	Utilise hazard maps and	CIM Strategy 2015
Road /Faleapuna	adequate sized culverts to	infrastructure	Geomorphologist Drainage	TSP2014-2019 Goal
inland to	of storm water and to	of recovery	inform location and designs	2 KO 1
facilitate relocation and to act as escape route	reduce flooding onto main roads and village lands Implement routine	Improve preparedness and readiness response	Develop an Integrated Flood Management Plan for Va'a o Fonoti District. MNRE to	NESP 2017-2021
	maintenance of the roads	to natural disasters	develop zonation strategy for	
	and clear any debris	Safar villagos	safe areas	
	surface water runoff	houses and roads	Develop an integrated land	
			management plan with the aim	
	Village to regulate	Minimise national	of reducing any unnecessary	
	around road shoulders of all access roads	expenditure on damaged	affect the natural habitats and ecosystems of the area	
	Enforce environmental safeguards where reclamations are proposed	public assets	Include in budget programming CBA, design and construction	
	Government and district to		Designation of the IFHZ, CEHZ	
	manage processes by		and CFHZ as an "at risk" zone	
	requiring villagers to get the		with appropriate landuse	
	consent		restrictions	
	Responsibility: LTA/ MWTI/MNRF/		Develop and register Village	
	Villages/Families		bylaws to include maintenance	
			rubbish dumping into	
			waterways	
Reticulated	Extend the water supply to families inland with no	Increase adaptation	Develop and register	CIM Strategy 2015
quality and	access to water	periods	include regulating	Water and
network to be			developments around	Sanitation Sector
improved	harvesting systems for	Improve	catchment areas and boreholes	Plan
	vulnerable families as a	resilience and	Implement SWA (2016)10	SWA 10 Year
	short term solution	rate of recovery	year investment plan to	Investment Plan
	District and village to	Improvo koelth	improve water supply	(2016)
		mprovemeditii	network to support all illialla	

	support SWA water rationing programmes during times of drought District to support SWA efforts at exploratory boreholes in district District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas Responsibility: SWA/ MWCSD/ MNRE / District/	and sanitation Reduce contamination of water supply Reduce impact from inland flooding	families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilise hazard maps and Geomorphologist findings to inform location and designs	Community Engagement Plan
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	Village/CSSP Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter Conduct evacuation shelter assessment and mark on CIM Plan hazard maps Develop a Village Climate Disaster Management Plan (VCDMP) Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies Implement CDCRM program Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters Where no suitable houses exist, build emergency shelter(s) outside the hazard zones Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD	Improve resilience of public infrastructure Improve preparedness and readiness response to natural disasters	Enforcement of National Building Code 2017 Utilise hazard maps and Geomorphologist findings to inform location and designs	National Disaster Management Plan 2017-2021 National Building Code National Policy for People with Disabilities NISP 2011 KESO 5

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Electricity supply	Provide underground lines in the long term Install and connect power supply for inland residents Relocate overhead lines to a more resilient location when being replaced	Maintain electricity supply at all times including natural disasters Avoid accidents from fallen electricity posts	Monitor distribution networks to avoid overloading poles and contributing to line failures	EPC Strategic Plan
	Install streetlights along the roads where needed for community safety Install and connect to solar power supply if made available Families to limit building			
-	and developments near electricity posts Responsibility: EPC/ MWTI/ Village/Families			
Coastline protection: seawall upgrade and beach replenishment	Village to seek assistance to strengthen and upgrade seawall MNRE to research whether beach replenishment is feasible in this area Clear debris from existing culverts near seawalls and waterways to enable free outflow of storm water and streams into sea Where reclamations, sand mining, extraction or other major coastal works are proposed, Government and village to manage processes by requiring villagers to get the appropriate permits and consent <i>Responsibility: MNRE/ Village /Families/ CSSP</i>	Improve infrastructure resilience and rate of recovery Reduce impact from coastal erosion Safer villages, houses and roads Minimise expenditure on damaged properties & personal assets	Utilise environmental and social safeguards including EIAs in screening and designing built environment infrastructure projects for Va'a o Fonoti district 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 Develop and register Village bylaws to include banning of sand mining and illegal rubbish dumping in waterways and drains Utilise Sui o Nu'u monthly meetings to monitor progress of village replanting and clean up programmes	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Community Sector Plan
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plan National Strategies & Policies
Wetland area conservation	Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Limit land clearance and	Protects and enhance local species diversity Sustains ecosystem services and	MNRE DEC to provide technical assistance and backstopping in the development of a Wetland Management Plan for Va'a o Fonoti District	Draft NESP 2017- 2021 Community Engagement Plan
	developments adjacent to	tunctions	Identify funding /budget	

	wetland areas Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals foraging in wetland areas Responsibility: MNRE / Village /CSSP/ UNDP-GEF SGP/ MWTI	Reduce contamination of water supply Reduce impact from inland flooding	requirements and implementation programme to continue protection of mangrove/wetland areas in district	
Sand mining	Identify alternative sustainable sources of sand for domestic use Research the impacts of sand mining Village consultation on sand mining policy and regulation Village and government to collaborate closely on designated areas for sand/rock mining Raise awareness and support of sustainable land use practices Responsibility: MNRE/ Village/Families	Mitigate potential damage from coastal erosion and flooding accommodating the hazard Safer villages, houses and roads Reduce impact from coastal erosion Economic benefit for village from sustainable sand mining activities	MNRE to continue to identify specific sites for inshore/ inland sustainable sand/rock mining to meet demand without compromising riverbanks Undertake assessments of identified sites Undertake consultation with villages affected by proposed sand mining Develop and register District bylaws to include managing and monitoring domestic sand mining and rock extraction from rivers Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities	Draft Soil Resource Management Bill
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	Develop an integrated land management plan for Va'a o Fonoti 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	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020

		Approach		
	Responsibility: MNRE/	npproden	Utilise PD3 to inform location for planting/replanting	
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive plants and animals affecting taro plantations and newly planted coconut plantations	Research disease(s) affecting coconut farms in Faleapuna Implement an eradication programme to eradicate, contain or exclude invasive species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources Responsibility: Villages/District/ MNRE/MAF/ SROS	Maintains natural ecosystem Builds resilience of community livelihood and food security	Develop an integrated land management plan for Va'a o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management 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 Training for farmers on pests management particularly affecting fruit trees and crops	Agriculture Sector Plan 2016-2021 Samoa's National Invasive Species Action Plan (NISAP)
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plan National Strategies &
Dlantations	Dromoto and fa distata	Immune la salah		Policies
Plantations, crops and plants threatened by changes in climate, inland flooding and inadequate soil for planting	Promote and facilitate planting of rootcrops (i.e yams, sweet potato) which are more resilient to cyclones, droughts and floods Promote agroforestry and mixed planting including fruit trees species to promote ecological stability	Improve health through access to clean water and waste management Improve recovery to create more resilient villages Improve preparedness and	Agriculture sector to provide best practice management guidelines for the management of water that allows for levels of contamination to be kept to minimum MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops and plants	Agriculture Sector Plan 2016-2021 Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016-2020
	soil protection and reduce crop vulnerability to pests and diseases Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Conduct pilot site trials for climate ready plant varieties Responsibility: MAF/ <i>MNRE/village</i>	readiness response to natural disasters	MAF to provide trainings, awareness raising on crop diversification to suit prolonged impacts of climate change and support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting MAF to assist in establishment of pilot sites to trial climate ready plant varieties and provide advice, seedlings and planting material for village/families as a trial 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 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	
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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	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes. Collaborate with Sui o Nuu to monitor the use of and impact on natural resources Facilitate continuous awareness raising programs with the villages Obtain necessary permits	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability of communities to adapt, respond and recover quickly in the long term Improve accountability and enabling environment of	Develop and register district/village bylaw to protect all district/ village and government assets, environment, livelihood and food security especially activities affecting water catchment areas and coastline Utilise Sui o Nu'u monthly meetings to monitor progress of district/village bylaws	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021

Responsibility: MWCSD /MNRE /Village	
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Non-CR issues raised during consultations	Proposed Solution	Comments
Diseases found in domestic	Village to seek assistance of	Not a CR issue
animals (chickens & dogs)	veterinarian	
Responsibility: Village /NGOs		

Faleapuna Village Map

FALEAPUNA 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

4.2 Lona Village Interventions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the	Relevant National,
			Implementation	Sector Plans and
				Strategies
Village houses,	Relocate assets outside of	Minimise	Planning provisions to be guided	CIM Strategy 2015
school, churches	high risk hazard zones	expenditure on	by the Planning and Urban	
and government	when re-building	damaged	Management Act 2004	National Building
extremely high	Develop landuse planning	properties and	Enforcement of National Building	Coue
risk hazard	and development controls	personal assets	Code 2017	
zones	to restrict developments	Safer villages,		
	within high risk hazard	houses and roads	Encourage insurance of significant	
	zones such as CEHZ and		investments and assets within	
	CFHZ	Increases	hazard zones	
	Conduct autonopoor mising	awareness for	Utilize begand mana and	
	compaign on flood resilient	insurance	Ceomorphologist Drainage	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for relocation	
	communities living in and		purposes	
	near high risk hazard zones			
			Designation of the IFHZ, CEHZ and	
	Design infrastructure to		CFHZ as an "at risk" zone with	
	immediate hazard zones:		controls and restrictions	
	for example, raise floor		controls and restrictions	
	levels of houses in flood			
	prone areas			
	Families and village to limit			
	building and developing on			
	natural overland flow paths			
	exacerbating inland			
	flooding and storm water			
	surges			
	Responsibility: Village /			
	Families /MWTI/ MNRE/			
	MWCSD			
Evacuation	Assess and/or select	Improve	Enforcement of National Building	National Disaster
Shelter and a	location for either an	resilience of	Code 2017	Management
connected escape	existing or new evacuation	public	Ittilise hazard mans and	Plan 2017-2021
emergency	access routes to the shelter	minastructure	Geomorphologist findings to inform	National
preparedness		Improve	location and designs	Building Code
and response	Conduct evacuation shelter	preparedness	C C	National Policy for
	assessment and mark on	and readiness		People with
	CIM Plan hazard maps	response to		Disabilities
		natural disasters		
	Develop a Village Climate			NISP 2011 KESO 5
	(VCDMP)			
	Conduct trainings for			
	People With Disabilities			
	(PWDs) on emergency and			

	disaster response strategies			
	Implement CDCRM program			
	Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters			
	Where no suitable houses exist, build emergency shelter(s) outside the hazard zones			
	Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter			
	Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Drainage	Assess and upgrade	Improves	Conduct a full catchment	CIM Strategy 2015
maintenance	junction of Fagaloa Bay road	resilience and	and geotechnical engineering	TSP2014-2019
and upgrade to	and causeway near Lona	rate of response	survey and use its	Goal 2 KO 1
water and	FTIIIal y School	natural hazards	location and designs	Community Sector
inland flooding	Implement national	and disasters		Plan
onto Fagaloa Bay Road	standards for culverts and drains to facilitate the	Encourages	Use existing information for guidance but not limited to:	
Day Road	overland flow of storm	coastal families	"Vulnerability Assessment of the	
	water and reduce flooding	to relocate	Samoa Road Network (2017)";	
	Implement regular	inland	"Review of National Road	
	drainage inspection and	Maintains	Standards in Samoa (2016)"; "Samoa Code of Environmental	
	maintenance	lifeline access	Practice (2007)"	
	District to regulate	for all of opolu	Undertaire a Cast Danafit Analyzia	
	developments near and	Minimises	to weigh options for funding	
	drainage connecting to	recoverv	Incorporate environmental and	
	main East Coast Road	expenditure on	social safeguards concerns in the	
	Responsibility: LTA	damaged properties.	design and undertake	
	/MWTI/MWCSD/	public and	communities	
	District/Village/ Families	private assets	Apply for percessary permits as	
			required by law	
			Utilise hazard maps and	
			Geomorphologist Infrastructure	
			Drainage Database to inform designs	
			ченено	
			Develop Integrated Catchment	

			Strategy and Flood Management Plan for Vaa o Fonoti District Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways	
Flood protection measures for fords and bridges	Upgrade waterways Upgrade all crossings Upgrade or repair riverine embankment protection work upstream of Lona Ensure river channel upstream is cleared and maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Install advisory edge markers and depth markers to warn vehicle and pedestrians at all crossings Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments <i>Responsibility: MWTI/ LTA/MNRE/ District/ Village</i>	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from inland flooding Reduce flooding of built up areas Maintains lifeline access for all of Upolu Safer villages, houses and roads	Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs Implement Va'a o Fonotit Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA
Coastline protection: seawall	Government to weigh option of upgrading seawall or relocating houses in vulnerable areas Clear debris from existing culverts near seawalls and waterways to enable free outflow of storm water and streams into sea Where reclamations, sand mining, extraction or other major coastal works are proposed, Government and village to manage processes	Improve infrastructure resilience and rate of recovery Reduce impact from coastal erosion Safer villages, houses and roads Minimise expenditure on damaged properties & personal assets	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Community Sector Plan

Silt blocking village (IWS) reservoirVillage to clean out debris on a regular basis on a regular basisIncrease adaptation during drought periodsDevelop and register District/Village bylaws to include regulating developments around catchment areas and boreholesCIM Stra Commun Sector PIVillage to procure filter for reservoir, upgrade and maintain as the need arises a short term solutionImprove health and sanitation from inland floodingDevelop and register District/Village bylaws to include regulating developments around catchment areas and boreholesCim Stra Commun Sector PINatural Resources and EnvironmentBest SolutionsBenefitsGuideline to assist with the ImplementationRelevant PlanSand miningIdentify alternative sustainable sources of sand mining policy and regulationMitigate potential damage from coastal erosion and floodingMitigate potential damage from coastal erosion and floodingMRE to continue to identify specific sites for inshore/ inland sustainable sand/rock mining to meet demand without compromising riverbanksDraft Soi Resource Mate assessments of identified sitesDraft Soi Resource meet demand without sand/rock miningDraft Soi Resource meet demand vithout sand/rock miningDraft Soi Resource meet demand vithout sand/rock miningDraft Soi ResourceSafer village and government to collaborate closely on designated areas for sand/rock miningEconomic benefit for village from sustainableDraft Soi consultation with village from sustainableDraft Soi consultation with village		by requiring villagers to get the appropriate permits and consent <i>Responsibility: MNRE/</i> <i>Village /Families/ CSSP</i>		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 Develop and register Village bylaws to include banning of sand mining and illegal rubbish dumping in waterways and drains	
Natural Resources and EnvironmentBest SolutionsBenefitsGuideline to assist with the ImplementationRelevant Plans, Nat Strategies PoliciesSand miningIdentify alternative sustainable sources of sand for domestic useMitigate potential damage from and flooding accommodating the hazardMNRE to continue to identify specific sites for inshore/ inland sustainable sand/rock mining to meet demand without compromising riverbanksDraft Soi Resource ManagerVillage consultation on sand mining policy and regulationSafer villages, houses and roadsUndertake assessments of identified sitesUndertake consultation with village affected by proposed sand/rock miningUndertake consultation with village from coastalDraft Soi ResourceVillage and government to collaborate closely on designated areas for sand/rock miningReduce impact erosionDevelop and register District bylaws to include managing and monitoring domestic sand/rock willage from support of sustainable landEconomic bylaws to include managing and monitoring domestic sand/rock mining of rivers	Silt blocking village (IWS) reservoir	Village to clean out debris on a regular basis Village to procure filter for reservoir, upgrade and maintain as the need arises Procure rainwater harvesting systems for vulnerable families as a short term solution Responsibility: Village/ CSSP	Increase adaptation during drought periods Improve health and sanitation Reduce impact from inland flooding	Develop and register District/Village bylaws to include regulating developments around catchment areas and boreholes	CIM Strategy 2015 Community Sector Plan Community Engagement Plan
Sand miningIdentify alternative sustainable sources of sand for domestic useMitigate potential damage from coastal erosion and flooding accommodating the hazardMNRE to continue to identify specific sites for inshore/ inland sustainable sand/rock mining to meet demand without compromising riverbanksDraft Soi Resource ManagerVillage consultation on sand mining policy and regulationSafer villages, houses and roads regulationUndertake assessments of identified sitesUndertake consultation with villages affected by proposed sand/rock miningVillage and government to collaborate closely on designated areas for sand/rock miningEconomic bullage from village from sustainableDraft SoiRaise awareness and support of sustainable landvillage from sustainablemining of riversDraft SoiSand miningVillage from sustainableMNRE to continue to identify sustainableDraft Soi Resource meet demand without compromising riverbanksManager meet demand without compromising riverbanksVillage consultation on sand regulationSafer villages, houses and roads from coastal erosionUndertake consultation with villages affected by proposed sand/rock miningVillage and government to collaborate closely on designated areas for support of sustainable landEconomic sustainableDevelop and register District bylaws to include managing and monitoring domestic sand/rock	Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
use practicessand mining activitiesUtilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activitiesWillage (Equilies)Village (Equilies)	Sand mining	Identify alternative sustainable sources of sand for domestic use	Mitigate potential damage from coastal erosion	MNRE to continue to identify specific sites for inshore/ inland sustainable sand/rock mining to	Draft Soil Resource Management Bill

Flood protection measures (soft solution to support flood protection measures for infrastructure)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Promote and support village and district afforestation in the upper and mid- catchment areas to reduce riverbank failures especially in flood prone areas Responsibility: MNRE/ Villages	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Vaa o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation	Two Million Tree Strategy 2015- 2020 Restoration Operational Plan 2016-2020
Soft coastal protection measures needed for most vulnerable areas	Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	Develop an integrated land management plan for Vaa o Fonoti 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	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Establish tilapia farm as alternative food source and as income based activity	Village to seek assistance from MAF Village to set aside dedicated land for tilapia farm <i>Responsibility: Village/</i> <i>MAF</i>	Improve preparedness and readiness response to natural disasters Economic benefit for village	MAF to assist in establishment of pilot sites, provide advice and initial stocking of tilapia farm as a trial 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	Agriculture Sector Plan 2016-2021
Pest management; invasive plants and animals	Implement an eradication programme to eradicate, contain or exclude invasive species Implement an inventory of	Maintains natural ecosystem Builds resilience of	Develop an integrated land management plan for Vaa o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems	Agriculture Sector Plan 2016-2021 Samoa's National Invasive Species Action Plan

1	1		
Invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources District to fence domestic animals <i>Responsibility:</i> <i>Villages/District/ MNRE/MAF/ SROS</i>	community livelihood and food security	or the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management 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 Training for farmers on pests management particularly affecting fruit trees and crops	

Governance	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector
			Implementation	Plans, National
				Strategies &
Characteristic and the s	Undets and (an denselan	Characteria	Develop and mariater	Ville of Fame
Strengtnen the	Update and/or develop	Strengtnen	Develop and register	Village Fono
governance of	by laws to manage the use	implementation	all district (village bylaw to protect	ACL
liaturai	of flatul al resources, allu to	of all fiational	all district/ village allu	
lend use	control land use impacts;	sector plans	government assets, environment,	BIII 2016J
through Pulawa	such as unamage	Strongthon	aspecially activities affecting	Community
un ougn bylaws	dumping cand mining	monitoring of all	water satchment areas and	Community Sector Dian
	stray animals and	National Acts	coastline	Sector Flam
	unregulated developments	Regulation	coastille	Community
	in water catchment areas	Strategies Plans	Iltilise Sui o Nu'u monthly	Development
	and near boreholes	and Policies	meetings to monitor progress of	Plan 2016-2021
	und neur borenoies.	unu i oncies	district/village bylaws	1 1011 2010 2021
	Collaborate with Sui o Nuu	Improve ability		
	to monitor the use of and	of communities		
	impact on natural	to adapt,		
	resources	respond and		
		recover quickly		
	Facilitate continuous	in the long term		
	awareness raising programs			
	with the villages	Improve		
		accountability		
	Obtain necessary permits	and enabling		
	required by law before	environment of		
	developments take place	communities		
	Responsibility: MWCSD			
	/MNRE /Village			

Non-CR issues raised	Proposed Solution	Comments
during consultations		
Funding to procure	Village to seek financial assistance	Not a CR issue. Potential for MAF financing if fencing is
fencing for cattle	from other sources	related to agricultural initiatives
Responsibility: Village		
/NGOs		





Lona Village Map



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

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

4.3 Ma'asina Village Interventions

Infrastructure	Best Solutions	Benefits	Guideline to assist with	Relevant National,
			the Implementation	Sector Plans and
				Strategies
Village houses,	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
churches and	high risk hazard zones	expenditure on	guided by the Planning and	
government	when re-building	damaged	Urban Management Act	National Building Code
assets in high	Develop landuas planning	properties and	2004	
risk nazaru	and development controls	personal assets	Enforcement of National	
zones	to restrict developments	Safor villagos	Building Code 2017	
	within high risk hazard	houses and roads	Dunuing Coue 2017	
	zones such as CEHZ and	nouses and rouds	Encourage insurance of	
	CFHZ	Increases	significant investments and	
		awareness for	assets within hazard zones	
	Conduct awareness raising	insurance		
	campaign on flood resilient		Utilise hazard maps and	
	building practices and		Geomorphologist Drainage	
	designs for at risk		Infrastructure Database to	
	communities living in and		determine safe areas for	
	near high risk hazard zones		relocation purposes	
	Design infrastructure to		Designation of the IFHZ,	
	take into account the		CEHZ and CFHZ as an "at	
	immediate hazard zones;		risk" zone with appropriate	
	for example, raise floor		landuse planning controls	
	levels of houses in flood		and restrictions	
	prone areas			
	Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges			
	Responsibility: Village / Families /MWTI/ MNRE/			
	MWCSD			
Access/work	Assess and upgrade	Improve	Undertake a Cost Benefit	National Disaster
roads require	access/work roads where it	infrastructure	Analysis to weigh options	Management Plan
maintenance and	connects to the main	resilience and	for funding	2017-2021
upgrade as it	Fagaloa Bay Road	rate of recovery	IItilias havend mana and	
exacerbates		Ŧ	Coomorphologist Drainage	CIM Strategy 2015
flooding onto	Construct roadside	Improve	Infrastructure Database to	TSD 2014 2010 Cool 2
Road	needed	reparedness and	inform location and designs	13P 2014-2019 G0al 2
Road	needed	response to		NO I
	Implement routine	natural disasters	Develop an integrated land	Community Sector Plan
	maintenance of the roads		management plan with the	-
	and clear any debris	Safer villages,	aim of reducing any	
	obstructing the free flow of	houses and roads	unnecessary actions that	
	surface water runoff		may adversely affect the	
		Minimise national	natural nabilats and	
	village to regulate	disaster recovery	ecosystems of the area	
	around road shoulders of all	expenditure on	Designation of the IFHZ,	

	access roads Enforce environmental safeguards where reclamations are proposed. Government and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: LTA/ MWTI/ MNRE/ Villages /Families	damaged properties and public assets	CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions Utilise environmental and social safeguards including EIAs in screening and designing built environment infrastructure projects for Vaa o Fonoti district	
Coastline protection: upgrade seawalls at most high risk hazard zones	Assess feasibility of installing seawalls in most high risk hazard zones Research the impacts of sand mining Village consultation on sand mining policy and regulation Enforce environmental social safeguards where reclamations, sand mining, extraction or other major coastal works are proposed. Government and village to manage processes by requiring villagers to get the appropriate permits and consent <i>Responsibility: MNRE/ Village /Families/MWTI</i>	Improve infrastructure resilience and rate of recovery Maintains natural ecosystem connectivity Reduce impact from coastal erosion Safer villages, houses and roads Minimise expenditure on damaged properties & personal assets	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Draft Soil Resource Management Bill
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter Conduct evacuation shelter assessment and mark on CIM Plan hazard maps Develop a Village Climate Disaster Management Plan (VCDMP) Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies Implement CDCRM program	Improve resilience of public infrastructure Improve preparedness and readiness response to natural disasters	Enforcement of National Building Code 2017 Utilise hazard maps and Geomorphologist findings to inform location and designs	National Disaster Management Plan 2017-2021 National Building Code National Policy for People with Disabilities NISP 2011 KESO 5

	Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters Where no suitable houses exist, build emergency shelter(s) outside the hazard zones Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter <i>Responsibility: MNRE</i> /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Silt blocking village (IWS) reservoir	Village to clean out debris on a regular basis Village to procure filter for reservoir, upgrade and maintain as the need arises Procure rainwater harvesting systems for vulnerable families as a short term solution Responsibility: Village/ CSSP	Increase adaptation during drought periods Improve health and sanitation Reduce impact from inland flooding	Develop and register District/Village bylaws to include regulating developments around catchment areas and boreholes	CIM Strategy 2015 Community Sector Plan Community Engagement Plan
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Inshore marine resources	Research new type of vegetation found in seas of Ma'asina Implement an eradication programme to eradicate, contain or exclude invasive species affecting taro plantations Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM)	Maintains natural ecosystem Builds resilience of community livelihood and food security	Develop an integrated land management plan for Vaa o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area 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	Agriculture Sector Plan 2016-2021 Samoa's National Invasive Species Action Plan (NISAP)

	practices			
	D			
	Responsibility: Villages /District /			
	MNRE/MAF/ SROS			
Wetland area	Undertake an assessment of	Protects and	MNRE DEC to provide	Draft NESP 2017-2021
conservation	tidal flow necessary to	enhance local	technical assistance and	
	maintain a healthy natural	species diversity	backstopping in the	Community
	environment	Sustains	development of a Wetland	Engagement Plan
	Limit land clearance and	Sustains	Fonoti District	
	developments adjacent to	and functions		
	wetland areas		Identify funding /budget	
		Reduce	requirements and	
	continue to plant native	contamination of	implementation	
	to reduce erosion and	water supply	programme to continue	
	landslips. To act as an	Reduce impact	mangrove/wetland areas	
	effective wave barrier, a	from inland	in district	
	minimum distance of 200m	flooding		
	of vegetation is needed			
	Village to fence off			
	domestic animals foraging			
	in wetland areas			
	Responsibility: MNRF /			
	Village /CSSP/ UNDP-GEF			
	SGP/ MWTI			
Soft coastal	Plant native species along	Soft coastal	Develop an integrated land	NESP 2017-2021
protection	coastal areas to strengthen	protection	management plan for Vaa o	T
for most	existing seawall and to	support and	of reducing any	Two Million Tree Planting Strategy 2015-
vulnerable areas	landslips; Talie, Fetau, Toa,	strengthen	unnecessary actions that	2020
	Togatogo are known to have	existing and new	may adversely affect the	
	greater resilience to natural	infrastructure	natural habitats and	Restoration
	disasters and changing	along the coast	ecosystems of the area	Operational Plan 2016-
	chillate conditions	Reduce impact	MAF to assist in	2020
	To act as an effective wave	from coastal	establishment of pilot sites	
	barrier, a minimum distance	erosion and natura	to trial climate ready plant	
	of 200m of vegetation is	disasters	varieties	
	needed	Imploments an	MNPE Forestry DEC and	
	Responsibility: MNRE/	Ecosystem Based	MARE Forestry, DEC and MAF to collaborate on	
	MAF/Villages	Approach	supply of climate resilient	
			crops	

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



Ma'asina Village Map

MAASINA 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

4.4 Saletele Village Interventions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant National, Sector Plans and
x 7 · 11 1		M		Strategies
Village nouses,	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
government	when re-building	damaged	Irban Management Act 2004	National Building Code
assets in	when ie building	properties and	orban Management net 2001	National Dunaning Coue
extremely high	Develop landuse planning	personal assets	Enforcement of National	
risk hazard	and development controls	•	Building Code 2017	
zones	to restrict developments	Safer villages,		
	within high risk hazard	houses and roads	Encourage insurance of	
	zones such as CEHZ and	Increases	significant investments and	
	CFHZ	awareness for	assets within hazard zones	
	Conduct awareness raising	insurance	Utilise hazard maps and	
	campaign on flood resilient		Geomorphologist Drainage	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for	
	communities living in and		relocation purposes	
	near high risk hazard zones		Designation of the IEUZ	
	Design infrastructure to		CEHZ and CEHZ as an "at	
	take into account the		risk" zone with appropriate	
	immediate hazard zones;		landuse planning controls	
	for example, raise floor		and restrictions	
	levels of houses in flood			
	prone areas			
	Families and village to limit			
	natural overland flow naths			
	exacerbating inland flooding			
	and storm water surges			
	Responsibility: Village /			
	MWCSD			
Coastline	Upgrade seawalls in most	Improve	Undertake a Cost Benefit	CIM Strategy 2015
protection:	vulnerable areas	infrastructure	Analysis to weigh options for	
upgrade		resilience and	funding	TSP 2014-2019 Goal 2
seawalls at	Research the impacts of	rate of recovery	I	KO 1
most high risk	sand mining		incorporate environmental	
hazard zones	Village congultation on cand	Maintains	concerns in the design and	Draft Soil Resource
	mining policy and	acosystem	undertake consultations with	Management bii
	regulation	connectivity	affected communities	
		connectivity		
	Enforce environmental	Reduce impact	Utilise hazard maps and	
	social safeguards where	from coastal	Geomorphologist	
	reclamations, sand mining,	erosion	Database to inform designs	
	extraction or other major	Safer villages	Database to mornin designs	
	Covernment and village to	houses and roads		
	manage processes hy			
	requiring villagers to get the	Minimise		

	appropriate permits and consent Responsibility: MNRE/ Village /Families/MWTI	expenditure on damaged properties & personal assets		
Alternative connectivity and lifeline access to Fagaloa and Uafato Bay during extreme events	Investigate improving access to Fagaloa and Uafato Bay via Fagaloa Road coastal path which passes through Sauano and Saletele Bay Responsibility: LTA/ MWTI/ District/ Villages	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters Reduce impact from coastal erosion and natural disasters Maintains lifeline access for Fagaloa and Uafato Bay Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs Implement Va'a o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter Conduct evacuation shelter assessment and mark on CIM Plan hazard maps Develop a Village Climate Disaster Management Plan (VCDMP) Conduct trainings for People With Disabilities (PWDs) on emergency and	Improve resilience of public infrastructure Improve preparedness and readiness response to natural disasters	Enforcement of National Building Code 2017 Utilise hazard maps and Geomorphologist findings to inform location and designs	National Disaster Management Plan 2017-2021 National Building Code National Policy for People with Disabilities

	disaster response strategies			
	Implement CDCRM program			
	Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters			
	Where no suitable houses exist, build emergency shelter(s) outside the hazard zones			
	Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter			
	Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Village reservoir (IWS) upgrade	Upgrade reservoir and install filter	Increase adaptation during drought periods	Develop and register District/Village bylaws to include regulating developments around	CIM Strategy 2015 Water and Sanitation Sector Plan
	Procure rainwater harvesting systems for vulnerable families as a short term solution	Improve infrastructure resilience and rate of recovery Improve health and sanitation	catchment areas and boreholes Implement SWA (2016)10 year investment plan to improve water supply network to support all	SWA 10 Year Investment Plan (2016) Community Engagement Plan
	District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas	Reduce contamination of water supply Reduce impact from inland flooding	inland families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems	
	Responsibility: SWA/ MWCSD/ MNRE / District/ Village/ CSSP	0	Utilise hazard maps and Geomorphologist findings to inform location and designs	
Flood protection measures for	Upgrade waterways	Minimise expenditure on damaged	Conduct a full catchment management, drainage analysis and geotechnical	CIM Strategy 2015
fords and bridges	Upgrade or repair riverine	properties & personal assets	engineering survey and use its recommendations to inform location and designs	KO 1
	work upstream of Falefa, Saletele and Sauano	Mitigate potential damage from inland flooding	Implement Vaa o Fonoti	Assessment of the Samoa Road Network
	Ensure river channel upstream is cleared and	Reduce flooding	and Flood Management Plan in conjunction with hazard	Network Adaptation Strategy, LTA

 maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Install advisory edge markers and depth markers to warn vehicle and pedestrians at all crossings Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments <i>Responsibility: MWTI/LTA/MNRE/District/Village</i> 	of built up areas Maintains lifeline access for all of Upolu Safer villages, houses and roads	Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	

Natural	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans,
resources and			Implementation	National Strategies and
Environment				Policies
Protection of catchment areas	Promote and support agroforestry and other cropping systems that combine trees and crops, especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Replant catchment areas with local species such as tava, and poumuli Responsibility: MNRE/ /SWA/District/Village/	Reduced risk of slips and erosion Improve resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Develop Integrated Watershed/Catchment Strategy and Flood Management Plan for Vaa o Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient trees MAF to assist in establishment of pilot sites to trial climate ready plant varieties	Water Sector Plan Community Engagement Plan Restoration Operational Plan 2016-2020
Soft coastal	Re-stock existing nursery	Soft coastal	Develop an integrated land	NESP 2017-2021
protection	ne stoen enisting narsery	protection	management plan for Vaa o	
measures needed	Plant native species along	measures will	Fonoti district with the aim	Two Million Tree
for most vulnerable areas	coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa,	support and strengthen existing and new infrastructure	of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area	Planting Strategy 2015-2020 Restoration
	Togatogo are known to have	along the coast		Operational Plan
	greater resilience to natural	Deduce in the	MAF to assist in	2016-2020
	disasters and changing	from coastal	establishment of pilot sites to	
	cimilate contritions	erosion and natura	varieties	
	To act as an effective wave	disasters		
	barrier, a minimum distance		MNRE Forestry, DEC and	
	01 200111 01 Vegetation 1s	Implements an	MAF to collaborate on	
	πετατα	Approach	supply of climate resilient	
	Responsibility: MNRE/	nppioucii	plants	
	MAF/Villages		Utilise PD3 to inform	
			location for planting/ re-	
			planting	

Flood protection measures (soft solution to support flood protection measures for infrastructure)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Promote and support village and district afforestation in the upper and mid- catchment areas to reduce riverbank failures especially in flood prone areas Responsibility: MNRE/	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Integrated Watershed/Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation	Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016- 2020
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Vegetable gardens as alternative income generating activity	Village to procure seeds and seedlings to plant Village to allocate lands for plots <i>Responsibility: Village/</i> <i>MAF/CSSP/GEF-SGP</i>	Improve recovery to create more resilient villages Economic benefit	MAF to assist in establishment of pilot sites MAF to collaborate with village on supply of seedlings and types of vegetables best suited to the habitats	Agriculture Sector Plan 2016-2021
Plantations, crops and plants threatened by changes in climate, inland flooding and inadequate soil for planting	Promote and facilitate planting of rootcrops (i.e yams, sweet potato) which are more resilient to cyclones, droughts and floods Promote agroforestry and mixed planting including fruit trees species to promote ecological stability, soil protection and reduce crop vulnerability to pests and diseases Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Conduct pilot site trials for climate ready plant varieties	Improve recovery to create more resilient villages Improve preparedness and readiness response to natural disasters	Utilise Hazard Maps and Geomorphologist findings to inform location and design MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops and plants MAF to provide trainings, awareness raising on crop diversification to suit prolonged impacts of climate change and support in supply of nursery trees, technology and infrastructure to have a sustainable mechanism for replanting MAF to assist in establishment of pilot sites to trial climate ready plant varieties and provide advice, seedlings and planting material for village/families	Agriculture Sector Plan 2016-2021

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

Saletele Village Map

SALETELE 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

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4.5 Sauano Village Interventions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the	Relevant
			Implementation	National, Sector
				Plans and
				Strategies
Alternative	Investigate improving	Improve	Conduct a full catchment	CIM Strategy
connectivity	access to Fagaloa and	infrastructure	management, drainage analysis	2015
	Dalato Bay Via Fagaloa	resilience and	and geotechnical engineering	TCD 2014 2010
Eageloa and	Road Coastal path which	rate of recovery	survey and use its	13P 2014-2019
Hagaloa aliu Hafato Bay	Saletele Bay as escane	Improve	location and designs	00al 2 KO 1
during extreme	route when Fagaloa Road	nrenaredness and	iocation and designs	Vulnerability
events	and East Coast Road is	readiness	Implement Va'a o Fonoti	Assessment of
	impassable during extreme	response to	Integrated Catchment Strategy and	the Samoa Road
	events	natural disasters	Flood Management Plan in	Network (2016)
			conjunction with hazard Maps and	and Road
		Reduce impact	Geomorphologist Drainage	Network
	Responsibility: LTA/	from coastal	Infrastructure Database findings	Adaptation
	MWTI/ District/ Villages	erosion and		Strategy, LTA
		natural disasters	Utilise environmental and social	
			safeguards including EIAs in	
		Maintains lifeline	screening and designing	
		access for Fagaloa	initastructure facilities	
		and Dalato Day	Develop an integrated land	
		Safer villages	management plan with the aim	
		houses and roads	of reducing any unnecessary	
			actions that may adversely affect	
			the natural habitats and	
			ecosystems of the area	
			Include in budget programming	
			CBA, design and construction.	
			Designation of the IFHZ as an "at	
			risk" zone with appropriate	
			landuse planning controls and	
			restrictions	
Village houses	Relocate assets outside of	Minimise	Planning provisions to be guided	CIM Strategy 2015
and other assets	high risk hazard zones	expenditure on	by the Planning and Urban	
in extremely	when re-building	damaged	Management Act 2004	National Building
high risk hazard	Develop lon due or alemaine	properties and		Lode
zones	Develop landuse planning	personal assets	Enforcement of National Building	Sayana Villaga
	to restrict developments	Safer villages	Code 2017	Sauano vinage Relocation Plan
	within high risk hazard	houses and roads	Encourage insurance of	
	zones such as CEHZ and	nouses and routes	significant investments and	
	CFHZ	Increases	assets within hazard zones	
		awareness for		
	Conduct awareness raising	insurance	Utilise hazard maps and	
	campaign on flood resilient		Geomorphologist Drainage	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for	
	communities living in and		relocation purposes	
	near high risk hazard zones			
			Designation of the IFHZ, CEHZ	

Coastline	Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families /MWTI/ MNRE/ MWCSD Assess and strengthen part	Improve	and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	CIM Strategy
protection: seawall	of seawall in relevant area only to reduce	infrastructure resilience and	management, drainage analysis and geotechnical engineering	2015
upgrade and	vulnerability of Fagaloa	rate of recovery	survey and use its	TSP 2014-2019
maintenance	assets in accordance with	Reduce impact	location and designs	Goal 2 KO 1
	<i>Vulnerability Assessment of the Samoa Road Network recommendations</i>	trom coastal erosion Safer villages	Undertake a Cost Benefit Analysis to weigh options for funding	Community Sector Plan
	Clear debris from existing	houses and roads	Utilise environmental and social	
	culverts near seawalls and waterways to enable free	Minimise	screening and designing built	
	outflow of storm water and streams into sea	damaged	environment infrastructure projects for Vaa o Fonoti district	
	Where reclamations, sand mining, extraction or other major coastal works are proposed, Government and village to manage processes by requiring villagers to get the appropriate permits and consent <i>Responsibility: MNRE/</i>	properties & public assets	Develop and register Village bylaws to include banning of sand mining and illegal rubbish dumping in waterways and drains	
	Village /Families/ CSSP/ MWTI/LTA			
Sauano causeway, East	Upgrade waterways at Falefa Bridge causing	Minimise expenditure on	Conduct a full catchment management, drainage analysis	CIM Strategy 2015
Coast Road and junction of Fagaloa Road	inland flooding and storm water runoff onto Sauano	damaged properties & personal assets	and geotechnical engineering survey and use its recommendations to inform	National Disaster Management
impassable during extreme	Upgrade causeway at Sauano to retain lifeline	Mitigate potential	location and designs	Plan 2017-2021
events from inland flooding	connectivity	damage from inland flooding	Implement Vaa o Fonoti Integrated Catchment Strategy and Flood Management Plan in	TSP 2014-2019 Goal 2 KO 1
at raiela driuge	embankment protection work upstream of Falefa	Reduce flooding of built up areas	conjunction with hazard Maps and Geomorphologist Drainage	Vulnerability Assessment of the Samoa Poad

	Ensure river channel upstream is cleared and maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Install advisory edge markers and depth markers to warn vehicle and pedestrians at all crossings Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments <i>Responsibility: MWTI/</i>	Maintains lifeline access for all of Upolu Safer villages, houses and roads	Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	Network (2016) and Road Network Adaptation Strategy, LTA
Coastline protection: upgrade seawalls at most high risk hazard zones	LTA/MNRE-DMO/ District/ Village Research feasibility of extending seawall to protect Fagaloa Road at most vulnerable areas Research the impacts of sand mining Village consultation on sand mining policy and regulation Enforce environmental social safeguards where reclamations, sand mining, extraction or other major coastal works are proposed. Government and village to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: MNRE/ LTA/ Village /MWTI	Improve infrastructure resilience and rate of recovery Maintain connectivity and lifeline access Reduce impact from coastal erosion Safer villages, houses and roads Minimise expenditure on damaged properties & public assets	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs	CIM Strategy 2015 TSP 2014-2019 Goal 2 KO 1 Draft Soil Resource Management Bill Sauano Village Relocation Plan
Evacuation Shelter and a connected escape route needed for emergency preparedness and response	Assess and/or select location for either an existing or new evacuation shelter, including safe access routes to the shelter Conduct evacuation shelter assessment and mark on CIM Plan hazard maps Develop a Village Climate	Improve resilience of public infrastructure Improve preparedness and readiness response to natural disasters	Enforcement of National Building Code 2017 Utilise hazard maps and Geomorphologist findings to inform location and designs	National Disaster Management Plan 2017-2021 National Building Code National Policy for People with Disabilities NISP 2011 KESO 5

	Disaster Management Plan (VCDMP) Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies Implement CDCRM program Install relevant signs to guide the community on			
	procedures and to locations of evacuation shelters Where no suitable houses exist, build emergency shelter(s) outside the hazard zones			
	Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter			
	Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Flood protection measures (soft solution to support flood protection measures for infrastructure)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Promote and support village and district afforestation in the upper and mid- catchment areas to reduce riverbank failures especially in flood prone areas Responsibility: MNRE/ Villages	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Vaa o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation	Two Million Tree Strategy 2015- 2020 Restoration Operational Plan 2016-2020

Soft coastal protection measures needed for most vulnerable areas	Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Anproach	Develop an integrated land management plan for Vaa o Fonoti 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 plants	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020
Restoration of native upland forest (ifilele) of Sauano	MAF/Villages Continue programme by Forestry on replanting native forestry species of the upland forest Promote agroforestry and mixed planting including fruit trees species to promote ecological stability, soil protection and reduce crop vulnerability to pests and diseases Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Responsibility: MNRE- WRD & Forestry/ District /Village/CSSP Best Solutions	Approach Protects and enhance local species diversity Reduced risk of slips and erosion Reduce impact from inland flooding	MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops and plants 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 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	Community Engagement Plan Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020
Food Security			Implementation	Plans, National Strategies & Policies
Ava farms replanting: affected by pests and inadequate soil	fluvial hazard zones MNRE and village to implement rat eradication programme Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Responsibility: MNRE-WRD & Forestry/ District /Village/CSSP /NGOs	resilience of community livelihood and food security Improve preparedness and readiness response to natural disasters	Collaborate on supply of climate resilient crops and plants 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 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	Agriculture Sector Plan 2016-2021 Two Million Tree Strategy 2015- 2020 Restoration Operational Plan 2016-2020

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

Non-CR issues raised during	Proposed Solution	Comments
consultations		
Cattle to raise and fencing for	Village to seek assistance	Not a CR issue
cattle farms	through MAF and other NGOs	
Responsibility: Village /MAF		

Sauano Village Map

SAUANO 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

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4.6 Salimu/Musumusu Village Interventions

Infrastructure	Best Solutions	Benefits	Guideline to assist with	Relevant National,
			the Implementation	Sector Plans and
			-	Strategies
Parts of main	Continue to upgrade roads,	Improve	Utilise hazard maps and	CIM Strategy 2015
Fagaloa Road	upsize ocean outfalls and	infrastructure	Geomorphologist Drainage	
running	improve drainage systems	resilience and	Infrastructure Database to	TSP 2014-2019 Goal 2
through	to increase regulation of	rate of recovery	inform location and designs	KO 1
Salimu/	water flow and reduce			
Musumusu and	flooding onto roads in	Improve	Utilise environmental and	
Taelefaga	extremely high risk hazard	preparedness and	social safeguards including	
exposed to	zones in accordance with	readiness	EIAs in screening and	
extremely	Vulnerability Assessment of	response to	designing built environment	
high risk ⁷	the Samoa Road Network	natural disasters	infrastructure projects for	
hazard zones	recommendations		Vaa o Fonoti district	
		Reduce impact		
	Enforce environmental	from coastal	Designation of the IFHZ,	
	safeguards where	erosion and	CEHZ and CFHZ as an "at	
	reclamations are proposed.	natural disasters	risk" zone with appropriate	
	Government and district to		landuse planning controls	
	manage processes by	Maintains lifeline	and restrictions	
	requiring villagers to get	access		
	the appropriate permits and			
	consent	Safer villages,		
	Deeneneihility, ITA (nouses and roads		
	Kesponsibility: LIA/ MWTI/MNDE/District/	Minimiaa national		
	MWII/ MNRE/ DIStrict/ Villago /Equilios	disaster reserver		
	Village / Fullilles	disaster recovery		
		damaged		
		nroportios and		
		public assets		
		public assets		

⁷ Extremely high risk is where there is a combination of 4 hazard zones. High risk areas is where there is a combination of 2 or 3 hazard zones

Village houses.	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
schools	high risk hazard zones	expenditure on	guided by the Planning and	
churches and	when re-building	damaged	Urban Management Act 2004	National Building
government	······································	properties and		Code
assets in	Village to seek lands to	personal assets	Enforcement of National	
extremely high	migrate to due to IFHZ and	P	Building Code 2017	Salimu/Musumusu
risk hazard	expanding CEFZ and CFHZ	Safer villages,	0	Village Relocation
zones	1 0	houses and roads	Encourage insurance of	Plan
	Develop landuse planning		significant investments and	
	and development controls	Increases	assets within hazard zones	
	to restrict developments	awareness for		
	within high risk hazard	insurance	Utilise hazard maps and	
	zones such as CEHZ and		Geomorphologist Drainage	
	CFHZ		Infrastructure Database to	
			determine safe areas for	
	Conduct awareness raising		relocation purposes	
	campaign on flood resilient			
	building practices and		Designation of the IFHZ,	
	designs for at risk		CEHZ and CFHZ as an "at	
	communities living in and		risk" zone with appropriate	
	near high risk hazard zones		landuse planning controls	
			and restrictions	
	Design infrastructure to			
	take into account the			
	immediate hazard zones;			
	for example, raise floor			
	levels of nouses in flood			
	prone areas			
	Familias and village to limit			
	building and doveloping on			
	natural overland flow naths			
	exacerbating inland flooding			
	and storm water surges			
	and storm water surges			
	Responsibility: Village /			
	Families /MWTI/ MNRE/			
	MWCSD			
				1
Flood protection	Upgrade waterways	Minimise	Conduct a full catchment	CIM Strategy 2015
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measures for	Un guada all'	expenditure on	management, drainage	
fords and bridges	Upgrade all crossings	damaged properties &	engineering survey and use	TSP 2014-2019 Goal 2 KO 1
	Upgrade or repair riverine	personal assets	its recommendations to	-
	embankment protection	Miti anto a chantial	inform location and designs	Vulnerability
	WORK	damage from	Implement Va'a o Fonoti	Assessment of the Samoa Road Network
	Ensure river channel	inland flooding	Integrated Catchment Strategy	(2016) and Road
	upstream is cleared and	Deduce (leading	and Flood Management Plan	Network Adaptation
	maintained regularly	of built up areas	in conjunction with hazard Maps and Geomorphologist	Strategy, LTA
	Construct levees to reduce	or built up arous	Drainage Infrastructure	
	flooding along estuaries	Maintains lifeline	Database findings	
	and coastal streams	access for all of	Utilise environmental and	
	Install advisory edge	opolu	social safeguards including	
	markers and depth	Safer villages,	EIAs in screening and	
	markers to warn vehicle	houses and roads	designing intrastructure	
	crossings		admitted	
	C . 1771		Develop an integrated land	
	Government and Villages to		aim of reducing any	
	processes needed to protect		unnecessary actions that	
	riverbanks from land		may adversely affect the	
	clearing and developments		natural habitats and ecosystems of the area	
	Responsibility: MWTI/			
	LTA/MNRE/ District/		Include in budget	
	Village		and construction.	
			Designation of the IFHZ as an "at risk" zone with	
			appropriate landuse planning	
			controls and restrictions	
Coastline	Upgrade and maintain	Improve	Planning provisions to be	CIM Strategy 2015
protection:	seawall to protect and	infrastructure	guided by the Planning and	
upgrade seawalls at	reduce vulnerability of road and maintain lifeline	resilience and	Urban Management Act 2004	TSP2014-2019 Goal 2 KO 1
most high risk	access for Va'a o Fonoti in	face of recovery	Incorporate environmental	NO I
hazard zones	accordance with	Maintains	concerns in the design and	
	Vulnerability Assessment of the Samoa Road Network	natural	undertake consultations with	
	recommendations	connectivity	affected communities	
	Enforce environmental	Reduce impact		
	reclamations, sand mining.	erosion		
	extraction or other major			
	coastal works are proposed.	Sater villages,		
	Government and village to manage processes by	nouses and roads		

	requiring villagers to get the appropriate permits and	Minimise expenditure on		
	consent	damaged		
	Responsibility: LTA/	properties &		
	Village /MNRE/MWTI	public assets		
Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Flood protection	Conduct riparian	Mitigate potential	Implement Integrated	Two Million Tree
measures (soft	replanting along river	damage from	Watershed/Catchment	Strategy 2015-2020
solution to	channels and watercourses	iniand flooding	Strategy and Flood Management Plan in	Restoration
protection	watercourses	Reduce flooding	conjunction with hazard Maps	Operational Plan
measures for	Encourage planting of	of built up areas	and Geomorphologist	2016-2020
infrastructure)	indigenous species in		Drainage Infrastructure	
	conjunction with	Safer villages,	Database to inform location	
	engineered water land	houses and roads	and designs	
	dramage action plans		MNRF to zone bazard areas	
	Promote and support village		along major watercourses	
	and district afforestation in		based on flood risk to provide	
	the upper and mid-		suitable areas for riparian	
	catchment areas to reduce		revegetation	
	in flood prone areas			
	in noou prone ureus			
	Responsibility: MNRE/ Villages			
Soft coastal	Plant native species along	Soft coastal	Develop an integrated land	NESP 2017-2021
protection	coastal areas to strengthen	protection	management plan for Vaa o	
for most	existing seawall and to	measures will	of reducing any unnecessary	I WO MILLION I ree
vulnerable areas	landslips: Talie, Fetau, Toa.	strengthen	actions that may adversely	2015-2020
	Togatogo are known to have	existing and new	affect the natural habitats	
	greater resilience to natural	infrastructure	and ecosystems of the area	Restoration
	disasters and changing	along the coast	MARY	Operational Plan
	climate conditions	Poduco impact	MAF to assist in	2016-2020
	To act as an effective wave	from coastal	trial climate ready plant	
	barrier, a minimum distance	erosion and natura	varieties	
	of 200m of vegetation is	disasters		
	needed		MNRE Forestry, DEC and	
	Responsibility: MNRE/	Implements an	MAF to collaborate on	
	MAF/Villages	Approach	plants	
Livelihood and	Best Solutions	Benefits	Guideline to assist with	Relevant Sector
Food Security			the Implementation	Plans, National
		D. 111		Strategies & Policies
'Ava farms	Village to replant outside	Builds	MNRE Forestry, DEC and	Agriculture Sector
affected by pests	nuviai nazaru zones	community	supply of climate resilient	Flair 2010-2021
and inadequate	MNRE and village to	livelihood and	crops and plants	Two Million Tree
soil	implement rat eradication	food security		Strategy 2015-2020
	programme	Ŧ	Develop an integrated land	
	Imploment the Integrated	Improve	management plan with the	Kestoration
	Pest Management	readiness	unnecessary actions that	2016-2020
	Programme	response to	may adversely affect the	
	5	natural disasters	natural habitats and	

			·	1
	Implement Sustainable		ecosystems of the area	
	Land Management (SLM)			
	practices		MNRE Forestry to advice on	
	-		appropriate species, depth	
	Responsibility: MNRE-		and density of planting and	
	WRD & Forestry / District		provide seedlings for	
	/Village/CSSD /NCOs		different vogetation types	
	/ Villuge/CSSF / NGOS		united ent vegetation types	
			suitable to the habitats and	
-			planting materials for village	
Governance	Best Solutions	Benefits	Guideline to assist with	Relevant Sector
			the Implementation	Plans, National
				Strategies & Policies
Strengthen the	Update and/or develop	Strengthen	Develop and register	Village Fono Act
governance of	hylaws to manage the use	implementation of	district/village bylaw to	(Amendment Bill
natural	of natural resources and to	all national sector	protect all district / village	2016)
rosourcos and	control land use impacts:	nlanc	and government assots	2010)
lend use	control land use impacts,	plans	and government liveliheed and	Community Soaton
land use	such as drainage	6 1	environment, ilveimood and	Community Sector
through Bylaws	maintenance, rubbish	Strengthen	food security especially	Plan
	dumping, dynamiting and	monitoring of all	activities affecting water	
	chemical used in fishing	National Acts,	catchment areas and	Community
	grounds, sand mining,	Regulation,	coastline	Development Plan
	stray animals and	Strategies, Plans		2016-2021
	unregulated developments	and Policies	Utilise Sui o Nu'u monthly	
	in water catchment areas		meetings to monitor progress	
	and near boreholes	Improve ability of	of district /village bylaws	
	and near borenoies.	approve ability of	of district/ village bylaws	
		communities to		
	Collaborate with Sul o Nuu	adapt, respond		
	to monitor the use of and	and recover		
	impact on natural	quickly in the long		
	resources	term		
	Facilitate continuous	Improve		
	awareness raising programs	accountability and		
	with the villages	enabling		
		environment of		
	Posnonsihility, MWCSD	communities		
	/Willago	communities		
	/viiiuge			



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Salimu/Musumusu Village Map



SALIMU AND MUSUMUSU 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

4.7 Samamea Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with	Relevant National,
			the Implementation	Sector Plans and
				Strategies
Village houses	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
and other assets	high risk hazard zones	expenditure on	guided by the Planning and	
in extremely	when re-building	damaged	Urban Management Act 2004	National Building Code
high risk hazard		properties and		
zones	Develop landuse planning	personal assets	Enforcement of National	
	and development controls		Building Code 2017	
	to restrict developments	Safer villages,		
	within high risk hazard	houses and roads	Encourage insurance of	
	Zones such as CEHZ and	Ingradad	significant investments and	
	CFHZ	increases	assets within hazard zones	
	Conduct awarenees raising	awareness for	Utilize bazard mans and	
	compaign on flood resilient	insurance	Comorphologist Drainago	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for	
	communities living in and		relocation nurposes	
	near high risk hazard zones		relocation purposes	
			Designation of the IFHZ.	
	Design infrastructure to		CEHZ and CFHZ as an "at	
	take into account the		risk" zone with appropriate	
	immediate hazard zones;		landuse planning controls	
	for example, raise floor		and restrictions	
	levels of houses in flood			
	prone areas			
	Families and village to limit			
	building and developing on			
	natural overland flow paths			
	exacerbating inland flooding			
	and storm water surges			
	Responsibility: Village /			
	Families /MWTI/ MNRE/			
	MWCSD			
Parts of Fagaloa	Research relocating parts of	Improve	Utilise hazard maps and	CIM Strategy 2015
Bay Road	road sitting in IFHZ, CEHZ	infrastructure	Geomorphologist Drainage	
exposed to	and CFHZ	resilience and	Infrastructure Database to	TSP 2014-2019 Goal 2
extremely		rate of recovery	inform location and designs	KO 1
high risk ⁸	Continue to upgrade roads,			
hazard zones	upsize ocean outfalls and	Improve	Utilise environmental and	
	improve drainage systems	preparedness and	social safeguards including	
	to increase regulation of	readiness	EIAs in screening and	
	water flow and reduce	response to	designing built environment	
	flooding onto roads in	natural disasters	infrastructure projects for	
	extremely high risk hazard		vaa o Fonoti district	
	Zones in accordance with	Reduce impact	Designation of the IPUZ	
	the Samoa Poad Network	iroin coastal	CEHZ and CEHZ as an "at	
	recommendations	ei usiuli allu natural disastors	risk" zone with appropriate	
	recommentations	natul al ulsasters	TISK ZONE WITH appropriate	

⁸ Extremely high risk is where there is a combination of 4 hazard zones. High risk areas is where there is a combination of 2 or 3 hazard zones

	Enforce environmental safeguards where reclamations are proposed. Government and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: LTA/ MWTI/ MNRE/ District/ Village / Families	Maintains lifeline access Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	landuse planning controls and restrictions	CIM Stars to an 2015
measures for fords and bridges	 Upgrade all crossings Upgrade or repair riverine embankment protection work upstream of Samamea causeway Ensure river channel upstream is cleared and maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Install advisory edge markers and depth markers to warn vehicle and pedestrians at all crossings Government and Villages to liaise and collaborate on processes needed to protect riverbanks from land clearing and developments Responsibility: MWTI/ LTA/MNRE/ District/ Village 	expenditure on damaged properties & personal assets Mitigate potential damage from inland flooding Reduce flooding of built up areas Maintains lifeline access for all of Upolu Safer villages, houses and roads	 management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and designs Implement Va'a o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database findings Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities 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 Include in budget programming CBA, design and construction. Designation of the IFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions 	TSP 2014-2019 Goal 2 KO 1 Vulnerability Assessment of the Samoa Road Network (2016) and Road Network Adaptation Strategy, LTA

	r7			
Evacuation Shelter and a connected escape	Assess and/or select location for either an existing or new evacuation	Improve resilience of public infrastructure	Enforcement of National Building Code 2017	National Disaster Management Plan 2017-2021
route needed for emergency preparedness	shelter, including safe access routes to the shelter	Improve preparedness	Utilise hazard maps and Geomorphologist findings to inform location and designs	National Building Code
and response	conduct evacuation shelter assessment and mark on CIM Plan hazard maps	and readiness response to natural disasters		National Policy for People with Disabilities
	Develop a Village Climate Disaster Management Plan (VCDMP)			NISP 2011 KESO 5
	Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies			
	Implement CDCRM program			
	Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters			
	Where no suitable houses exist, build emergency shelter(s) outside the hazard zones			
	Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter			
	Responsibility: MNRE /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD			
Upgrade village pool	Install pool fence to protect from inland flooding and storm water runoff	Increase adaptation during drought periods	Utilise Hazard Maps and Geomorphologist findings to inform location and design	CIM Strategy 2015 Water and Sanitation Sector Plan
	Test the quality of the water source before any investment on the pool is undertaken (eg: fence/repair works)	Improve health and sanitation Reduce contamination of water supply	MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention	Community Engagement Plan
	Responsibility: CSSP/ NGOs/ MNRE/Village			

Natural Resources and Environment	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Flood protection measures (soft solution to support flood protection measures for infrastructure)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Promote and support village and district afforestation in the upper and mid- catchment areas to reduce riverbank failures especially in flood prone areas Responsibility: MNRE/	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Vaa o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation	Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016- 2020
Soft coastal protection measures needed for most vulnerable areas	Villages Re-stock existing nursery Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natura disasters Implements an Ecosystem Based Approach	Develop an integrated land management plan for Vaa o Fonoti 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 plants	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020
Sand mining	Identify alternative sustainable sources of sand for domestic use Research the impacts of sand mining Village consultation on sand mining policy and regulation Village and government to collaborate closely on designated areas for sand/rock mining Raise awareness and support of sustainable land	Mitigate potential damage from coastal erosion and flooding accommodating the hazard Safer villages, houses and roads Reduce impact from coastal erosion Economic benefit for village from sustainable sand mining activities	MNRE to continue to identify specific sites for inshore/ inland sustainable sand/rock mining to meet demand without compromising riverbanks Undertake assessments of identified sites Undertake consultation with villages affected by proposed sand/rock mining Develop and register District bylaws to include managing and monitoring domestic sand/rock mining of rivers	Draft Soil Resource Management Bill

	use practices Responsibility: MNRE/ Village/Families		Utilise Sui o Nu'u monthly meetings to monitor progress of CIM Plan activities	
Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
'Ava farms replanting: affected by pests and inadequate soil	Village to replant outside fluvial hazard zones MNRE and village to implement rat eradication programme Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices <i>Responsibility: MNRE- WRD & Forestry/ District</i> <i>/Village/CSSP /NGOs</i>	Builds resilience of community livelihood and food security Improve preparedness and readiness response to natural disasters	MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops and plants 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 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	Agriculture Sector Plan 2016-2021 Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016- 2020

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

Non-CR issues raised during consultations	Proposed Solution	Comments
Assistance with RSE programme for youth employment opportunities Responsibility: Village	Village to seek assistance from other sources	Not a CR issue



Samamea Village Map

SAMAMEA 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

4.8 Taelefaga Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with	Relevant National,
			the Implementation	Sector Plans and
				Strategies
Village houses,	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
church and	high risk hazard zones	expenditure on	guided by the Planning and	
other assets in	when re-building	damaged	Urban Management Act 2004	National Building Code
extremely high		properties and		
risk hazard	Develop landuse planning	personal assets	Enforcement of National	
zones	and development controls	0 ()))	Building Code 2017	
	to restrict developments	Safer villages,	F	
	within high risk hazard	nouses and roads	cignificant invostments and	
	CEH7	Increases	assets within hazard zones	
	CITIZ	awareness for	assets within hazard zones	
	Conduct awareness raising	insurance	Iltilise bazard maps and	
	campaign on flood resilient	mourance	Geomorphologist Drainage	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for	
	communities living in and		relocation purposes	
	near high risk hazard zones			
	<u> </u>		Designation of the IFHZ,	
	Design infrastructure to		CEHZ and CFHZ as an "at	
	take into account the		risk" zone with appropriate	
	immediate hazard zones;		landuse planning controls	
	for example, raise floor		and restrictions	
	levels of houses in flood			
	prone areas			
	Families and village to limit			
	building and developing on			
	natural overland flow paths			
	exacerbating inland flooding			
	and storm water surges			
	Responsibility: Village /			
	Families /MWTI/ MNRE/			
	MWCSD			
Parts of Fagaloa	Research relocating parts of	Improve	Utilise hazard maps and	CIM Strategy 2015
Bay Road	road sitting in IFHZ, CEHZ	infrastructure	Geomorphologist Drainage	
exposed to	and CFHZ	resilience and	Infrastructure Database to	TSP 2014-2019 Goal 2
extremely		rate of recovery	inform location and designs	KO 1
nign risk ⁹	Continue to upgrade roads,	T		
nazard zones	upsize ocean outfalls and	improve	Utilise environmental and	
	to increase regulation of	preparedness and	FLAs in screening and	
	water flow and reduce	reaumess	designing built onvironment	
	flooding onto roads in	nesponse to	infrastructure projects for	
	extremely high risk hazard	natulai uisastels	Vaa o Fonoti district	
	zones in accordance with	Reduce impact		
	Vulnerahility Assessment of	from coastal	Designation of the IFHZ	
	the Samoa Road Network	erosion and	CEHZ and CFHZ as an "at	
	recommendations	natural disasters	risk" zone with appropriate	

⁹ Extremely high risk is where there is a combination of 4 hazard zones. High risk areas is where there is a combination of 2 or 3 hazard zones

	Enforce environmental safeguards where reclamations are proposed. Government and district to manage processes by requiring villagers to get the appropriate permits and consent Responsibility: LTA/ MWTI/ MNRE/ District/ Village /Families	Maintains lifeline access Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	landuse planning controls and restrictions	
Coastline protection at most high risk hazard zones	Assess feasibility of constructing seawalls in most high risk areas of Fagaloa Bay Road to reduce vulnerability of road in accordance with Vulnerability Assessment of the Samoa Road Network recommendationsResearch the impacts of sand miningVillage consultation on sand mining policy and regulationEnforce environmental social safeguards where reclamations, sand mining, extraction or other major coastal works are proposed. Government and village to manage processes by requiring villagers to get the appropriate permits and consentResponsibility: LTA/ Village /MNRE/MWTI	Improve infrastructure resilience and rate of recovery Reduce impact from coastal erosion Safer villages, houses and roads Minimise expenditure on damaged properties & personal assets	Conduct a full catchment management, drainage analysis and geotechnical engineering survey and use its recommendations to inform location and design Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways	CIM Strategy 2015 TSP2014-2019 Goal 2 KO 1 Draft Soil Resource Management Bill

Flood protection	Upgrade waterways	Minimise	Conduct a full catchment	CIM Strategy 2015
measures for		expenditure on	management, drainage	
fords and bridges	Upgrade all crossings	damaged	analysis and geotechnical	TSP 2014-2019 Goal 2
		properties &	engineering survey and use	KO 1
	Upgrade or repair riverine	personal assets	its recommendations to	
	embankment protection		inform location and designs	Vulnerability
	work upstream of Afulilo	Mitigate potential		Assessment of the
	Dam and Taelefaga	damage from	Implement Va'a o Fonoti	Samoa Road Network
	causeways	inland flooding	Integrated Catchment Strategy	(2016) and Road
			and Flood Management Plan	Network Adaptation
	Ensure river channel	Reduce flooding	in conjunction with hazard	Strategy, LTA
	upstream is cleared and	of built up areas	Maps and Geomorphologist	
	maintained regularly		Drainage Infrastructure	
		Maintains lifeline	Database findings	
	Construct levees to reduce	access for all of		
	flooding along estuaries	Upolu	Utilise environmental and	
	and coastal streams	C - f : ! !	social safeguards including	
	In stall a design of a star	Safer villages,	EIAs in screening and	
	Install advisory edge	nouses and roads	designing infrastructure	
	markers and depui		lacinties	
	and podostrians at all		Develop an integrated land	
	crossings		management plan with the	
	ci ossings		aim of reducing any	
	Government and Villages to		unnecessary actions that	
	liaise and collaborate on		may adversely affect the	
	processes needed to protect		natural habitats and	
	riverbanks from land		ecosystems of the area	
	clearing and developments		5	
			Include in budget	
	Responsibility: MWTI/		programming CBA, design	
	LTA/MNRE/ District/		and construction.	
	Village			
	_		Designation of the IFHZ as an	
			"at risk" zone with	
			appropriate landuse planning	
			controls and restrictions	

Drainage systems require maintenance and upgrade in high risk areas especially at junction of LeMafa Pass and Fagaloa Bay Road causing	Assess and upgrade culverts and cross drainage of roads sitting within combined hazard zones- in accordance with <i>Vulnerability Assessment of</i> <i>the Samoa Road Network</i> recommendations	Improves infrastructure resilience and rate of response and recovery to natural hazards and disasters Encourages coastal families to	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)"	CIM Strategy 2015 TSP2014-2019 Goal 2 KO 1 Community Sector Plan
flooding downstream into Taelefaga village	existing culverts in wetland areas to improve tidal flow and fish passage in the wetland area Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular	relocate inland Maintains lifeline access for all of Upolu Minimises national disaster recovery expenditure on damaged properties, public	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law	
	drainage inspection and maintenance District to regulate developments near and around waterways and drainage connecting to main East Coast Road Responsibility: LTA /MWTI/MWCSD/ District/Village/Families	and private assets	as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Va'a o Fonoti District	
Reticulated water supply, quality and network to be improved	Extend the water supply to Taelefaga Procure rainwater harvesting systems for vulnerable families as a short term solution District to support SWA efforts at exploratory boreholes in district District and villages to support SWA efforts at protecting and conserving boreholes, intakes and catchment areas Responsibility: SWA/ MWCSD/ MNRE / District/ Village/ CSSP	Increase adaptation during drought periods Improve infrastructure resilience and rate of recovery Improve health and sanitation Reduce contamination of water supply Reduce impact from inland flooding	Develop and register District/Village bylaws to include regulating developments around catchment areas and boreholes Implement SWA (2016)10 year investment plan to improve water supply network to support all inland families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilise hazard maps and Geomorphologist findings to inform location and designs	CIM Strategy 2015 Water and Sanitation Sector Plan SWA 10 Year Investment Plan (2016) Community Engagement Plan

Natural	Best Solutions	Benefits	Guideline to assist with	Relevant Sector Plans
Resources and Environment			the Implementation	National Strategies & Policies
Environment Wetland and mangrove area conservation	Undertake an assessment of tidal flow necessary to maintain a healthy natural environment Introduce new and widen existing culverts in wetland areas to improve tidal flow and fish passage in the wetland area Limit land clearance and developments adjacent to wetland areas	Protects and enhance local species diversity Sustains ecosystem services and functions Reduce contamination of water supply Reduce impact from inland flooding	Develop an integrated land management plan for Va'a o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area Implement wetland and mangrove protection programme Identify funding /budget requirements and implementation	Policies Draft NESP 2017-2021 Community Engagement Plan
	Continue to plant native species along coastal areas to reduce erosion and landslips. To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Village to fence off domestic animals <i>Responsibility: MNRE /</i> <i>Village /CSSP/ UNDP-GEF</i> <i>SGP/ MWTI</i>		programme for establishment of protected areas in district	
Flood protection measures (soft solution to support flood protection measures for infrastructure)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Promote and support village and district afforestation in the upper and mid- catchment areas to reduce riverbank failures especially in flood prone areas Responsibility: MNRE/ Villages	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Vaa o Fonoti Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation	Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016- 2020
Soft coastal protection measures needed for most vulnerable areas	Re-stock existing nursery 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	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast	Develop an integrated land management plan for Vaa o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan

	greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages	Reduce impact from coastal erosion and natura disasters Implements an Ecosystem Based Approach	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 plants	2016-2020
Food Security	Best Solutions	Benefits	the Implementation	National Strategies & Policies
Pest management; invasive plants and animals affecting taro plantations and vegetable gardens	Implement an eradication programme to eradicate, contain or exclude invasive species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources Responsibility: Villages //District/MNRE/MAF/ SROS	Maintains natural ecosystem Builds resilience of community livelihood and food security	Develop an integrated land management plan for Vaa o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management 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 Training for farmers on pests management particularly affecting fruit trees and crops	Agriculture Sector Plan 2016-2021 Samoa's National Invasive Species Action Plan (NISAP)

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

Non-CR issues raised during consultations	Proposed Solution	Comments
Management of EPC pipes to Afulilo	Village and EPC to liaise on best solution	Not a CR issue
Responsibility: Village/EPC		





Taelefaga Village Map

TAELEFAGA 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

4.9 Uafato Village Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with	Relevant National,
			the Implementation	Sector Plans and
				Strategies
Village houses,	Relocate assets outside of	Minimise	Planning provisions to be	CIM Strategy 2015
school and other	high risk hazard zones	expenditure on	guided by the Planning and	National Duilding Cade
assets in	when re-building	damaged	Urban Management Act 2004	National Building Code
rick bagard	Dovelon landuce planning	properties and	Enforcement of National	
70005	and development controls	personal assets	Building Code 2017	
201105	to restrict developments	Safer villages	Dunuing Coue 2017	
	within high risk hazard	houses and roads	Encourage insurance of	
	zones such as CEHZ and		significant investments and	
	CFHZ	Increases	assets within hazard zones	
		awareness for		
	Conduct awareness raising	insurance	Utilise hazard maps and	
	campaign on flood resilient		Geomorphologist Drainage	
	building practices and		Infrastructure Database to	
	designs for at risk		determine safe areas for	
	communities living in and		relocation purposes	
	near high risk hazard zones			
	Design infrastructure to		Designation of the IFHZ,	
	take into account the		risk" zone with appropriate	
	immediate hazard zones:		landuse planning controls	
	for example, raise floor		and restrictions	
	levels of houses in flood			
	prone areas			
	-			
	Families and village to limit			
	building and developing on			
	natural overland flow paths			
	exacerbating inland flooding			
	and storm water surges			
	Responsibility: Villaae /			
	Families /MWTI/ MNRE/			
	MWCSD			
Evacuation	Assess and/or select	Improve resilience	Enforcement of National	National Disaster
Shelter and a	location for either an	of public	Building Code 2017	Management Plan
connected escape	existing or new evacuation	infrastructure		2017-2021
route needed for	shelter, including safe	-	Utilise hazard maps and	National Building
emergency	access routes to the shelter	Improve	Geomorphologist findings to	Code
preparedness		preparedness	inform location and designs	
and response	conduct evacuation shelter	and readiness		National Policy for
	CIM Plan bagard mans	netural disasters		People with Disabilities
	CIM Plan hazaru hiaps	liaturai uisasters		
	Develop a Village Climate			NISP 2011 KESO 5
	Disaster Management Plan			
	(VCDMP)			
	(·)			
	Conduct trainings for			
	People With Disabilities			
	(PWDs) on emergency and			
	disaster response strategies			

Fagaloa Bay Road upgrade and maintenance needed to maintain lifeline access of Uafato residents	Implement CDCRM program Install relevant signs to guide the community on emergency response procedures and to locations of evacuation shelters Where no suitable houses exist, build emergency shelter(s) outside the hazard zones Retrofit identified and approved schools or churches outside hazard zones and designate as evacuation shelter <i>Responsibility: MNRE</i> /DMO/ MWTI/Village /CSSP/Council of Churches/MWCSD Construct roadside drainage ditches where needed especially in high risk hazard zones such as the IFHZ and CFHZ Implement routine maintenance of the roads and clear any debris obstructing the free flow of surface water runoff Village to regulate developments near and around road shoulders of all access roads Enforce environmental safeguards where reclamations are proposed. Government and district to manage processes by requiring villagers to get the appropriate permits and consent <i>Responsibility: LTA/ MWTI/ MNRE/ Villages</i> /Families	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and designs 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 Develop Integrated Catchment Strategy and Flood Management Plan for Va'a o Fonoti District Designation of the IFHZ, CEHZ and CFHZ as an "at rick" zone with anpropriate	National Disaster Management Plan 2017-2021 CIM Strategy 2015 NISP 2011 KESO 5 TSP 2014-2019 Goal 2 KO 1 Community Sector Plan
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			and restrictions	
			Utilise environmental and	
			social safeguards including	
			EIAs in screening and	
			designing built environment	
			infrastructure projects for	
Deticulated	Due errer melierrer herr	T	Vaa o Fonoti district	CIM Charles 2015
Reticulated	Procure rainwater	Increase	Develop and register	CIM Strategy 2015
quality and	vulnerable families as a	drought periods	include regulating	Water and Sanitation
network to be	short term solution	arought perious	developments around	Sector Plan
improved		Improve	catchment areas and	
-		infrastructure	boreholes	SWA 10 Year
	District to support SWA	resilience and		Investment Plan
	efforts at exploratory	rate of recovery	Implement SWA (2016)10	(2016)
	boreholes in district	Immunus haalth	year investment plan to	Community
		and sanitation	network to support all	Engagement Plan
		and samtation	inland families without	28.8
	District and villages to	Reduce	access to drinking water	
	Support SWA efforts at	contamination of	6	
	protecting and conserving	water supply	Include in budget	
	boreholes, intakes and		programming design, and	
	catchment areas	Reduce impact	extension costs of water	
		flooding	supply and procurement of	
		nooung	Tainwater harvesting systems	
	Responsibility: SWA/		Utilise hazard maps and	
	MWCSD/ MNRE / District/		Geomorphologist findings to	
	Village/ CSSP		inform location and designs	
Natural	Best Solutions	Renefits	Guideline to assist with	Relevant Sector Plans
Resources and	Dest solutions	Denents	the Implementation	National Strategies &
Environment			•	Policies
Protection of	Promote and support	Reduced risk of	Develop Integrated	Water Sector Plan
catchment areas	agroforestry and other	slips and erosion	Watershed/Catchment	C
	cropping systems that	T	Strategy and Flood	Community
	combine trees and crops,	Improve	Management Plan for Vaa o	
	ocnocially in catchmonte	rocilion co of	Fonoti District	
	especially in catchments, and erosion-prone and	resilience of catchments	Fonoti District	Restoration
	especially in catchments, and erosion-prone and sensitive areas	resilience of catchments	Fonoti District	Restoration Operational Plan
	especially in catchments, and erosion-prone and sensitive areas	resilience of catchments Improve	Fonoti District Develop and register District/Village bylaws to	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and	resilience of catchments Improve preparedness and	Fonoti District Develop and register District/Village bylaws to include penalizing illegal	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development	resilience of catchments Improve preparedness and readiness	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas,	resilience of catchments Improve preparedness and readiness response to	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district	resilience of catchments Improve preparedness and readiness response to natural disasters	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient trees	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed Management Riparian Zone and Riverbank	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient trees	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient trees MAF to assist in	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient trees MAF to assist in establishment of pilot sites to trial climate ready plant	Restoration Operational Plan 2016-2020
	especially in catchments, and erosion-prone and sensitive areas Limit land clearance and agricultural development around catchment areas, SWA intake and boreholes in district Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area	resilience of catchments Improve preparedness and readiness response to natural disasters Reduce contamination of water supply	Fonoti District Develop and register District/Village bylaws to include penalizing illegal deforestation and developments in upper catchment areas MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient trees MAF to assist in establishment of pilot sites to trial climate ready plant varieties	Restoration Operational Plan 2016-2020

Doctoration	Replant catchment areas with local species such as tava, and poumuli Responsibility: MNRE/ /SWA/District/Village/ CSSP/GEF-SGP	Deptosts and		Community
Restoration and protection of Uafato Conservation Area to protect Uafato from landslips	Village to support programme by Forestry on replanting native forestry species of the upland forest Government to liaise with village to include Uafato Conservation Programme under the Government's Protected Area netwrok Promote agroforestry and mixed planting including fruit trees species to promote ecological stability, soil protection and reduce crop vulnerability to pests and diseases Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Responsibility: MNRE- WRD & Forestry/ District /Village/CSSP	Protects and enhance local species diversity Reduced risk of slips and erosion Reduce impact from inland flooding	MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops and plants 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 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	Community Engagement Plan Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020
Soft coastal protection measures needed for most vulnerable areas	Re-stock existing nursery Plant native species along coastal areas to strengthen existing seawall and to reduce coastal erosion and landslips; Talie, Fetau, Toa, Togatogo are known to have greater resilience to natural disasters and changing climate conditions To act as an effective wave barrier, a minimum distance of 200m of vegetation is needed Responsibility: MNRE/ MAF/Villages	Soft coastal protection measures will support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natura disasters Implements an Ecosystem Based Approach	Develop an integrated land management plan for Vaa o Fonoti 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 plants	NESP 2017-2021 Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020

Livelihood and Food Security	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Pest management; invasive plants and animals affecting taro plantations and vegetable gardens	Implement an eradication programme to eradicate, contain or exclude invasive species Implement an inventory of invasive species and include information on their past, present and potential future distribution, as well as impacts and possible actions that can be taken Conduct education and awareness programmes on the impacts of invasive species Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Build the capacity of farmers to manage stray animals (pigs, cattle) that are contaminating water sources Responsibility: Villages /District/MNRE/MAF/ SROS	Maintains natural ecosystem Builds resilience of community livelihood and food security	Develop an integrated land management plan for Vaa o Fonoti district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to raise awareness of farmers on impacts to water flows from poor livestock management 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 Training for farmers on pests management particularly affecting fruit trees and crops	Agriculture Sector Plan 2016-2021 Samoa's National Invasive Species Action Plan (NISAP)

Governance	Best Solutions	Benefits	Guideline to assist with the Implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the	Update and/or develop	Strengthen	Develop and register	Village Fono Act
governance of	bylaws to manage the use	implementation of	district/village bylaw to	(Amendment Bill
natural	of natural resources, and to	all national sector	protect all district/ village	2016)
resources and	control land use impacts;	plans	and government assets,	
land use	such as drainage	Cr vi	environment, livelihood and	Community Sector
through Bylaws	dumping sand mining	Strengtnen	activities affecting water	Plan
	stray animals and	National Acts	catchment areas and	Community
	unregulated developments	Regulation	coastline	Development Plan
	in water catchment areas	Strategies, Plans	coustine	2016-2021
	and near boreholes.	and Policies	Utilise Sui o Nu'u monthly	
			meetings to monitor progress	
	Collaborate with Sui o Nuu	Improve ability of	of district/village bylaws	
	to monitor the use of and	communities to		
	impact on natural	adapt, respond		
	resources	and recover		
		quickly in the long		
	Facilitate continuous	term		
	awareness raising programs	T		
	with the villages	Improve		
	Responsibility MWCSD	accountability and		
	/Villano	environment of		
	/ Vinuge	communities		
		communities		





Uafato Village Map





Coordinate System: GCS WGS 1984 Datum: WGS 1984 Units: Degree Data Source: Ministry of Natural Resource and Environment, Samoa Map Production: Spatial & DRM Specialist, Adaptation Fund - Enhancing Resilience of Coastal Communities of Samoa to Climate Change Project

Upolu AF Districts Overview Map of Coastal Inundation Zones

