Community Integrated Management Plan

Fa'asaleleaga 2 District - Savaii



Implementation Guidelines 2018

Foreword

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

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

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

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

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

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

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

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

Thank you

Minister of Natural Resources and Environment

Participants in the Plan

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

This Plan incorporates the Faipule District of Fa'asalele'aga 2 (Tapueleele, Sapapalii, Eveeve/Vaimaga, Fusi-Fuifatu/Safotulafai, Fatausi, Fogapoa/Tuasivi villages).

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

Date of Signing: <u>15 June 2018</u>

Representatives

Tapueleele Village

- Manua Urale Finai
- Vaimoa Lene Finai
- Iakopo Tuaaopepe
- Siatu Tuaaopepe

Sapapali'i Village

- Foluena Foeituese Mapu
- Puefua Sale
- Salaa Elisara
- Vitoria Salima
- Mauafu Taveli

Eveeve/Vaimaga Village

- Oloapu Faasolo
- Ili Ili Lopeta
- Folemaa Okesene

Signatures

Juna Sale.
Lessis Elsons
Basin
Manahu.

J. Howard Valante

Tutonu Logo

Selepa Oloapu

Tatonu Logova.

Fusi/Fuifatu/Safotulafai Village(s)

Mailei Malo Apolone

• Maulupe Peti

Nuu Petelo

• Tuli Tofilau

Fatausi Village

Tuilagi Vaefaga

Oloipola Vasa

Sally Lupe

Oloipola Sefo

Senerita Kolose

Fogapoa/Tuasivi Village

Namulauulu Uene

Namulauulu Fereti

Seigafo Talosaga

Su Pa'i Tonise

• Fesilafai Su Atonio

Machape P Nuclepe P Nuclepe P Viriage. Objects Vaga. Slape. Olepela Cofo Skeppela Cofo

Newslander Frank. Sitalosaga Atten J The Government of Samoa adopts the Community Integrated Management Plan for the Faipule District of Fa'asalele'aga 2 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			
CCA	Climate Change Adaptation			
CDCRM	Community Disaster & Climate Risk Management			
CEP	Community Engagement Plan			
CHZ	Coastal Hazard Zone			
CEHZ	Coastal Frosion Hazard Zone			
CFHZ	Coastal Flooding Hazard Zone			
CIM	Community Integrated Management (Plan) or (Strategy)			
CLHZ	Coastal Landslip Hazard Zone			
COEP	Code of Environmental Practice			
CSO	Civil Society Organization			
CSSP	Civil Society Support Programme			
DSP	District Sub Project			
EbA	Ecosystem based Adaptation			
ECCCR	Enhancing Coastal Community Climate Resilience			
ECR	Enhancing Climate Resilience			
EMP	Environmental Management Plan			
EPC	Electric Power Corporation			
ERN	Emergency Radio Network			
HCSI	High Coastal Sensitive Index			
IAS	Invasive Alien Species			
IG	Implementation Guideline			
KBA	Key Biodiversity Area			
KPI	Key Performance Indicator			
LTA	Land Transport Authority			
LTO	Long Term Output			
MAF	Ministry of Agriculture and Fisheries			
MET Office				
МоН	Meteorological Office Ministry of Health			
MNRE	Ministry of Natural Resources and Environment			
MWCSD	Ministry of Women Community and Social Development			
MWTI	Ministry of Work Transport and Infrastructure			
NAP	National Action Programme			
NBSAP	National Biodiversity Action Plan			
NDMP	National Disaster Management Plan			
NESP	National Environment Sector Plan			
NISP	National Infrastructure Strategic Plan			
NRW	Non Revenue Water			
PA - KO	Priority Area - Key Outcome			
PUMA	Planning Urban Management Agency			
PPCR				
R2R	Pilot Programme Climate Resilience			
	Ridge to Reef Sames Infrastructure Asset Management			
SIAM SOE	Samoa Infrastructure Asset Management State of Environment			
SWA	Samoa Water Authority Wited Nationa Development Programme Clobal Environment Facility Small Create			
UNDP-GEF SGP	United Nations Development Programme Global Environment Facility Small Grants			
MD	Programme World Pank			
WB	World Bank West Coast Bood			
WCR	West Coast Road West web ad Management Plan			
WMP	Watershed Management Plan			
WSSP	Water Sanitation Sector Plan			

Glossary

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

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

(coastal flood hazard zones) and CLHZs (coastal landslip hazard zones).

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

maintenance and upgrading programme on and when required basis.

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

adapt, respond and recover more quickly in the event of emergencies.

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

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

community.

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

Secondary infrastructure

community.

Infrastructure that contributes to the every-day development of the

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

goals, objectives and policies and provide a framework for the

implementation of defenses and works.

Issue A specific concern regarding both cause and effect.

other benefit (e.g. land use includes areas used for villages or crops, resource use includes activities such as sand mining, gravel extraction or fishing).

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

against predicted standards, levels or outcomes.

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

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

recover from the adverse effects of hazard.

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

recover from natural processes or hazards.

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

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

potential for loss of property, life or land due to natural processes.

Stakeholders Those people and organizations who may affect, be affected by, or perceive

themselves to be affected by, a decision or activity. The term stakeholder

may also include interested parties.

Strategy Direction or course of action to achieve a define division.

Susceptibility The degree to which infrastructure at risk is likely to be damaged by coastal

hazards and how easy/difficult, expensive/cheap it is to replace. In the context of the CIM Plan the term susceptibility is equivalent to the term vulnerability as the Samoan phrase for both susceptibility and vulnerability

is the same.

Vision

A desired destiny.

Livelihood

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

Food access

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

Utilization

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

Stability

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

1. Introduction to the CIM Plan

1.1 The Strategic Vision

The District Community Integrated Management (CIM) Plan for Fa'asalele'aga 2 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 improves resilience by identifying actions and solutions considered as best approach to issues identified. Not all the solutions may be actioned immediately but the plan will ensure that issues and options are identified for the long-term improvement in resilience of community livelihoods, infrastructure, and environment and resource systems.

The CIM Plan will:

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

1.3 Structure of the Plan

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

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

2. Implementation Guidelines

2.1 Purpose of the Implementation Guidelines

The Implementation Guidelines describe the solutions proposed that will increase the resilience of the villages in the Plan area and the ways these solutions can be implemented. The solutions are presented for various livelihoods, infrastructure, environment and natural resources items that have moderate to low resilience. Where one solution will provide benefits to other items of livelihoods, infrastructure, environment and natural resources these "Other Benefits" are also noted. Implementation is considered to be the joint responsibility of both the villages and the government in partnership. The government is responsible for the provision of

national and district "Public", infrastructure and public goods and benefits derive from environmental services and natural resources, while villages are responsible for local and community infrastructure and livelihoods related actions. The responsibility for implementing the proposed actions is also defined. Solutions for both District and Village level issues related to livelihoods, infrastructure, environment and natural resources respectively, and the responsibility of both partners, should be considered together as they combine to provide for the integrated management of all community development initiatives.

The solutions for village level interventions related to livelihoods, infrastructure, environment and natural resources will usually be the responsibility of the Village 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 communityresilience 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 EnhancingClimateResilienceforCoastalResourcesandCommunities (PPCR ECR) prepared two (2) key documents:

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

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

3. Description of Fa'asalele'aga 2 District

3.1 Physical and Natural Resource Setting

Fa'asaleleaga 2 District is located on the eastern edge of Savaii about 10km north from the wharf at Salelologa. Along the coast of the Fa'asaleleaga 2 District, a series of rocky headlands have formed as the base rock meets the edge of the lagoon (Reti, 2016). The Fa'asaleleaga 2 villages of Sapapalii, Fusi-Fuifatu /Safotulafai, Eve'eve/Vaimaga, Fatausi and Fogapoa/Tuasivi are located alongside the coastline with no distinct geographical boundaries. Only the village of Tapuele'ele is isolated and located about 10km inland. The underlying base of the district is very porous volcanic or basaltic rock allowing free draining to the extent that river and stream valleys run dry much of the year. However, flash floods occasionally occur, flooding certain areas along the main road at least twice a year (Reti, 2016). The District of Fa'asaleleaga 2 is characterised by broad plains sloping down to the coast from steep inland mountains. The main mountains in this area are volcanic cones including Mt. Misimala, Mt. Vaiala, Mt. Vaiolo, Mt. Afutina and Mt. Masa. There is little sand along the shoreline of Fa'asaleleaga2 district, with most shore areas composed of fragmented rock remnants presenting a hard coast eroding at an average rate of 0 - 0.2 m per year. The water in the lagoons is at most times murky due mainly to heavy sedimentation during rainy seasons. In some villages of Fa'asaleleaga 2, green algaeare evident along the shoreline indicating high nutrient and sedimentation from inland activities in these areas. The coastal plateau is low lying and hence is sensitive to tidal surge and water drainage issues. The tidal surges may impact coral reefs by exposing some live corals to direct sunlight.

The Vai'a'ata Landfill is located further inland of this district and sits within the fluvial hazard zone, making the neighbouring villages vulnerable to potential leachate and contamination of water supply. There is also evidence of illegal rubbish dumping in riverbanks which connect to the nearby Vaitolo Stream. The district of Fa'asaleleaga 2 has six access roads¹ and form part of Samoa's national road network with Fatausi Road connected to the main North West Coast Road and the rest connected to the main South East Coast Road. These roads are within the LTA Zone 2 and 3 Routine Road Maintenance²programme. There are several fords in this district including the main one at Sapapali'i which is considered a major national infrastructure, as not only is it part of the national road network, it is also a major connectivity and lifeline accessinfrastructure that connects the residents from the Northern and Western parts of Savaii to the Eastern partwhich contains the Salelologa Wharf and Salelologa Township. Vai'aata although not considered a village of Fa'asaleleaga 2, is a critical part of the infrastructure within this district as it is the inland alternate route for Savaii if the East Coast Road were cut off due to coastal erosion, flooding or during an extreme event.

At Fa'asaleleaga 2, cattle farming dominate the upland areas and these are often in close proximity of catchment areas, boreholes, rivers and waterways. Few large trees are left (mainly as shade for cattle) scattered within the grazed paddocks providing an indication of the original species found in these areas. They include ifi (Inocarpusfagifer), aoa (Ficusobliqua), asitoa (Syzygiuminolhylloides) and magaui (Garuga floribunda). Secondary forest species comprise mainly of fuafua (Kleinhoviahospita), pulumamoe (Castillaelastica), puluvao (Funtumiaelastica), mosooi (Canangaodorata), and laupata (Macarangaharveyanna). In some areas of Fa'asaleleaga 2, the faapasi has dominated all other vegetation types and have formed homogenous stands in previously cultivated plots of land (Reti, 2016).

The ecosystem of the district is under intense pressure from human activities especially in the upland areas. The upland areas of Fa'asaleleaga 2, 3 and 4 all lead to the inland village of Tapuele'ele in Fa'asaleleaga 2. The health of these upland areas is vulnerable to the impacts of activities of the Tapueleele community. Land clearing for agriculture development has encroached onto high grounds and the high rainfall often experienced in these upland areas can cause flash flooding which in turn affects access roads to and from communities downhill. There is also the danger of contaminants travelling through these flooded rivers onto neighbouring lands and districts. The lowland areas of Fa'asaleleaga2 are highly disturbed and in many cases have been transformed into a mix of coconut and taro plantations. Taro under coconut plantations appear to be the common practice used on flat and moderately sloped lands and cattle grazing near rivers and streams pose threat to coastal areas and lagoons (Reti, 2016).

¹Fatausi Road, Sapapali'i Road, Tapueleele Road, Vai'aata Road, Vaiola College Road and Quarry Road ²Source: LTA Samoa Infrastructure Asset Management Database

Livelihood is predominately mixed plantations crops on higher slopes away from the coastal fringe. Houses are concentrated along the coastal areas. The areas just back from the coastal fringe support household gardens and small livestock but are subject to flooding as a result of poor drainage. The agricultural ecosystem is made up of mainly wet climate including small areas with moderate dry season on the coastal fringe. This leads into gently sloping rolling landscape without deep gorges. The inland section is a landscape dominated by broad sloping ridges separated by deep gorges. The mountain landscape areas to the inland region of the district support forests with a range of volcanic deposits (Dews, 2016).

3.2 Social and Economic Setting

The Fa'asaleleaga 2 District currently has a population of 2,670; Tapueleele 302, Sapapalii 896, Eveeve/Vaimaga 514, Fusi-Fuifatu/Safotulafai 251, Fatausi 205 and Fogapoa/Tuasivi 502. Of the total 2,670; total male 1,389 and female 1,281³. Development is mostly scattered along or near the South East Coast Road. The four schools located in Fa'asaleleaga 2 district include Sapapali'l Primary School, St. Theresa Primary School, Safotulafai Primary School and Vaiola College.

The catchment areas services 3 SWA boreholes in this district which services Fa'asaleleaga 2 as well as neighbouring districts of Faasaleleaga 3 and 4. Water supply is mainly from SWA pipelines however, there are also freshwaterpoolsfound inallvillages. These pools that are important as they can act as backup water supply during extreme events but the two easily accessible pools at Eve'eve/Vaimaga and Sapapali'i are on the coast and are at high risk of impact from coastal hazards. Fatausi's fresh water pool is also near the coast and is currently being repaired and strengthened to improve resilience. The Malietoa Tanumafili II Hospital is located in this district and sits within the Coastal Flooding Hazard Zone (CFHZ) in Tuasivi. While there are other hospitals located around Savaii, the Malietoa Tanumafili II Hospital is generally known as the 'major' hospital in Savaii with similar services to that of the main national hospital at Moto'otua in Upolu, and is therefore a critical infrastructure providing essential services to the whole of Savaii.

The district has requested the assistance of EPC to install streetlights at access roads especially in areas where there is a vast distance between houses. Streetlights are not a climate change adaptation priority but it can come in useful during extreme events and villages need to evacuate further inland during night time. There is concern on the low clearance of high voltage power lines on the main road and access roads. During extreme events, this would be extremely dangerous for the residents as well as the traveling public. The access roads are generally outside of the coastal hazard zones however, overflow from blocked or non-existent drains is adding to flooding at lower areas (near main road & coast). Overflows and storm water runoff is exacerbated by people cutting down trees/forests further inland. The culverts and drainage should be improved on the village roads to remove ponding water and storm water runoff from the road and its surroundings during heavy downpour (Tokalauvere, 2017).

The nearshore area appears to be impacted from increased nutrients from untreated household waste entering the lagoon from all the shoreline communities. Cattle grazing are an important land-use with cattle farms utilizing most of the cool sloping plains on both sides of the Vaia'ata Road. However, these agricultural developments put the water supply at risk of contaminants. The District is home to a large number of churches with the Sapapali'i Congregation Christian Church of national historical significance. There are also employment opportunities at the local tourist facility; Le Rosalote Guest Fales, local shops, the Tuasivi Hospital as well as at nearby tourist facilities, businesses, schools and government departments at the neighbouring Fa'asaleleaga 1, 3 and 4 districts.

Fa'asaleleaga 2 district is ranked 2^{nd} in terms of the highest weekly income per person when averaged. The average income per person per week is \$51,88. But Fa'asaleleaga 2 is also the 2^{nd} highest ranked with the number of families without access to electricity. This is out of 12 districts surveyed in Savaii⁴

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 Fa'asaleleaga 2. There are 214 buildings

³SBS Village Directory Census 2016 preliminary count

⁴Community Disaster & Climate Risk Management household survey: final report

located in the Tsunami shore exclusion zone (red zone) and relocation should be considered. The Malietoa Tanumafili II Hospital at Tuasivi and the Secondary School are two of the most high risk buildings that need to be relocated away from the red zone.

Fa'asaleleaga 2 district has a total area of 4, 992 hectares. The Tsunami shore exclusion zone covers about 32 hectares of the total district area. The watershed management riparian buffer covers 778 hectares, leaving 4182 hectares in the "safe" zone. Therefore about 83% of the total area of the district is safe from coastal inundation and fluvial hazards. The village of Tapuele'ele is unique for it is isolated and located about 10 km inland. Even though this village is not subjected to coastal hazards like the rest in the district, it however faces other issues that will make it more vulnerable during drastic climatic conditions (Tokalauvere, 2017).

The North Coast Road, from Fusi; the junction with Vaiaata Road, to the junction with the PatameaRoad (just south of the Mali'o'lio River) has been identified as being located in a coastal hazard area prone to sea level rise, storm surves and coastal erosion. Almost half of the length is at such risk, either MajorHazard or Medium Hazard. The length identified as a major hazard is very close to the coast and is barely above current sea levels. With a continuing rise in sea level much of the area will be inundatedwith sea water with seasonal high tides⁵. Storm surges and sea level rise may influence the productive capacity of the coastal households. Loss and or major alteration of upland forest areas will impact on the water flows and forest fires may become more common as temperatures increase and rain periods are less frequent and more intense.

The Vaiaata Landfill is located too close to the Vaitolo stream and is affecting this secondary water source for the district and illegal disposal of rubbish is occurring outside of the landfill area. Contamination of the Vaitolo stream is a concern for the population downhill as there is potential for leachate to travel downriver and put health of the villagers at risk.

⁵Vulnerability Assessment of the Samoa Road Network - LTA 2016

4. Fa'asaleleaga 2 District Interventions

CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist	Relevant Sector Plans,
	,		with the	National Strategies &
			implementation	Policies
Main South	Upgrade main South	Improve	Utilise hazard maps	CIM Strategy 2015
East Coast	East Coast and parts of	infrastructure	and Geomorphologist	
Road and part	North West Coast Road	resilience and	Drainage	NISP2011 KESO 5
of North West	to accommodate for	rate of	Infrastructure	
Coast Road	hazard zones and in	recovery	Database to inform	TSP2014-2019 Goal 2
located in high	accordance with		location and designs	KO 1
risk hazard	Vulnerability Assessment	-		
zones	of the Samoa Road	preparedness	Develop an Integrated	Community Sector Plan
	Network	and readiness	Flood Management Plan	
	recommendations	response to	for Faasaleleaga 2	
	a	natural	District. MNRE to	
	Strengthen existing	disasters	develop zonation	
	seawalls in most	D. J.	strategy for safe areas	
	vulnerable areas	Reduce impact	Danielan victor	
	Dlant native	from coastal	Develop an integrated	
	Plant native species	erosion and	land management plan	
	along coastal areas to	natural	with the aim of	
	strengthen existing seawall and to reduce	disasters	reducing any	
	coastal erosion and	Cofonyillogog	unnecessary actions that may adversely	
	landslips; Talie, Fetau,	Safer villages, houses and	affect the natural	
	Toa, Togatogo are	roads	habitats and	
	known to have greater	Todus	ecosystems of the area	
	resilience to natural	Minimise	ecosystems of the area	
	disasters and changing	national	Include in budget	
	climate conditions	disaster	programming CBA,	
	chinate contactions	recovery	design and	
	To act as an effective	expenditure on	construction. Road	
	wave barrier, a	damaged	design standard to take	
	minimum distance of	properties and	account of forecast	
	200m of vegetation is	public assets	increased rainfall	
	needed	p as a cocoo	intensity	
			.	
			Designation of the	
			IFHZ, CEHZ and CFHZ	
	Responsibility:LTA		as an "at risk" zone	
	/MWTI/MNRE/Village		with appropriate	
	s/Families		landuse planning	
			controls and	
			restrictions	
			Develop and register	
			Village bylaws to	
			include maintenance of	
			drainages and illegal	
			rubbish dumping into	
			waterways	

Drainage systems require maintenance and upgrade in high risk areasof main South East Coast Road and North West Coast Road	recommendations Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance	Improves climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Encourages coastal families to relocate inland Maintains lifeline access for all of Upolu	Utilise Sui o Nu'u monthly meetings to monitor progress of village cleanup and awareness programmes Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)" Undertake a Cost Benefit Analysis to weigh options for funding	CIM Strategy 2015 NISP2011 KESO 5 TSP2014-2019 Goal 2 KO 1 Community Sector Plan
systems require maintenance and upgrade in high risk areasof main South East Coast Road and North West Coast	culverts in accordance with Vulnerability Assessment of the Samoa Road Network recommendations Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection	climate resilience of infrastructure resilience and rate of response and recovery to natural hazards and disasters Encourages coastal families to relocate inland Maintains lifeline access	Use existing information for guidance but not limited to: "Vulnerability Assessment of the Samoa Road Network (2017)"; "Review of National Road Standards in Samoa (2016)"; "Samoa Code of Environmental Practice (2007)" Undertake a Cost Benefit Analysis to	NISP2014-2019 Goal 2 KO 1 Community Sector Plan

Flood
protection
measures for
fords and
bridges

Upgrade waterways

Upgrade all crossings

Upgrade or repair riverine embankment protection work upstream of Sapapali' and neighbouring rivers (Mali'oli'o)

Ensure river channel upstream is cleared and maintained regularly

Construct levees to reduce flooding along estuaries and coastal streams

Encourage planting of indigenous species in conjunction with engineered water land drainage action plans

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 Minimise expenditure on damaged properties & personal assets

Mitigate potential damage from inland flooding

Reduce flooding of built up areas

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 Faasaleleaga 2 Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs

Utilise environmental and social safeguards including EIAs in screening and designing infrastructure facilities

Include in budget programming CBA, design and construction. Bridge and road designs to take account of forecast changes in sea level rise and local flooding from increased rainfall intensity

MNRE to zone hazard areas along major watercourses based on flood risk to provide suitable areas for riparian revegetation

Designation of the CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions CIM Strategy 2015

NISP2011 KESO 5

TSP2014-2019 Goal 2 KO 1

NESP 2018-2022

Village houses, businesses, businesses, businesses, burist facilities, when village pool, churches and government assets located in high risk hazard zones hazard zones measures Investments within the hazard zones to adopt appropriate mitigation measures Develop landuse planning and developinent countrols to restrict developments within high risk hazard zones such as CEHZ and CFHZ Design infrastructure appropriately to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Conduct awareness raising campaign on flood resilient building practices and developing on natural overland flow paths Williamaged properties and grown all damaged from coastaleros ion and flood ingaccom modatingthenaz and developing on natural overland flow paths Minimise expenditure on damaged properties and personal assets within he guided by the PUMA Act 2004 National Building Code Enforcement of National Building Code 2017 Altimities be guided by the PUMA Act 2004 Polyma Act 2004 National Building Code Enforcement of National Building Code 2017 Altimities be guided by the PUMA Act 2004 Polyma Act 2004 National Building Code Enforcement of National Building Code 2017 Altimities be guided by the PUMA Act 2004 Polyma Act 2004 National Building Code Enforcement of National Building Code 2017 Altimities and sests within he promoastaleros ion and floodingaccom modatingthenaz and Geomorphologist Porainage Infrastructure Database to inform policy development and possible relocation of assets Willise updated hazard Desorbate within and assets within hazard zones and Geomorphologist Porainage Infrastructure Database to inform policy development and possible relocation of assets Williamage from coastaleros ion and Geomorphologist Porainage Infrastructure Database to inform policy development and possible relocation of assets Williamage from coastaleros ion and Geomorphologist Porainage Infrastructure Database to inform policy development and possible relocation of assets			Г	-	
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developing on natural		_			
overland flow paths					
		-			
exacerbating inland					
flooding and storm		_			
water surges		water surges			
Government and Village					
to liaise and collaborate					
on processes needed to		_			
protect riverbanks and		•			
coastline from land					
clearing and		_			
developments		developments			
Responsibility:Village					
/ Families/MWTI/					
MNRE/ MWCSD		MNRE/ MWCSD			

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 evacuationshelterasses sment and mark on CIM Plan hazard maps Develop aVillageClimateDisaste rManagementPlan(VC DMP) Conduct trainings for People With Disabilities (PWDs) on emergency and disaster response strategies Implement CDCRMprogram 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 DisasterManagement Plan2017-2021 NationalBuildingCode National Policy for People with Disabilities
Electricity supply	Provide undergroundlinesinthe longterm	Maintain electricity supply at all times including natural disasters	Monitor distribution networks to avoid overloading poles and contributing to line failures	EPC Strategic Plan

Reticulated water supply, quality and network to be improved	Install and connect power supply for inland residents Relocateoverheadlinest oamoreresilientlocatio nwhen being replaced 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 Extend the water supply to families inland with no access to water Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought	Avoid accidents from fallen electricity posts 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/Update and register District/Village bylaws to include regulating developments around catchment areas and boreholes Implement SWA (2016) 10year investment plan to improve water supply network to support all inland families without access to drinking water Include in budget programming design, and extension costs of water supply and procurement of rainwater harvesting systems Utilize Hazard Maps and	CIM Strategy 2015 Water and Sanitation Sector Plan SWA 10 Year Investment Plan(2016) Community Engagement Plan Health Sector Plan Village Fono Act(Amendment Bill 2016)
	Responsibility:SWA/ MNRE/ District /Villages/ CSSP		Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u	

		1		1
			monthly meetings to	
			monitor progress of	
			village programs and	
			responsibilities	
Vaiaata	Relocate landfill to a	Reduce water	MNRE Waste	NESP 2018-2022
Landfill	secure and isolated area	contamination	Management to resolve	
	away from fluvial		contamination of	
	hazard zone or		Vaitolo stream	
	implement mitigation			
	measures to reduce			
	contamination of rivers		MNRE Waste	
			Management to	
	Responsibility: MNRE/		conduct regular	
	Contractors/District		9	
			inspections and to enforce rubbish &	
			waste management	
			policies	
			Regulate and monitor	
			rubbish contractors	
			regularly	
Natural	Best Solutions	Benefits	Guideline to assist	Relevant Sector Plans,
Resources and			with the	National Strategies &
Environment			Implementation	Policies
Flood protection		Mitigate	Implement Faasaleleaga	Two Million Tree
measures (soft	replanting along river	potential	2 Integrated Catchment	Strategy 2015-2020
solution to	channels and	damage from	Strategy and Flood	
support hard	watercourses	damage from inland flooding	Management Plan in	Restoration
support hard infrastructural	watercourses	inland flooding	Management Plan in conjunction with hazard	Operational Plan 2016-
support hard	watercourses Encourage planting of	inland flooding Reduce flooding	Management Plan in conjunction with hazard Maps and	
support hard infrastructural	watercourses Encourage planting of indigenous species in	inland flooding	Management Plan in conjunction with hazard Maps and Geomorphologist	Operational Plan 2016-
support hard infrastructural	watercourses Encourage planting of indigenous species in conjunction with	inland flooding Reduce flooding of built up areas	Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure	Operational Plan 2016-
support hard infrastructural	watercourses Encourage planting of indigenous species in conjunction with engineered water land	inland flooding Reduce flooding of built up areas Safer villages,	Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform	Operational Plan 2016-
support hard infrastructural	watercourses Encourage planting of indigenous species in conjunction with	inland flooding Reduce flooding of built up areas Safer villages, houses and	Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure	Operational Plan 2016-
support hard infrastructural	watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans	inland flooding Reduce flooding of built up areas Safer villages,	Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs	Operational Plan 2016-
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support hard infrastructural intervention)	watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages	inland flooding Reduce flooding of built up areas Safer villages, houses and roads	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	Operational Plan 2016- 2020
support hard infrastructural intervention) District Upland	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed	inland flooding Reduce flooding of built up areas Safer villages, houses and roads Protects and	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 Develop Integrated	Operational Plan 2016- 2020 Two Million Tree
support hard infrastructural intervention) District Upland Forest and	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian	inland flooding Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local	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 Develop Integrated Catchment Strategy and	Operational Plan 2016- 2020 Two Million Tree Planting Strategy
support hard infrastructural intervention) District Upland	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian Zone and Riverbank	inland flooding Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local species	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 Develop Integrated Catchment Strategy and Flood Management Plan	Operational Plan 2016- 2020 Two Million Tree
support hard infrastructural intervention) District Upland Forest and	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control	inland flooding Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local	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 Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2	Two Million Tree Planting Strategy 2015-2020
support hard infrastructural intervention) District Upland Forest and	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate	inland flooding Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local species diversity	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 Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District. MNRE to	Two Million Tree Planting Strategy 2015-2020 Restoration
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support hard infrastructural intervention) District Upland Forest and	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Adopt agro-forestry and	Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local species diversity Sustains ecosystem services and functions	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 Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District. MNRE to develop zonation strategy for safe areas Develop an integrated	Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Village Fono Act
support hard infrastructural intervention) District Upland Forest and	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Adopt agro-forestry and community tree farming	Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local species diversity Sustains ecosystem services and functions	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 Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District. MNRE to develop zonation strategy for safe areas Develop an integrated land management plan	Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Village Fono Act (Amendment Bill
support hard infrastructural intervention) District Upland Forest and	Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages Enforce Watershed Management Riparian Zone and Riverbank Encroachment Control and regulate developments around the upland area Adopt agro-forestry and	Reduce flooding of built up areas Safer villages, houses and roads Protects and enhance local species diversity Sustains ecosystem services and functions	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 Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District. MNRE to develop zonation strategy for safe areas Develop an integrated	Two Million Tree Planting Strategy 2015-2020 Restoration Operational Plan 2016-2020 Village Fono Act

practiced at present

Encourage planting of indigenous species in conjunction with engineered water land drainage action plans

Regulate developments around catchment area, SWA intake and boreholes in district

Limit land clearance and agricultural development around SWA intake and boreholes

Conduct campaign for public awareness and establish a "neighbourhood watch" agreement with district to monitor and report on illegal deforestation

District/village to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes

District to support SWA efforts at exploratory intakes and boreholes in district

Continue ban of destructive fishing practices including sand mining and introduce village ban on rubbish dumping in waterways and watercourses (immediate fluvial hazard zones)

Fence domestic and invasive animals to

of water supply

Reduce impact from inland flooding

Improve preparedness and readiness response to natural disasters

Safer villages, houses and roads 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

Develop and register District/Village bylaws to include penalizing illegal deforestation in district lands

Utilise Sui o Nu'u monthly meetings to monitor progress of district/village forestry programmes CIM Strategy 2015

Water and Sanitation Sector Plan

Community Engagement Plan

	protect young trees			
	Responsibility: MNRE/ SWA/MWCSD/ District /Village /CSSP			
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	Village pools are currently in a poor location/state with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs. Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works) Responsibility: CSSP/NGOs/MNRE/Villages	Increase adaptation during drought periods Improve health and sanitation Reduce contamination of water supply	Utilise Hazard Maps and Geomorphologist findings for planning purposes MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention Update Village bylaws to include managing and maintaining village natural resources Utilise Sui o Nu'u monthly meetings to monitor progress of	CIM Strategy 2015 Water and Sanitation Sector Plan Community Engagement Plan Village Fono Act (Amendment Bill 2016)
Mangrove area conservation	Continue existing mangrove protection programme Limit land clearance and agricultural developments around mangrove areas Continue to plant mangroves and other native species along coastal areas to reduce coastal 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 damaging mangrove areas	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 Reduce impact from inland flooding	village programmes and responsibilities MNRE DEC to provide technical assistance and backstopping in the development of a Mangrove Management Plan for Fa'asaleleaga 2 District Develop an integrated land management plan for Faasaleleaga 2 district with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and ecosystems of the area MAF to assist in establishment of pilot sites to trial climate ready plant varieties	NESP 2018-2022 Community Engagement Plan Agriculture Sector Plan 2016-2021

Livelihood and Food Security	Responsibility: MNRE/MAF/ Village Council/CSSP/ UNDP- GEF SGP Best Solutions	Benefits	with the	Relevant Sector Plans, National Strategies & Policies
Pest	Implement an	Maintains	Develop an integrated	Agriculture Sector Plan
management;	eradication	natural	land management plan	2016-2021
invasive species	programme to eradicate, contain or	ecosystem	with the aim of	NESP 2018-2022
	exclude invasive	Builds	reducing any unnecessary actions	NESF 2010-2022
	species	resilience of	that may adversely	Samoa's National
	species	community	affect the natural	Invasive Species Action
	Replant with climate	livelihood and	habitats and	Plan (NISAP)
	resilient native species	food security	ecosystems of the area	
	Implement an inventory of invasive species and include information on their past, present and potential future	Reduce forest loss and land clearance	MAF to raise awareness of farmers on impacts to water flows from poor livestock management	
	distribution, as well as		MAF to assist in	
	impacts and possible		establishment of pilot	
	actions that can be taken		sites to trial climate ready plant varieties	
	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		MNRE Forestry, DEC and MAF to collaborate on supply of climate resilient crops MNRE, MAF and SROS to implement aggressive, nationwide invasive species eradication programme based on inventory of invasive species and conduct campaign on public awareness accordingly Village to manage pig/cattle population (compounds, in particular around water supplies)	
	Conduct pilot site trials for climate ready plant		Training for farmers	
	varieties		on pests management	
			particularly affecting	
	District to fence		fruit trees and crops	
	domestic animals			

Food security: threatened by changes in climate and inadequate soil for planting	Responsibility: Villages / District / MNRE / MAF / SROS Promote and facilitate planting of root crops (i.e yams, sweet potato) which are more resilient to cyclones, droughts and floods Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Conduct pilot site trials for climate ready plant varieties Responsibility: MAF / MNRE / villages / CSSP	Maintains natural ecosystem Builds resilience of community livelihood and food security Improve preparedness and readiness response to natural disasters	, awareness raising and support in supply of nursery trees, technology and infrastructure MAF to provide trainings and awareness oncropdiversificationto suit theprolongedimpactsof climatechange suchas droughtor rainyseasons MAF to assist in establishment of pilot sites to trial climate ready plant varieties Develop an integrated land management plan with the aim of reducing any unnecessary actions that may adversely affect the natural habitats and	Community Engagement Plan Two Million Tree Strategy 2015-2020 Restoration Operational
	MINRE/VIIIages/CSSP		ecosystems of the area	
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	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans and Policies Improve ability	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

Nuu to monitor the use	of communities	
of and impact on	to adapt,	
natural resources	respond and	
	recover quickly	
Facilitate continuous	in the long term	
awareness raising		
programs with the	Improve	
villages	accountability	
	and enabling	
Responsibility:	environment of	
MWCSD /Village	communities	

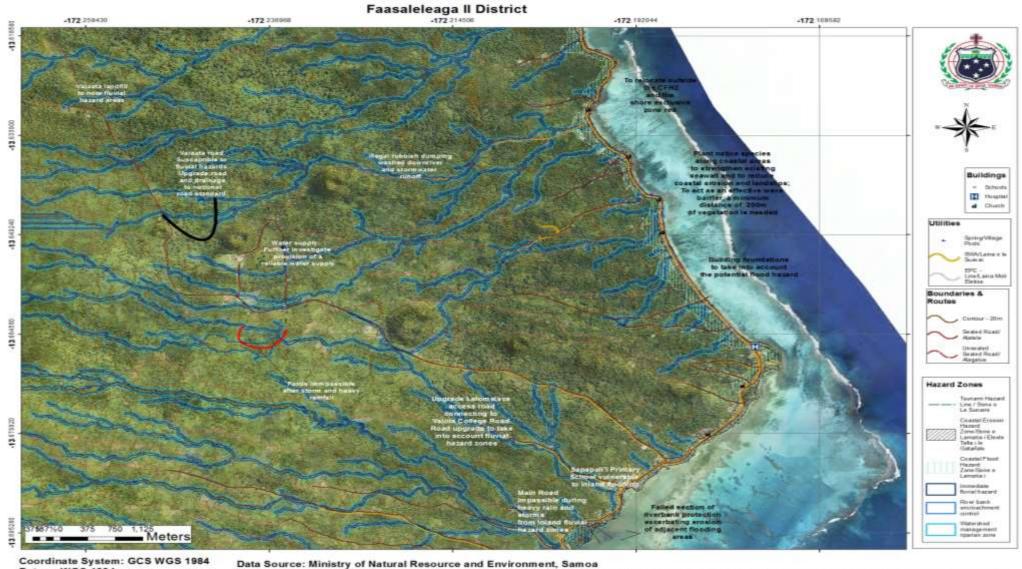


Land clearance for agriculture purposes



Damaged causeway at entrance to Tapueleele

Fa'asaleleaga 2 District Map



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

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

5. Fogapoa/Tuasivi Village Interventions

CIM Plan Solutions

CIM Plan So				
Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, school, churches, tourist facilities, villages pools, government and other village assets in high risk hazard zones	requires replacement	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from coastal erosion and flooding accommodating the hazard Improve recovery to create more resilient villages Improve preparedness and readiness response to natural disasters Safer villages, houses and roads	Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 2 District. MNRE to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs Enforcement of National Building Code 2017 Encourage insurance of significant investments and assets within hazard zones Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	National Building Code CIM Strategy 2015
	/ Families /MWTI/ MNRE			

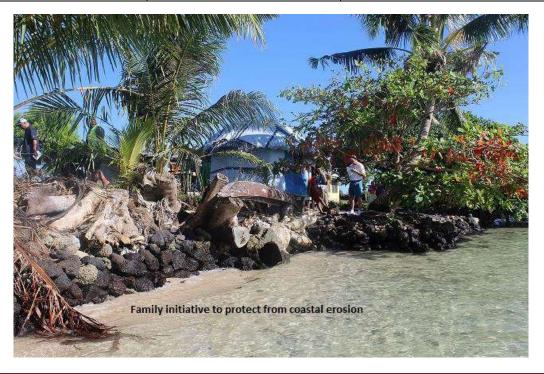
Drainage	Upgrade drainage and	Improves climate	Use existing information	CIM Strategy 2015
	culverts at junction of	resilience of	for guidance but not	diff befutegy 2015
maintenance	South East Coast Road	infrastructure	limited to:	NISP2011 KESO 5
and upgrade in	and access roads	resilience and rate	"Vulnerability Assessment	TSP2014-2019 Goal
high risk areasof main	(Fogapoa Road, Fatausi Road and Fatausi School	of response and recovery to natural	of the Samoa Road Network	2 KO 1
South East	Road) exacerbating	hazards and	(2017)"; "Review of National Road Standards in	2 10 1
Coast Road	inland flooding- in	disasters	Samoa (2016)"; "Samoa	Community Sector
especially at	accordance with		Code of Environmental	Plan
junctions with	Vulnerability Assessment	Encourages coastal	Practice (2007)"	
access roads	of the Samoa Road Network	families to relocate inland	1.400.00 (2007)	
	recommendations	iiiaiiu	Undertake a Cost Benefit	
		Maintains lifeline	Analysis to weigh options	
	Implement national	access for all of	for funding	
	standards for culverts	Upolu	Incorporate environmental	
	and drains to facilitate	Minimiaaanatianal	and social safeguards	
	the overland flow of storm water and reduce	Minimises national disaster recovery	concerns in the design and	
	flooding	expenditure on	undertake consultations with affected communities	
	o o	damaged	with affected communities	
	Implement regular	properties, public	Apply for necessary	
	drainage inspection and	and private assets	permits as required by law	
	maintenance		IItilian harand mana and	
	Responsibility: LTA		Utilise hazard maps and Geomorphologist	
	/MWTI/MWCSD		Infrastructure Drainage	
	/Village/ Families		Database to inform designs	
			Develop Integrated	
			Catchment Strategy and Flood Management Plan for	
			Faasaleleaga 2 District	
			Develop and register	
			District/Village bylaws to	
			include maintenance of	
			drainages and illegal rubbish dumping into	
			waterways	
Electricity	Provide	Maintain	Monitor distribution	EPC Strategic Plan
supply	undergroundlinesinthel	electricity supply	networks to avoid	
	ongterm	at all times	overloading poles and	
	Install and connect	including natural disasters	contributing to line failures	
	power supply for inland	210400010	10110100	
	residents	Avoid accidents		
	Relocateoverheadlinesto	from fallen		
	amoreresilientlocationw	electricity posts		
	hen being replaced			
	Install streetlights along			
	the roads where needed for community safety			
	101 community salety			
	Install and connect to			
	solar power supply if			

	made available			
Reticulated water supply, quality and network to be improved	made available Families to limit building and developments near electricity posts Responsibility:EPC/MWTI/Village/Families Extend the water supply to families inland with no access to water Procure rainwater harvesting rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought Responsibility: SWA/MNRE/District /Villages/CSSP	Increase adaptation during drought periods Improve infrastructure resilience and rate of recovery Improve health and sanitation Reduce contamination of water supply Reduce impact from inland flooding	Develop/Update 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 Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor	CIM Strategy 2015 Water and Sanitation Sector Plan SWA 10 Year Investment Plan(2016) Community Engagement Plan Health Sector Plan Village Fono Act(Amendment Bill 2016)
	MNRE/ District		systems Utilize Hazard Maps and Geomorphologist findings to inform location and design	

Natural Resources and Environment	Best Solutions	Benefits	the implementation	Relevant Sector Plans, National Strategies & Policies
Marine reserve	Assess the state of the coral reef and lagoon ecosystems in Fogapoa/Tuasivi whether suitable for marine reserve Conduct awareness programmes of marine resources Responsibility: MAF, MNRE-DEC/Village	Support food security and healthy diets Promotes sustainability of fish stocks Facilitates coral regrowth and coral reef restoration	MAF Fisheries to support implementation and provide technical backstopping and monitoring	NESP 2018-2022
Village pool located in high risk hazard zones (coastal erosion and flooding from fluvial inundation, wave impacts and storm surges)	Village pool is currently in a poor state with an assessment needed for options to either rejuvenate or find a new site depending on the location of springs. Test the quality of the water source before any further investment on the pool is undertaken (eg: fence/repair works) Responsibility: CSSP/NGOs/MNRE/Villages	Increase adaptation during drought periods Improve health and sanitation Reduce contamination of water supply	Utilise Hazard Maps and Geomorphologist findings for planning purposes MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention Update Village bylaws to include managing and maintaining village natural resources Utilise Sui o Nu'u monthly meetings to monitor progress of village programmes and responsibilities	Water and Sanitation Sector Plan Community Engagement Plan Village Fono Act (Amendment Bill 2016)

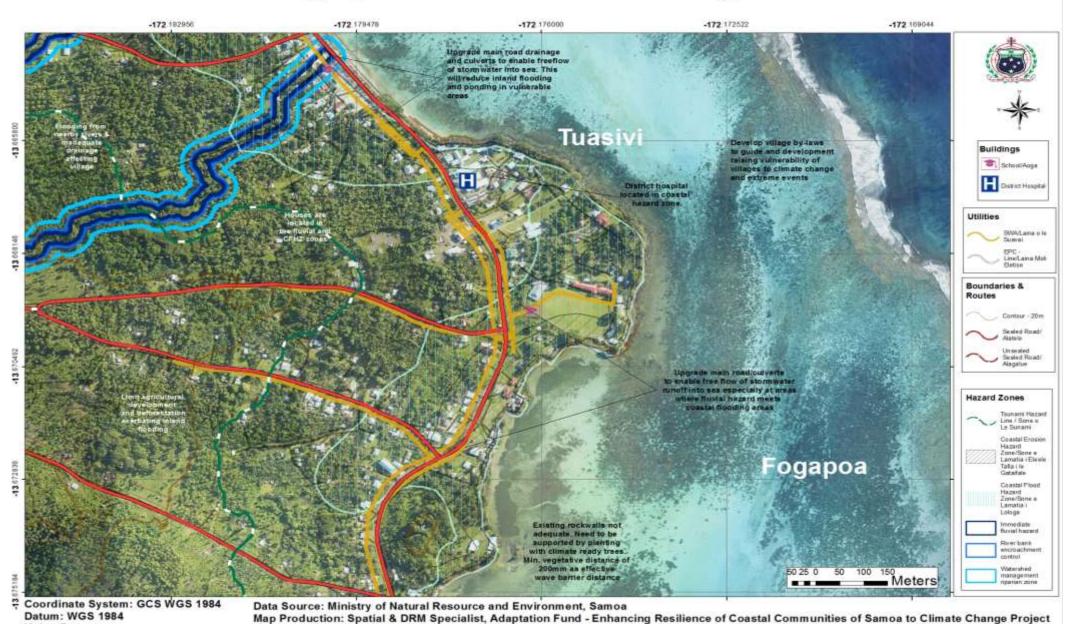
Governance	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use 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 consultations	Proposed Solution	Comments
School Responsibility: Village/MESC	Put down 2-storey building and replace with single storey	Indirectly related to CR however school is located in hazard zone (CFHZ) and is also affected from inland flooding due to inadequate drainage and culverts on roads



Units: Degree

Fogapoa & Tuasivi Village



6. Fatausi Village Interventions

CIM Plan Solutions

LIM Plan S		D C'-	C:	Delesso Alver
Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant National, Sector Plans and Strategies
Village houses,	Relocate outside of high	Minimise	Planning provisions to be	CIM Strategy 2015
Churches,	risk hazard zones when	expenditure on	guided by the Planning	
School and	building/infrastructure	damaged	and Urban Management	National Building
private	requires replacement	properties and	Act 2004	Code
residences		personal assets		
located in high	Investments within the		Enforcement of National	
risk hazard	hazard zones to adopt	Safer villages,	Building Code 2017	
zones	appropriate mitigation	houses and roads		
	measures	_	Encourage insurance of	
		Increases	significant investments	
	Conduct awareness	awareness for	and assets within hazard	
	raising campaign on flood resilient building	insurance	zones	
	practices and designs for		Utilise hazard maps and	
	at risk communities		Geomorphologist	
	living in and near high		Drainage Infrastructure	
	risk hazard zones		Database to determine	
	Design in fraction stress to		safe areas for relocation	
	Design infrastructure to take into account the		purposes	
	immediate hazard zones;		Designation of the IFHZ,	
	for example, raise floor		CEHZ and CFHZ as an "at	
	levels of houses in flood		risk" zone with	
	prone areas		appropriate landuse	
	P		planning controls and	
	Develop landuse planning		restrictions	
	and development controls			
	to restrict developments			
	within high risk hazard			
	zones such as CEHZ and			
	CFHZ			
	Families and village to			
	limit building and			
	developing on natural			
	overland flow paths			
	exacerbating inland			
	flooding and storm water			
	surges			
	Responsibility:Village			
	/ Families /MWTI/			
	MNRE/ MWCSD			
Drainage	•	Improves climate	Use existing information	CIM Strategy 2015
systems to be		resilience of	for guidance but not	
improved in	East Coast road especially		limited to:	NISP2011 KESO 5
high risk areas	,	resilience and rate	"Vulnerability Assessment	
on main South-		of response and	of the Samoa Road	TSP2014-2019 Goal
East Coast Road	_	recovery to	Network (2017)"; "Review	2 KO 1
especially at	,	natural hazards	of National Road	
junctions with		and disasters	Standards in Samoa	Community Sector
Access road	recommendations		(2016)"; "Samoa Code of	Plan

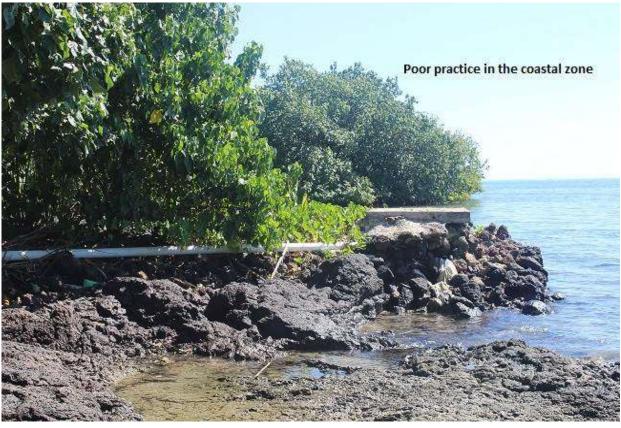
	Implement national standards for culverts and drains to facilitate the overland flow of storm water and reduce flooding Implement regular drainage inspection and maintenance	Encourages coastal families to relocate inland Maintains lifeline access Minimise national disaster recovery expenditure on damaged properties, public and private assets	Environmental Practice (2007)" Undertake a Cost Benefit Analysis to weigh options for funding Incorporate environmental and social safeguards concerns in the design and undertake consultations with affected communities Apply for necessary permits as required by law Utilise hazard maps and Geomorphologist Infrastructure Drainage Database to inform designs Develop Integrated Catchment Strategy and Flood Management Plan for Faasaleleaga 2 District Develop and register District/Village bylaws to include maintenance of drainages and illegal rubbish dumping into	
Upgrade access/ work roads as potential alternate emergency route for Tuasivi Hospital	Upgrade to include adequate sized culverts to facilitate the overland flow of storm water exacerbating river overruns, and to reduce flooding onto main roads and village lands Implement regular drainage inspection and maintenance Village to restrict rubbish dumping into waterways	Improve infrastructure resilience and rate of recovery Improve preparedness and readiness response to natural disasters Reduce impact from coastal erosion and natural disasters Safer villages, houses and roads Minimise national disaster recovery expenditure on	waterways Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and designs Develop an Integrated Flood Management Plan for Faasaleleaga2 District. MNRE to develop zonation strategy for safe areas 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	National DisasterManageme nt Plan2017-2021 NISP2011 KESO 5 TSP2014-2019 Goal 2 KO 1 Community Sector Plan
1	and conduct regular clearance of rubbish	damaged properties and	and construction. Road design standard to take	

Village to regulate developments near and around road shoulders of all access roads Enforce environmental safeguards Enforce environmental safeguards Develop and register Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways Utilise Sui o Nu'u monthly meetings to monitor progress of village cleanup and awareness programmes during times of drought		la alaine de la come a c			
Section of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions		behind homes	public assets	account of forecast	
Reticulated water supply to families inland with no access to water harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought Responsibility: SWA / MNRE/ District //Villages/ CSSP Extend the water supply to families inland with no access to water harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought Responsibility: SWA / MNRE/ District //Villages/ CSSP Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways Utilise Sui o Nu'u monthly meetings to monitor programs and register District/Village bylaws to include regulating to water and saptation during drought periods of undertowner to support all inflam damples without access to drinking water contamination of water supply and browner harvesting systems Reduce contamination of water supply in the water supply and procurement of rainwater harvesting systems Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Resource and Best Solutions Resource and Best Solutions Retuce impact from inland flooding Village Fono Act(Amendment Bill 2016) Village Fono Act (Millize Bill 2016) Village Fono Act (Millize Bill 2016) Villize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Resource and Best Solutions Resource and Sector Plan and boreholes regulating developments around catchment areas and boreholes resulting		developments near and around road shoulders of all access roads Enforce environmental		Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and	
Reticulated water supply to families inland with no access to water supply quality and network to be improved Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought Responsibility: SWA / MNRE / District / Villages / CSSP Resource and Resour		MWTI/ MNRE/ District/		Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways Utilise Sui o Nu'u monthly meetings to monitor progress of village cleanup and awareness	
water supply, quality and no access to water network to be improved Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought Responsibility: SWA / MNRE/ District / Villages/ CSSP Responsibility: SWA / MNRE/ District / Villages/ CSSP Responsibility: SWA / MILIAGE / Villages/ CSSP Responsibility: SWA / MNRE/ District / Village bylaws to include regilating developments and boreholes Improve infrastructure resilience and rate of recovery Improve water supply and brown to support all inland families without access to drinking water of rainwater harvesting systems Utilize Hazard Maps and Geomorphologist findings to inform location and design Utilize Sui o Nu'u monthly meetings to monitor progress of village programs and responsibilities Natural Resource and Environment Resource and Environment	Reticulated	Extend the water supply	Increase		CIM Strategy 2015
meetings to monitor progress of village programs and responsibilities Natural Resource and Environment meetings to monitor progress of village programs and responsibilities Guideline to assist with the implementation Plans, National Strategies & Policies	water supply, quality and network to be	to families inland with no access to water Procure rainwater harvesting rainwater harvesting systems for vulnerable families as a short term solution District and villages to support SWA water rationing programs during times of drought Responsibility: SWA /MNRE/ District	adaptation during drought periods Improve infrastructure resilience and rate of recovery Improve health and sanitation Reduce contamination of water supply Reduce impact from inland	Develop/Update 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 Utilize Hazard Maps and Geomorphologist findings to inform location and	Water and Sanitation Sector Plan SWA 10 Year Investment Plan(2016) Community Engagement Plan Village Fono Act(Amendment
Resource and the implementation Plans, National Environment Strategies & Policies				meetings to monitor progress of village programs and responsibilities	
Environment Strategies & Policies	Natural	Best Solutions	Benefits		
				-	•
		Plant native species along	Soft coastal		
protection coastal areas to strengthen protection land management plan for Planting Strategy					
measures existing seawall and to measures will Faasaleleaga 2 district 2015-2020	1 ⁻	•	•	9 2	0 0

				T
	reduce coastal erosion and	* *	with the aim of reducing	
vulnerable areas	* ' ' '		any unnecessary actions	Restoration
	Togatogo are known to	existing and new	that may adversely affect	Operational Plan
	have greater resilience to	infrastructure	the natural habitats and	2016-2020
	natural disasters and	along the coast	ecosystems of the area	
	changing climate	D 1	MAD.	Forestry
	conditions	Reduce impact	MAF to assist in	Management Act
	To act as an effective wave	from coastal	establishment of pilot sites	2011
	barrier, a minimum	erosion and	to trial climate ready plant	
	distance of 200m of	natural disasters	varieties	
	vegetation is needed	Implements an	MNRE Forestry, DEC and	
	vegetation is necueu	Ecosystem Based	MAF to collaborate on	
	Responsibility: MNRE/	Approach	supply of climate resilient	
	MAF/Villages	Арргоасп	crops	
Livelihood and	Best Solutions	Benefits		Relevant Sector
Food Security			the implementation	Plans, National
			-	Strategies & Policies
Pest	Implement an	Maintains	Develop an integrated	Agriculture Sector
management;	eradication programme	natural	land management plan	Plan 2016-2021
invasive species	to eradicate, contain or	ecosystem	with the aim of reducing	
	exclude invasive species		any unnecessary actions	NESP 2018-2022
		Builds resilience	that may adversely affect	
	Replant with climate	of community	the natural habitats and	Samoa's National
	resilient native species	livelihood and	ecosystems of the area	Invasive Species
		food security		Action Plan (NISAP)
	Implement an inventory		MAF to raise awareness of	
	of invasive species and	Reduce forest	farmers on impacts to	
	include information on	loss and land	water flows from poor	
	their past, present and potential future	clearance	livestock management	
	distribution, as well as		MAF to assist in	
	impacts and possible		establishment of pilot sites	
	actions that can be taken		to trial climate ready plant	
			varieties	
	Conduct education and			
	awareness programmes		MNRE Forestry, DEC and	
	on the impacts of invasive		MAF to collaborate on	
	species		supply of climate resilient	
	Torontono de la Transaction de la Constantion de		crops	
	Implement the Integrated		MNDE MAE J CDCC /	
	Pest Management		MNRE, MAF and SROS to	
	Programme		implement aggressive, nationwide invasive	
	Implement Sustainable			
	Implement Sustainable Land Management (SLM)		species eradication programme based on	
	practices		inventory of invasive	
	practices		species and conduct	
	Build the capacity of		campaign on public	
	farmers to manage stray		awareness accordingly	
	animals (pigs, cattle) that		awar eness accordingly	
	are contaminating water		Village to manage	
	sources		pig/cattle population	
			(compounds, in particular	
	Conduct pilot site trials		around water supplies)	
	for climate ready plant			
	varieties		Training for farmers on	
			pests management	
<u> </u>	i	i .	1 1	1

	District to fence domestic animals Responsibility: Villages /District/ MNRE/MAF/ SROS		particularly affecting fruit trees and crops	
Governance	Best Solutions	Benefits	the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water catchment areas and near boreholes. Collaborate with Sui o Nuu to monitor the use of and impact on 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





Fatausi Village



Datum: WGS 1984

Units: Degree

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

7. Fusi-Fuifatu/Safotulafai Village Interventions

CIM Plan Solutions

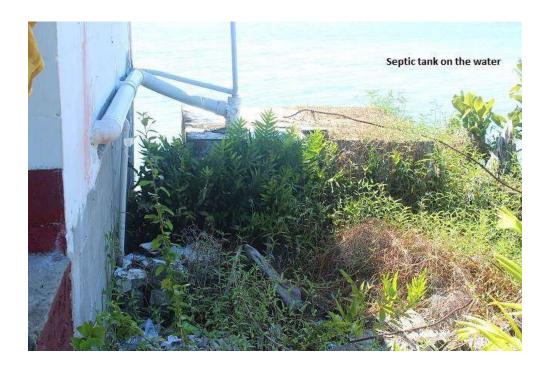
InfrastructureBest SolutionsBenefitsGuideline to assist with the implementationRelevant Sect National Stra PoliciesVillage houses, Churches, School and private residences located in high risk hazard zonesRelocate outside of high risk hazard zones when building/infrastructure requires replacementMinimise expenditure on damaged properties and properties and personal assetsPlanning provisions to be guided by the Planning and Urban Management Act 2004CIM Strategy NESP 2018-2Investments within the bazard zonesInvestments within the hazard zones to adopt appropriate mitigation measuresSafer villages, houses and roadsBuilding Code 2017Increases awareness raising campaign onIncreases awareness for insuranceEncourage insurance of significant investments and assets within hazard zones	2015 2022
Churches, School and private residences located in high risk hazard zones when located in high roses locates and sones located in high roses located in high rose located in high located in high rose located in high rose located in high rose replacement properties and personal assets located in high located in high located in high rose located in high loca	2022
flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop landuse planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility:Village / Families /MWTI/	
MNRE/ MWCSD	
Access Road : Upgrade both Improve Utilise hazard maps and CIM Strategy	2015
upgrade to Safotulafai and Fusi- infrastructure Geomorphologist	
national Fuifatu work roads resilience and Drainage Infrastructure NISP2011 KI	ESO 5
standards movement of residents rate of recovery Database to inform	
and also to access location and designs TSP2014-20	19 Goal 2
evacuation shelter Improve KO 1	
preparedness and Develop an Integrated	
Upgrade to include Flood Management Plan for Community	Sector

	adequate sized culverts to facilitate the overland flow of storm water exacerbating river overruns, and to reduce flooding onto main roads and village lands Implement regular drainage inspection and maintenance Village to restrict rubbish dumping into waterways and conduct regular clearance of rubbish behind homes 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 Responsibility: LTA/MWTI/MNRE/	readiness response to natural disasters Reduce impact from coastal erosion and natural disasters Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	Faasaleleaga2 District. MNRE to develop zonation strategy for safe areas 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, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions Develop and register Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways Utilise Sui o Nu'u monthly meetings to monitor progress of village cleanup and awareness programmes	Plan
Electricity supply	under ground lines in the lo	Maintain electricity supply	Monitor distribution networks to avoid	EPC Strategic Plan
	Install and connect power supply for inland residents Relocateoverheadlinesto amoreresilientlocationw hen being replaced	at all times including natural disasters Avoid accidents from fallen electricity posts	overloading poles and contributing to line failures	
	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			
Natural	Best Solutions	Benefits	Guideline to assist with	Relevant Sector Plans,
Resources &	Dest bolutions	Benefits		National Strategies &
Environment				Policies
Marine reserve	Assess the state of the	Support food	MAF Fisheries to support	NESP 2018-2022
	coral reef and lagoon	security and	implementation and	
	ecosystems in Fusi-	healthy diets	provide technical	
	Fuifatu/Safotulafai		backstopping and	
	whether suitable for	Promotes	monitoring	
	marine reserve	sustainability of		
		fish stocks		
	Conduct awareness			
	programmes of marine	Facilitates coral		
	resources	re-growth and		
		coral reef		
	Responsibility: MAF,	restoration		
Soft coastal	MNRE-DEC/Village	Soft coastal	Develop an integrated	Two Million Tree
protection	Plant native species along coastal areas to	protection	land management plan for	
measures	strengthen existing	measures will	Faasaleleaga 2 district	2015-2020
needed for most	seawall and to reduce	support and	with the aim of reducing	2013-2020
vulnerable areas	coastal erosion and	strengthen	any unnecessary actions	Restoration
valifierable areas	landslips; Talie, Fetau,	existing and new	that may adversely affect	Operational Plan
	Toa, Togatogo are known	infrastructure	the natural habitats and	2016-2020
	to have greater resilience	along the coast	ecosystems of the area	
	to natural disasters and	G		Forestry
	changing climate	Reduce impact	MAF to assist in	Management Act
	conditions	from coastal	establishment of pilot sites	2011
		erosion and	to trial climate ready plant	
	To act as an effective	natural disasters	varieties	
	wave barrier, a			
	minimum distance of 200m of vegetation is	Implements an	MNRE Forestry, DEC and	
	needed	Ecosystem Based	MAF to collaborate on	
	necucu	Approach	supply of climate resilient	
	Responsibility: MNRE/		crops	
	MAF/Villages			
Village Upland	Enforce Watershed	Protects and	Develop Integrated	Two Million Tree
Forest and	Management Riparian	enhance local	Catchment Strategy and	Planting Strategy
Catchment Areas	Zone and Riverbank	species diversity	Flood Management Plan for	2015-2020
	Encroachment Control		Faasaleleaga 2 District.	
	and regulate	Sustains	MNRE to develop zonation	Restoration
	developments around the	ecosystem	strategy for safe areas	Operational Plan
	upland area	services and	Danalas	2016-2020
	Adam fama famatum and	functions	Develop an integrated	Willage Ferra Act
	Adopt agro-forestry and community tree farming	Reduce	land management plan with the aim of reducing	Village Fono Act (Amendment Bill
	practices instead of clear	contamination of	any unnecessary actions	2016)
	felling as is practiced at	water supply	that may adversely affect	2010)
	present	water suppry	the natural habitats and	CIM Strategy 2015
	F- 000	Reduce impact	ecosystems of the area	
	Encourage planting of	from inland		Water and Sanitation
	indigenous species in	flooding	MNRE Forestry to advice	
			· · · · · · · · · · · · · · · · · · ·	

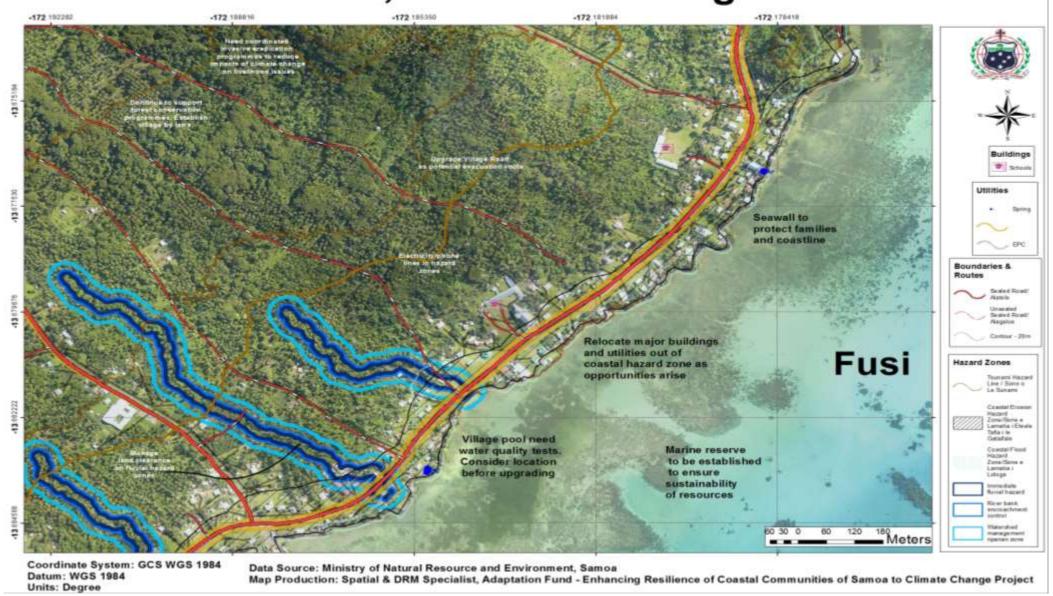
	conjunction with engineered water land drainage action plans Regulate developments around catchment area, SWA intake and boreholes in district Limit land clearance and agricultural development around SWA intake and boreholes Conduct campaign for public awareness and establish a "neighbourhood watch" agreement with district to monitor and report on illegal deforestation District/village to help promote the development of the agroforestry sector by encouraging relevant land use practice and where possible resolve any associated land disputes District to support SWA efforts at exploratory intakes and boreholes in district Fence domestic and invasive animals to protect young trees Responsibility: MNRE/SWA/MWCSD/ District /Village /CSSP	Improve preparedness and readiness response to natural disasters Safer villages, houses and roads	on appropriate species, depth and density of planting and provide seedlings for different vegetation types suitable to the habitats and planting materials for village Develop and register District/Village bylaws to include penalizing illegal deforestation in district lands Utilise Sui o Nu'u monthly meetings to monitor progress of district/village forestry programmes	Sector Plan Community Engagement Plan
Governance	Best Solutions	Benefits	the implementation	Relevant Sector Plans, National Strategies & Policies
Strengthen the governance of natural resources and land use through Bylaws	Update and/or develop bylaws to manage the use of natural resources, and to control land use impacts; such as drainage maintenance, rubbish dumping, sand mining, stray animals and unregulated developments in water	Strengthen implementation of all national sector plans Strengthen monitoring of all National Acts, Regulation, Strategies, Plans	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	Community Sector Plan

T				
	catchment areas and	and Policies	Utilise Sui o Nu'u monthly	
	near boreholes.		meetings to monitor	
		Improve ability of	progress of district/village	
	Collaborate with Sui o	communities to	bylaws	
	Nuu to monitor the use	adapt, respond		
	of and impact on natural	and recover		
	resources	quickly in the		
		long term		
	Facilitate continuous			
	awareness raising	Improve		
	programs with the	accountability		
	villages	and enabling		
		environment of		
	Responsibility: MWCSD	communities		
	/Village			





Fusi-Fuifatu, Safotulafai Villages



8. 'Eveeve/Vaimaga Village Interventions

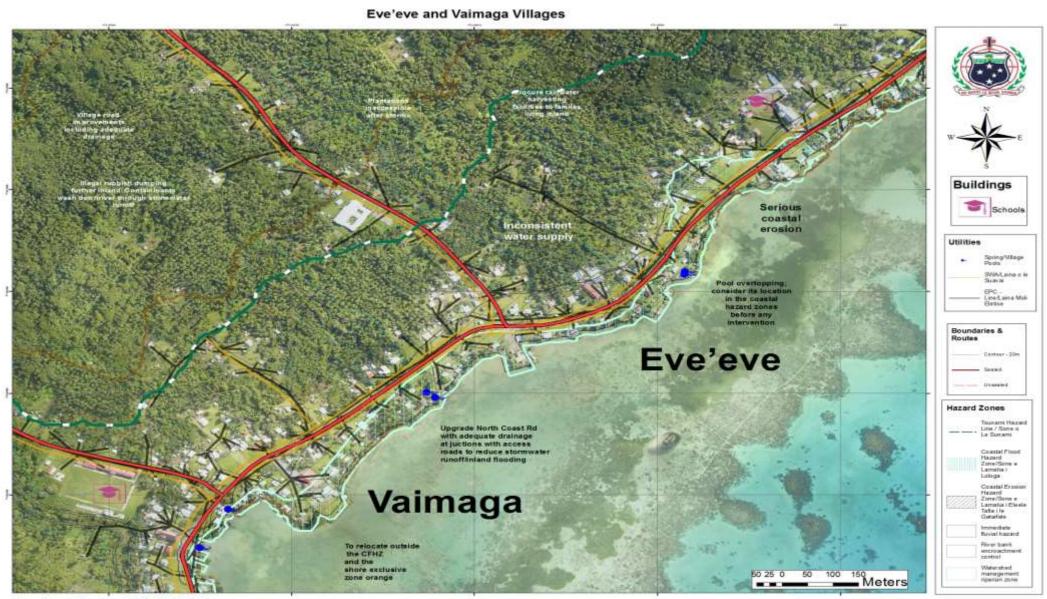
CIM Plan Solutions

Infrastructure	Best Solutions	Benefits	Guideline to assist with the implementation	Relevant Sector Plans, National Strategies & Policies
Access Road :	Upgrade both	Improve	Utilise hazard maps and	CIM Strategy 2015
upgrade to	Eveeve/Vaimaga work	infrastructure	Geomorphologist	
national	roads movement of	resilience and	Drainage Infrastructure	NISP2011 KESO 5
standards	residents and also to	rate of recovery	Database to inform	
	access evacuation shelter	Improve	location and designs	TSP2014-2019 Goal 2 KO 1
	Upgrade to include	preparedness and	Develop an Integrated	
	adequate sized culverts	readiness	Flood Management Plan	Community Sector
	to facilitate the overland	response to	for Faasaleleaga 2	Plan
	flow of storm water exacerbating river	natural disasters	District. MNRE to develop zonation strategy for safe	
	overruns, and to reduce	Reduce impact	areas	
	flooding onto main roads	from coastal		
	and village lands	erosion and	Develop an integrated	
		natural disasters	land management plan	
	Implement regular		with the aim of reducing	
	drainage inspection and	Safer villages,	any unnecessary actions	
	maintenance	houses and roads	that may adversely	
	Williams to us storist multiplials	3.6	affect the natural	
	Village to restrict rubbish	Minimise national	habitats and ecosystems	
	dumping into waterways and conduct regular	disaster recovery	of the area	
	clearance of rubbish	expenditure on damaged	Include in budget	
	behind homes	properties and	programming CBA,	
	bennia nomes	public assets	design and construction	
	Village to regulate	public absets		
	developments near and		Designation of the IFHZ,	
	around road shoulders of		CEHZ and CFHZ as an "at	
	all access roads		risk" zone with	
			appropriate landuse	
	Enforce environmental		planning controls and	
	safeguards where		restrictions	
	reclamations are		Davidan and mariatan	
	proposed. Government		Develop and register Village bylaws to include	
	and district to manage		maintenance of	
	processes by requiring villagers to get the		drainages and illegal	
	appropriate permits and		rubbish dumping into	
	consent		waterways	
	consent		,	
	Responsibility: LTA/		Utilise Sui o Nu'u	
	MWTI/ MNRE/ District/		monthly meetings to	
	Village /Families/CSSP		monitor progress of	
			village cleanup and	
	D . C 1 .	D 0	awareness programmes	
Natural	Best Solutions	Benefits	Guideline to assist	Relevant Sector Plans,
Resources &			with the	National Strategies & Policies
Environment Soft coastal	Plant native species along	Soft coastal	implementation Develop an integrated	Two Million Tree
protection	coastal areas to strengthen	protection	land management plan	Planting Strategy
measures	existing seawall and to	measures will	for Faasaleleaga 2	2015-2020
1116030163	chisting scawan and to	measures will	101 Faasaicicaga 2	2013-2020

		T		
needed for most vulnerable areas	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*	support and strengthen existing and new infrastructure along the coast Reduce impact from coastal erosion and natural disasters Implements an Ecosystem Based Approach	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	Restoration Operational Plan 2016-2020 Forestry Management Act 2011
Village pool	Village pool is currently in a	Increase	Utilise Hazard Maps and	CIM Strategy 2015
located in high	poor location with an assessment needed for options to either rejuvenate or find a new site	adaptation during drought periods Improve health	Geomorphologist findings for planning purposes MNRE Water &	Water and Sanitation Sector Plan
from fluvial inundation, wave impacts and	depending on the location of springs	and sanitation Reduce	Sanitation to conduct water testing and analysis of village pool	Community Engagement Plan
storm surges)	Test the quality of the water source before any further investment on the pool is undertaken (eg:	contamination of water supply	prior to any intervention	Village Fono Act (Amendment Bill 2016)
	fence/repair works)		Update Village bylaws to include managing	
	Responsibility: CSSP/ NGOs/MNRE/Villages		and maintaining village natural resources	
			Utilise Sui o Nu'u monthly meetings to monitor progress of village	
			programmes and responsibilities	
Livelihood and	Best Solutions	Benefits	Guideline to assist	Relevant Sector Plans,
Food Security			with the implementation	National Strategies & Policies
Food security: threatened by changes in	Promote agro-forestry and mixed planting including fruit trees	Maintains natural ecosystem	MAFtoprovidetrainings, awareness raising and support in supply of	AgricultureSectorPlan 2016-2021
climate and inadequate soil for planting	species to reduce crop vulnerability to pests and diseases	Builds resilience of community livelihood and	nursery trees, technology and infrastructure	Community Engagement Plan
	Implement the Integrated Pest Management	food security Improve	MAF to provide trainings and awareness	Two Million Tree Strategy 2015-2020
	Programme	preparedness and readiness	oncropdiversificationto suit	Restoration Operational Plan
	Implement Sustainable Land Management (SLM) practices	response to natural disasters	theprolongedimpactsof climatechange suchas droughtor rainyseasons	2016-2020
	Replanting of native forestry species of the		MAF to assist in establishment of pilot sites to trial climate	

	upland forests to restore resilience and ecological function Conduct pilot site trials for climate ready plant varieties Responsibility: MAF/MNRE/villages/CSSP		ready plant varieties 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	
Governance	Best Solutions	Benefits	with the	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

Eveeve/Vaimaga 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

9. Sapapali'i Village Interventions

CIM Plan Solutions

CIM Plan Solut				1
Infrastructure	Best Solutions	Benefits	Guideline to assist with the	Relevant Sector Plans, National Strategies &
			implementation	Policies
Village houses,	Relocate outside of high	Minimise	Develop an Integrated	National Building
school, tourist	risk hazard zones when	expenditure on	Catchment and Flood	Code
facilities,	building/infrastructure	damaged	Management Strategy	douc
churches and	requires replacement	properties &	for Faasaleleaga 2	CIM Strategy 2015
other village	requires replacement	personal assets	District. MNRE to	diri strategy 2015
assets located in	Investments within the	P	develop zonation	
high risk hazard	hazard zones to adopt	Mitigate potential	strategy for safe areas	
zones	appropriate mitigation	damage from		
	measures	coastal erosion and	Utilise hazard maps and	
		flooding	Geomorphologist	
	Conduct awareness	accommodating	Drainage Infrastructure	
	raising campaign on	the hazard	Database to inform	
	flood resilient building		designs	
	practices and designs	Improve recovery		
	for at risk communities	to create more	Enforcement of	
	living in and near high	resilient villages	National Building Code	
	risk hazard zones		2017	
		Improve		
	Design infrastructure to	preparedness and	Encourage insurance of	
	take into account the	readiness response	significant investments	
	immediate hazard	to natural disasters	and assets within	
	zones; for example,		hazard zones	
	raise floor levels of	Safer villages,		
	houses in flood prone	houses and roads	Designation of the	
	areas		IFHZ, CEHZ and CFHZ	
			as an "at risk" zone	
	Develop landuse		with appropriate	
	planning and		landuse planning	
	development controls to		controls and	
	restrict developments		restrictions	
	within high risk hazard			
	zones such as CEHZ and			
	CFHZ			
	Families and village to			
	limit building and			
	developing on natural			
	overland flow paths			
	exacerbating inland			
	flooding and storm			
	water surges			
	D			
	Responsibility: Village			
	/ Families /MWTI/			
	MNRE			

C +1'	A C :1:1:4 C	T	D1	CIM Charles 2015
Coastline protection at	Assess feasibility of constructing a seawall in	Improve infrastructure	Develop and register Sapapali'i /Village	CIM Strategy 2015
most vulnerable	area where village pool	resilience and rate	bylaws to strengthen	Community
area	is located	of recovery	maintenance and	Engagement Plan
		,	regular inspections of	0 0
	Research the impacts of	Maintains	seawalls	NESP 2018-2022
	sand mining	natural	Table Colonia	D 6 6 4 D
	Village congultation on	ecosystem	Utilise Sui o Nu'u	Draft Soil Resource
	Village consultation on sand mining policy and	connectivity	monthly meetings to monitor progress of	Management Bill
	regulation	Reduce impact	village inspections	
		from coastal	and maintenance of	
	Assess and strengthen	erosion	seawalls	
	part of seawalls in	Cafanaillagas		
	relevant areas to reduce	Safer villages, houses and roads		
	vulnerability of road and other critical assets	nouses and roads		
	in accordance with	Minimise		
	Vulnerability Assessment	expenditure on		
	of the Samoa Road	damaged		
	Network	properties & personal assets		
	recommendations	personal assets		
	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			
	D			
	Responsibility: MNRE/ Village /Families/			
	CSSP/MWTI			
Flood protection	Upgrade waterways	Minimise	Conduct a full	CIM Strategy 2015
measures for		expenditure on	catchment	
fords and bridges	Upgrade all crossings	damaged	management,	NISP2011 KESO 5
	Upgrade or repair	properties & personal assets	drainage analysis and geotechnical	TSP2014-2019 Goal 2
	riverine embankment	personal assets	engineering survey	KO 1
	protection work	Mitigate potential	and use its	
	upstream of Sapapali'i	damage from	recommendations to	NESP 2018-2022
	Enguno missos als	inland flooding	inform location and	
	Ensure river channel upstream is cleared	Reduce flooding of	designs	
	and maintained	built up areas	Implement Faasaleleaga	
	regularly	•	2 Integrated Catchment	
		Safer villages,	Strategy and Flood	
	Construct levees to	houses and roads	Management Plan in	
	reduce flooding along estuaries and coastal		conjunction with hazard Maps and	
	streams		Geomorphologist	
			Drainage Infrastructure	
	Encourage planting of		Database to inform	
	indigenous species in		location and designs	
	conjunction with			

1	engineered water land		Utilise environmental	
	drainage action plans		and social safeguards	
			including EIAs in	
	Install advisory edge		screening and	
	markers and depth		designing	
	markers to warn		infrastructure facilities	
	vehicle and pedestrians			
	at all crossings		Include in budget	
	at all crossings		programming CBA,	
	Government and		design and	
			construction. Bridge	
	Villages to liaise and collaborate on		and road designs to	
			take account of forecast	
1 1	processes needed to		changes in sea level rise	
1	protect riverbanks from		and local flooding from	
	land clearing and		increased rainfall	
'	developments			
			intensity	
	Responsibility: MWTI/		MNRE to zone hazard	
	LTA/MNRE/ District/		areas along major	
	Village		watercourses based on	
			flood risk to provide	
			suitable areas for	
			riparian revegetation	
			Designation of the CEU7	
			Designation of the CEHZ and CFHZ as an "at risk"	
			zone with appropriate	
			landuse planning	
			controls and	
			restrictions	
	Best Solutions	Benefits		Relevant Sector Plans,
Resources &				National Strategies &
Environment				Policies
		Soft coastal	MNRE DEC to provide	NESP 2018-2022
	agricultural	protection	technical assistance and	
	developments around	measures will	backstopping in the	Community
	mangrove areas	support and	development of a	Engagement Plan
		strengthen	Mangrove Management	
	Continue to	existing and new	Plan for Fa'asaleleaga 2	
1	plantmangroves and	infrastructure	District	
	other native species	along the coast		
	along coastal areas to		Develop an integrated	
	reduce coastal erosion	Reduce impact from	land management plan	
	and landslips	coastal erosion and	for Faasaleleaga 2	
	TI CC ··	natural disasters	district with the aim of	
	To act as an effective		reducing any	
	wave barrier, a minimum	Implements an	unnecessary actions	
	distance of 200m of	Ecosystem Based	that may adversely	
	vegetation is needed	Approach	affect the natural	
	Villago to force - cc	* *	habitats and	
	Village to fence off	Reduce impact from	ecosystems of the area	
1	domestic animals	inland flooding	y	
	damaging mangrove		MAF to assist in	
	areas			
	areas		establishment of pilot	

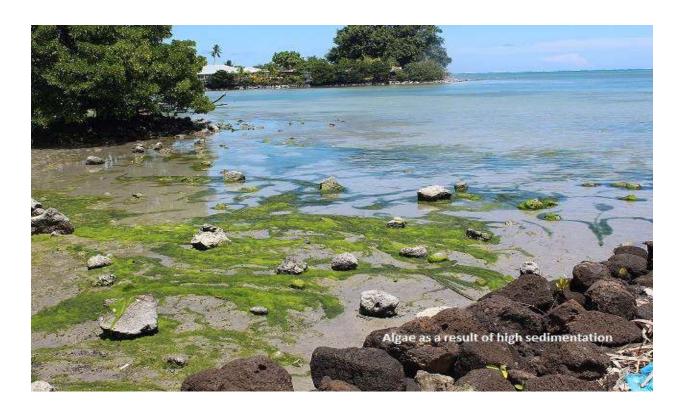
	C 'I /CCCD / INIDD			
	Council/CSSP/ UNDP- GEF SGP			
Flood protection measures (soft solution to support hard infrastructural intervention)	Conduct riparian replanting along river channels and watercourses Encourage planting of indigenous species in conjunction with engineered water land drainage action plans Responsibility: MNRE/Villages	Mitigate potential damage from inland flooding Reduce flooding of built up areas Safer villages, houses and roads	Implement Faasaleleaga 2 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	Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016-2020
Livelihood and Food Security	Best Solutions	Benefits	with the	Relevant Sector Plans, National Strategies & Policies
Food security: threatened by changes in climate and inadequate soil for planting	Promote agro-forestry and mixed planting including fruit trees species to reduce crop vulnerability to pests and diseases Implement the Integrated Pest Management Programme Implement Sustainable Land Management (SLM) practices Replanting of native forestry species of the upland forests to restore resilience and ecological function Conduct pilot site trials for climate ready plant varieties Responsibility: MAF/MNRE/villages/CSSP	Maintains natural ecosystem Builds resilience of community livelihood and food security Improve preparedness and readiness response to natural disasters	MAFtoprovidetraining s, awareness raising and support in supply of nursery trees, technology and infrastructure MAF to provide trainings and awareness oncropdiversificationt o suit theprolongedimpactsof climatechange suchas droughtor rainyseasons MAF to assist in establishment of pilot sites to trial climate ready plant varieties 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	AgricultureSectorPlan 2016-2021 Community Engagement Plan Two Million Tree Strategy 2015-2020 Restoration Operational Plan 2016-2020

			provide seedlings for different vegetation types suitable to the	
			habitats and planting materials for village	
Governance	Best Solutions	Benefits	Guideline to assist	Relevant Sector Plans,
			with the	National Strategies &
0: 1 1	77 1 . 1/ 1 1	C: -1	implementation	Policies
Strengthen the governance of	Update and/or develop bylaws to manage the	Strengthen implementation of	Develop and register district/village bylaw	Village Fono Act (Amendment Bill
natural	use of natural	all national sector	to protect all district/	2016)
resources and	resources, and to	plans	village and	2010)
land use through		prano	government assets,	Community Sector
Bylaws	impacts; such as	Strengthen	environment,	Plan
	drainage maintenance,	monitoring of all	livelihood and food	
	rubbish dumping, sand	National Acts,	security especially	Community
	mining, stray animals	Regulation,	activities affecting	Development Plan
	and unregulated	Strategies, Plans	water catchment areas	2016-2021
	developments in water catchment areas and	and Policies	and coastline	
	near boreholes.	Improve ability of	Utilise Sui o Nu'u	
	near borenoies.	communities to	monthly meetings to	
	Collaborate with Sui o	adapt, respond and	monitor progress of	
	Nuu to monitor the use	recover quickly in	district/village bylaws	
	of and impact on	the long term		
	natural resources			
	T 110	Improve		
	Facilitate continuous	accountability and		
	awareness raising programs with the	enabling environment of		
	villages	communities		
	, mages			
	Responsibility: MWCSD /Village			

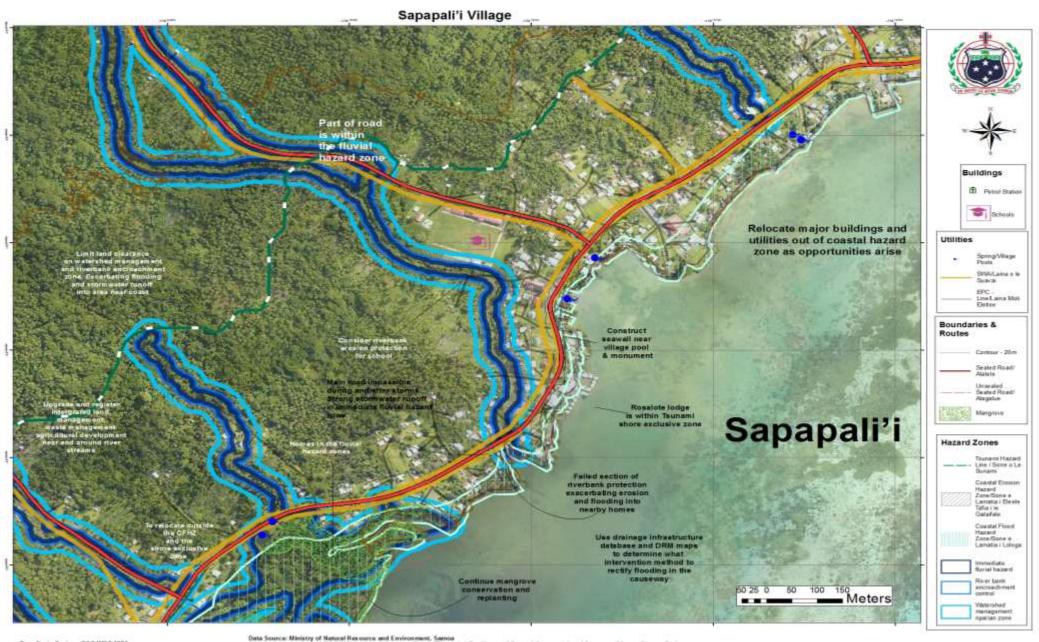
Non-CR issues raised during consultations	Proposed Solution	Comments
School Responsibility: Village/MESC	Upgrade Sapapalii Primary School to mitigate against potential damages from extreme events	Non CR issue. School also sits directly in fluvial hazard zone. Location to be considered before any upgrade is implemented







Sapapalii Village Map



10. Tapu'ele'ele Village Interventions

CIM Plan Solutions

CIM Plan Solut				
Infrastructure	Best Solutions	Benefits	the implementation	Relevant Sector Plans, National Strategies & Policies
Village houses, school, churches and other village assets located in high risk hazard zones	Relocate outside of high risk hazard zones when building/infrastructure requires replacement Investments within the hazard zones to adopt appropriate mitigation measures Conduct awareness raising campaign on flood resilient building practices and designs for at risk communities living in and near high risk hazard zones Design infrastructure to take into account the immediate hazard zones; for example, raise floor levels of houses in flood prone areas Develop landuse planning and development controls to restrict developments within high risk hazard zones such as CEHZ and CFHZ Families and village to limit building and developing on natural overland flow paths exacerbating inland flooding and storm water surges Responsibility: Village / Families / MWTI / MNRE	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from coastal erosion and flooding accommodating the hazard Improve recovery to create more resilient villages Improve preparedness and readiness response to natural disasters Safer villages, houses and roads	Develop an Integrated Catchment and Flood Management Strategy for Faasaleleaga 2 District. MNRE to develop zonation strategy for safe areas Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform designs Enforcement of National Building Code 2017 Encourage insurance of significant investments and assets within hazard zones Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions	National Building Code CIM Strategy 2015
Upgrade access/ work roads to reduce storm water overflow	Upgrade Tapueleele Access Road to facilitate the overland flow of storm water and reduce flooding onto main South East Coast	Improve infrastructure resilience and rate of recovery	Utilise hazard maps and Geomorphologist Drainage Infrastructure Database to inform location and designs	CIM Strategy 2015 NISP2011 KESO 5 TSP2014-2019 Goal
	road and further downhill into neighbouring villages	Improve preparedness and readiness	Develop an Integrated Flood Management Plan for	2 KO 1 Community Sector

	Upgrade to include adequate sized culverts to facilitate the overland flow of storm water exacerbating river overruns, and to reduce flooding onto main roads and village lands Implement regular drainage inspection and maintenance Village to restrict rubbish dumping into waterways and conduct regular clearance of rubbish behind homes 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 Responsibility: LTA/MWTI/MNRE/District/Village/Families/CSSP	response to natural disasters Reduce impact from coastal erosion and natural disasters Safer villages, houses and roads Minimise national disaster recovery expenditure on damaged properties and public assets	Faasaleleaga 2District. MNRE to develop zonation strategy for safe areas 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. Road design standard to take account of forecast increased rainfall intensity Designation of the IFHZ, CEHZ and CFHZ as an "at risk" zone with appropriate landuse planning controls and restrictions Develop and register Village bylaws to include maintenance of drainages and illegal rubbish dumping into waterways Utilise Sui o Nu'u monthly meetings to monitor progress of village cleanup and awareness	Plan
Flood protection measures for fords and bridges	Upgrade waterways Upgrade Tapueleele causeway Upgrade or repair riverine embankment protection work upstream Ensure river channel upstream is cleared and maintained regularly Construct levees to reduce flooding along estuaries and coastal streams Encourage planting of indigenous species in	Minimise expenditure on damaged properties & personal assets Mitigate potential damage from inland flooding Reduce flooding of built up areas 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 Faasaleleaga 2 Integrated Catchment Strategy and Flood Management Plan in conjunction with hazard Maps and Geomorphologist Drainage Infrastructure Database to inform location and designs Utilise environmental and social safeguards	CIM Strategy 2015 NISP2011 KESO 5 TSP2014-2019 Goal 2 KO 1 NESP 2018-2022

	conjunction with		including EIAs in	
	engineered water land		screening and designing	
	drainage action plans		infrastructure facilities	
	Install advisory edge		Include in budget	
	markers and depth		programming CBA, design	
			and construction	
	markers to warn vehicle		and constituction	
	and pedestrians at all		MNRE to zone hazard	
	crossings		areas along major	
			watercourses based on	
	Government and Villages			
	to liaise and collaborate on		flood risk to provide	
	processes needed to		suitable areas for riparian	
	protect riverbanks from		revegetation	
	land clearing and			
	developments		Designation of the CEHZ	
	developments		and CFHZ as an "at risk"	
	D		zone with appropriate	
	Responsibility: MWTI/		landuse planning controls	
	LTA/MNRE/ District/		and restrictions	
	Village			
Water tank	Construct a large storage	Increase	UtiliseHzard Maps and	Community Sector
storage facility	tank for the village at a high	adaptation during	Infrastructure Drainage	Plan
	level that will be filled as	drought periods	Database to inform	
	required using powered		location and design	CIM Strategy 2015
	pumps and from which the	Improve health	S	
	village can be gravity fed	and sanitation	Utilize the environmental	
	vinage can be gravity fea	and sameation	and social safeguards	
	Extendthewatersupplytof		including EIAs in screening	
	amiliesinlandwithnoacces			
	stowater		and designing	
	Stowater		infrastructure facilities	
	Procure rainwater			
	harvesting systems for			
	vulnerable families as a			
	short term solution			
	D			
	Responsibility:Village/			
	CSSP/NGOs	- a		5.1
Natural Resources	Best Solutions	Benefits	Guideline to assist with	Relevant Sector
& Environment			the implementation	Plans, National
				Strategies & Policies
Flood protection	Conduct riparian	Mitigate potential	Implement Faasaleleaga 2	Two Million Tree
measures (soft	replanting along river	damage from	Integrated Catchment	Strategy 2015-2020
solution to support	channels and	inland flooding	Strategy and Flood	
hard infrastructural			Management Plan in	Restoration
intervention)		Reduce flooding	conjunction with hazard	Operational Plan
	Encourage planting of	of built up areas	Maps and Geomorphologist	2016-2020
	indigenous species in	or built up areas	Drainage Infrastructure	2010 2020
		Caforrillages		
	conjunction with	Safer villages,	Database to inform location	
	engineered water land	houses and roads	and designs	
	drainage action plans			
			MNRE to zone hazard	
	Responsibility: MNRE/		areas along major	
	Villages		watercourses based on	
			flood risk to provide	
			suitable areas for riparian	
			revegetation	
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Illegal rubbish	Government to monitor	Improve health	Utilise Waste Management	National Waste
dumping	rubbish collection	and sanitation	Act/Legislation to guide	Management Strategy
	contractors and individuals		process of effecting the	5
	dumping rubbish in	Reduce leachate	'polluter pays' principle	National Waste
	Tapueleele lands	into environment	Davidon and register	Management Policy
	Produce posters and village	and water supply	Develop and register District/Village bylaws to	NESP 2018-2022
		Reduce	include penalizing illegal	NEST ZOTO ZOZZ
		contaminant from	rubbish dumping in	
	Introduce ban on illegal	overland flooding	district lands	
	1 0	entering sea	Helia Cai a Nada aa aa klala	
	especially around fluvial hazard zones		Utilise Sui o Nu'u monthly meetings to monitor	
	nazaru zones		progress of village	
	Conduct campaign for		programmes on waste	
	public awareness of district		management	
	ban and establish a			
	"neighbourhood watch" agreement with district to			
	monitor and report on			
	illegal dumping activities			
	Government, district and			
	villages to monitor, report and apply penalty on			
	offenders			
	Responsibility: MNRE/			
District Helen d	District/ Village	Doortoot on d	Danilar Introducts I	Total Millian Total
District Upland Forest and	Enforce Watershed Management Riparian Zone	Protects and enhance local	Develop Integrated Catchment Strategy and	Two Million Tree Planting Strategy
Catchment Areas	and Riverbank	species diversity	Flood Management Plan for	2015-2020
	Encroachment Control and	- F	Faasaleleaga 2 District.	
	regulate developments	Sustains	MNRE to develop zonation	Restoration
	around the upland area	ecosystem	strategy for safe areas	Operational Plan
	Regulate developments	services and functions	Develop an integrated	2016-2020
	around catchment area,	ranctions	land management plan	Village Fono Act
	SWA intake and boreholes	Reduce	with the aim of reducing	(Amendment Bill
	in district	contamination of	any unnecessary actions	2016)
	Limit land clearance and	water supply	that may adversely affect the natural habitats and	CIM Strategy 2015
	agricultural development	Improve	ecosystems of the area	on strategy 2010
	around SWA intake and	preparedness and	occoporation of the area	Water and
	boreholes	readiness response		Sanitation Sector
	Conduct campaign for	to natural disasters		Plan
	public awareness and		depth and density of planting and provide	Community
	establish a		seedlings for different	Engagement Plan
	"neighbourhood watch"		vegetation types suitable	
	agreement with district to monitor and report on		to the habitats and	
	illegal deforestation		planting materials for	
			village	
			Develop and register	
	Responsibility: MNRE/			
			District/Village bylaws to	
	SWA/MWCSD/ District /Village /CSSP		include penalizing illegal deforestation in district	

			lands	
			Utilise Sui o Nu'u monthly meetings to monitor progress of district/village forestry programmes	
Sand mining	Continue ban on sand mining Research on the impacts of sand mining Village consultation on sand mining policy and regulation Responsibility: MNRE/ Village	Mitigatepotentiald amage fromcoastalerosio n and floodingaccommo datingthehazard Safer villages, houses and roads Reduce impact from coastal erosion Economic benefit for villagefrom sustainable sandminingactivi ties		Draft Soil Resource Management Bill
Protect and upgrade Aga o le Pe'a Village pool as an alternative water supply for inland residents	Test the quality of the water source before any investment on the pool is undertaken (eg: fence/repair works) Responsibility: CSSP/ NGOs/MNRE/Village	Increase adaptation during drought periods Improve health and sanitation Reduce contamination of water supply	Utilise Hazard Maps and Geomorphologist findings to inform location and design MNRE Water & Sanitation to conduct water testing and analysis of village pool prior to any intervention Update Village bylaws to include managing and maintaining village natural resources	CIM Strategy 2015 Water and Sanitation Sector Plan Community Engagement Plan
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	_	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	Village Fono Act (Amendment Bill 2016) Community Sector Plan Community Development Plan 2016-2021
	and near boreholes	Strategies, Plans and Policies Improve ability of	Utilise Sui o Nu'u monthly meetings to monitor progress of district/village	2010-2021

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to monitor the use of and	communities to	bylaws	
impact on natural	adapt, respond		
resources	and recover		
Facilitate continuous	quickly in the		
awareness raising	long term		
programs with the villages			
	Improve		
Responsibility: MWCSD	accountability		
/Village	and enabling		
	environment of		
	communities		

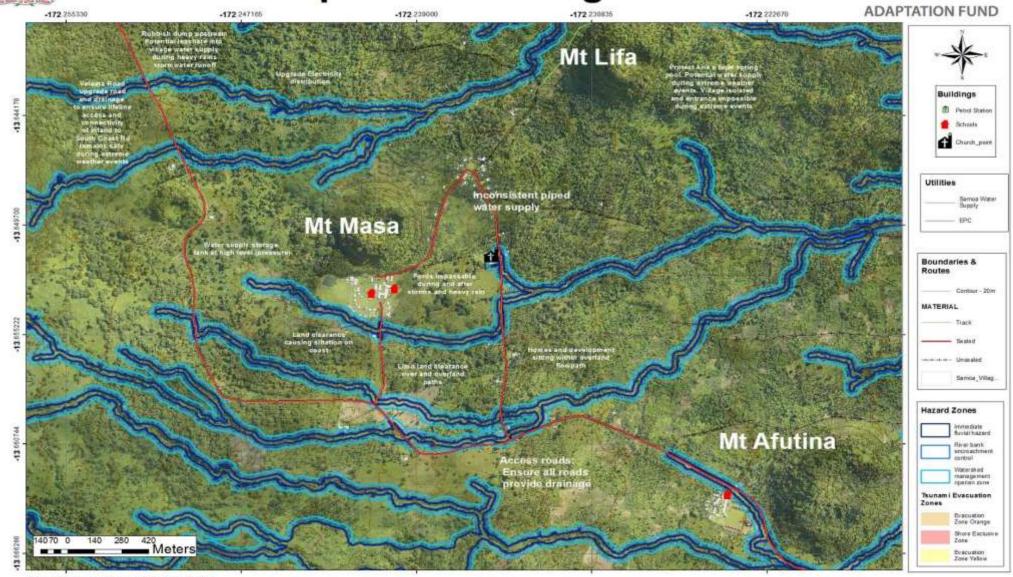






Tapuele'ele Village





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

Savaii AF Districts Overview Map of Coastal Inundation Zones

